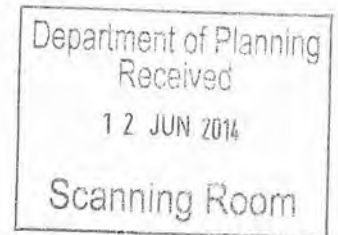


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7th June 2014



Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001



Dear Sir/Madam,

**Submission as an objection – Centennial Coal - Angus Place Colliery PA06_0021
Modification 4 Pre-emptive development of road ways and headings for longwalls 1001
and 1003**

- The Modification 4 proposal should either be refused or its determination deferred until the major mine extension for Angus Place (SSD5602) is accessed and determined by the Planning Assessment Commission.
- - This small amount of proposed mining is not needed for continuity of operations at Angus Place, and I oppose this proposal as it pre-empts decision making for the major mine extension proposal under assessment (i.e. SSD5602).
- - Centennial Coal advertised this minor Modification during the exhibition for the major mine extension causing confusion and to be fair all the submissions to Modification 4 and SSD5602 proposals must be considered in relation to both these proposals.
- - Centennial Coal must not be allowed consent for Modification 4 over an area where first workings have already been sought and approved last year in a restricted manner that did not pre-empt decisions on the major extension by the Planning Assessment Commission.
- - The proposed first workings being applied for under Modification 4 set up longwall mining of panels 1001 and 1003 that are wider than those previously approved and will lead to more environmental damage in the sensitive Carne Creek catchment than was caused in the Wolgan River catchment.
- - Centennial Coal is manipulating the planning system to gain a tactical benefit, namely to set the width of the longwalls as a precedent in the sensitive area proposed for future mining under SSD 5602 before the Planning Assessment Commission as considered the major extension proposal.
- - Centennial Coal is attempting to "lock in" the position of regulatory authorities regarding damaging mining in this sensitive Carne Creek area before the Planning

Assessment Commission has decided the matter.

- - Carne Creek is currently in a pristine state, and its waters that flow through the Greater Blue Mountains World Heritage Area are of the highest standard.
- - Carne creek must not run bright orange or suffer reduced flows, just like the Wolgan River after Centennial Coal wrecked it.
-

I wish to object to the above proposal in its entirety. In support of my objection, I am enclosing copies of extensive texts, The Gardens of Stone National Park and beyond, Books 6 and 7 in production, that I and my co –author Brian Fox have written regarding this World Heritage sensitive geo diverse and bio diverse area. This application should be thrown out and the Newnes Plateau area immediately gazetted as a part of the Gardens of Stone National Park as per the Colong Foundation for Wilderness Stage 2 proposal.

This application encompasses a significant and sensitive land area of the Newnes Plateau, an area which has been identified as rich in rare and endangered species and also the location of many thousands of irreplaceable platy and smooth pagodas, a landform unique in the world. Far from being destroyed to produce carcinogenic products caused by and derived from coal mining, this area should be immediately added to the Gardens of Stone National Park. Funds should be invested to open this area to tourism, which is equal to if not greater in potential as a long term draw card than the Katoomba Leura complex.

As a city, Lithgow has reinvented itself many times and it is quite capable of doing it one more time as a tourism hub, giving its citizens an improved quality of life and employment opportunities way beyond the short term prospects derived from the mining of coal.

As documented and demonstrated in the detailed attachments to this submission there are untold walking opportunities with visual and aesthetic experiences that await the walker/adventurer. With appropriate investment in tracks and signage, the encouragement of hoteliers and tourist operators there would be days of scintillating and adrenalin pumping opportunities that would make this area a Mecca for domestic and overseas visitors. The economic benefits would be at least comparable to those of Katoomba and Leura that were recently estimated to be worth \$70 million per annum. There would be real stimulus to small business and ongoing investment in both Lithgow and also the surrounding smaller settlements. Opportunities for the local Aboriginal people to benefit in a positive way as tour guides to take visitors to the many art sites is a further plus.

On coal mining in the area generally the following material is relevant. The Sydney Basin is both blessed and cursed with bounty. It is blessed with some of the world's finest sandstone landforms, some of which are now protected by National Parks, however successive state and federal governments have failed miserably to listen to reason and to protect the choicest places because of bounty of a different kind – coal.

Coal, via the conduit of royalty payments is the economic saviour of NSW and as such any 'request' of the coal industry for access to this black gold overrides any reasoned argument to protect irreplaceable heritage. The reason that the original proposal for the Wollemi National Park excluded the areas now under threat was at the 'request' of the mining industry. The reality is it was no 'request' it was, and is, blackmail.

The 'black bounty' underlies the entire Sydney Basin in a sequence of seams of varying quality and thickness. A sad thing is that the cheapest points of access to this 'bounty' are at the edges of the Basin where it is closest to the surface. This same selvedge is where pagodas have developed their most advanced forms.

The Colong Foundation for Wilderness have mounted cogent argument and presented an irrefutable case for sanity to prevail. Set out below is an extract of part of that argument.

"The Katoomba and Lithgow Coal Seams under the State Conservation Area proposal have been subject to underground mining for more than 120 years. An advantage of underground mining is that the associated surface works, such as ventilation fans, can be located away from the more environmentally sensitive areas. In practice, however, the location of dams, pumping stations, power lines, water pipes and numerous roads within the proposal area have tended to be hastily considered with little thought given to minimising the cumulative impacts of successive infrastructure installations. Some recent efforts have been made by Centennial Coal to locate new infrastructure within existing road easements, which has partly reduced the impacts. Unfortunately, these efforts to protect the environment have in part been negated by the construction of an effluent diversion pipeline through an endangered Newnes Plateau Shrub Swamp.

The problems associated with coal mining include:

- i. Mine access roads and utility easements that fragment bushland, encourage inappropriate off road vehicle use and facilitate weed infestation and foraging by feral animals.*
- ii. Soil erosion associated with mine operations and road construction, and soil slumping associated with subsidence of the land surface when the coal seam is extracted. Mine subsidence occurs when the rock strata above the colliery collapse into the void created when the coal is removed. In the Newnes Plateau area, surface subsidence can be up to two metres, but is typically in the order of one metre.*
- iii. Cliff collapse: surface subsidence can be associated with rock fracturing, which, when it occurs near cliff lines, induces cliff collapse and rock falls. Cracks can also transgress prominent physiographic features, such as pagodas, woodlands, heath and swamps. Such damage is capable of degrading the visual quality and ecological function of the landscape.*
- iv. Changes to the water table, particularly but not solely in the context of endangered upland swamps and natural springs, can cause dieback of native vegetation and subsequent loss of wildlife. The swamps can dry out and sustain serious gully erosion and be destroyed entirely, if the peaty soil burns during the next bushfire event. Establishing protection zones in key areas, including all streams and the high altitude shrub-swamps of Newnes Plateau, will reduce damage to the groundwater table. This is particularly important as these peat swamps make a fundamental contribution to the Wolgan River and its tributaries, sustaining the river during dry periods.*

Under the Threatened Species Act, 1995 the NSW Scientific Committee has listed long wall mining as a Key Threatening Process to threatened species and communities (Hughes, L. 2005(a)). Such mining has contributed to adverse effects on the Newnes Plateau upland swamps, which have been recently listed as Endangered Ecological Communities (Hughes, L 2005(b)). The adverse effects of long wall mining are best documented for swamps on the Woronora Plateau (Gibbens, 2003), that are functionally similar to those on Newnes Plateau and likely to be affected by the same adverse influences.

- v. *Dissolved and filterable salts of manganese and iron are present in waters pumped from the collieries within the park proposal. Oxidation of the effluent water by biological agents causes anoxic conditions for some distance downstream from the discharge points. Pollution of pristine streams, such as the Wolgan and Wollongambe Rivers and Bungleboori Creek is abhorrent and should be totally avoided. Mining operations currently extract about 28 ML of water per day from the groundwater resources of Newnes Plateau. This effluent water is now being diverted by Centennial Coal into the Coss River catchment for storage in Lake Lyell and Lake Wallace. There is concern that this level of pumping will, over the protracted life of mining operations, compromise streams running from Newnes Plateau into Sydney's water supply catchment and the World Heritage Area, perhaps even to the extent that they cease flowing except after heavy rain. Should this eventuate, wholly or in part, many Newnes Plateau Shrub Swamps will die. It is unfortunate that this valuable groundwater resource is to be wasted as coolant in the coal fired Mount Piper and Wallerawang power stations. The State Government has yet to apply more stringent water conservation measures to the power industry.*

vi. *Appropriate regulation of coal mining operations. By having regard to conservation of the area's natural and cultural values, coal mining operations can minimise their impacts on the proposed State Conservation Area. Despite nearly all the proposed State Conservation Area being subject to coal mining leases or interests, it is possible to reserve it to a depth restriction under section 30G of the National Parks and Wildlife Act 1974. Section 47H of the same Act provides that a state conservation area does not affect "the terms and conditions of any existing interest in respect from those lands from the Crown: or the use permitted of those lands under the interest". The recently introduced coalmine subsidence management planning process should ensure that the values of the Gardens of Stone area are protected for future generations. Under subsidence management, plans upland swamps, pagodas and cliff lines all qualify for protection from mine subsidence. Protection zones require parts of the coal seam to be retained to ensure that the surface environment does not experience environmentally unacceptable subsidence during mining operations. Using the subsidence management planning process, protection zones should be extended to apply to streams within coal leases to ensure that aquatic environments and their dependent wildlife are not destroyed. Areas requiring priority protection include Cape Horn to Mount McLean, an extremely scenic but remote watershed running off the Great Dividing Range, and the Baal Bone Creek*

headwaters, both in Wolgan State Forest. Similarly, the outstanding scenic beauty of the cliffs and pagodas, and the important cultural heritage of the oil shale ruins should make Mount Airly a heavily constrained area for mining, with extensive protection zones. The best mining method for Mount Airly would be partial extraction by board and pillar methods, as adopted at the Clarence Colliery. This mining method has protected Goochs Crater from damage by limiting surface movement to three centimetres.

Pollution licencing by the Environment Protection Authority and selection of the appropriate discharge points can prevent damage to pristine rivers. Clarence Colliery has established an upgraded water treatment plant for mine water so that iron and manganese are removed before discharge. Recently these discharges have been directed to Farmers Creek and should be used to improve environmental flows for the upper Cocks River rather than to enhance water supplies for power generation. The water from the Springvale Colliery is also being transferred from the mine pit to the Cocks River catchment but without adequate treatment. The in-ground placement of the waste water transfer pipe from the Springvale mine should minimise visual and wildlife impacts; however, pipeline construction has damaged sensitive upland swamps and woodland communities."

A more historic document, but nonetheless a relevant one is important for consideration by this inquiry. It relates to a 6000 Megawatt Power Station and associated Coal mine proposed for the Newnes Plateau.

Researching for information about this proposal has been a challenge. It would appear from various source documents¹ that the proposal was in two distinct parts. One part, relates to a joint proposal by then Electricity Commission of NSW, and a Japanese based consortium headed by Taiheiyo Coal Mining Company Ltd to develop a large

¹ Report on Item 10, Services Plans of Birds Rock Colliery Feasibility Study Stage 2. Contributors: Sinclair, Knight & Partners, Electricity Commission of New South Wales, Taiheiyo Coal Mining Company Ltd, Birds Rock Colliery, Taiheiyo Coal Mining Company. Publisher: Sinclair, Knight & Partners, 1980 Includes: folded plans, maps.

Electricity Commission of New South Wales, Taiheiyo Coal Mining Company Ltd, Birds Rock Colliery, Environmental Impact Statement, c. 1981, Includes: folded plans, maps.

Birds Rock Colliery Pty Ltd, Birds Rock Colliery, Environmental Impact Statement, January 1981.

An inquiry pursuant to section 119 of the Environmental Planning and Assessment Act, 1979 into a development application, Birds Rock Colliery, an underground coal mine near Birds Rock on the Newnes Plateau, NSW, Mr John Woodward, Chairman and Dr Alan Gilpin, Commissioners of Inquiry March, 1982.

Electricity Commission of NSW Taiheiyo Coal Mining Company Title Appendix B, Report on Item 10, Services Plans of Birds Rock Colliery Feasibility Study stage 2. Publisher: Sinclair, Knight & Partners, February 1980.

Department of Environment and Planning, Proposed Birds Rock Colliery, Newnes Plateau, Environmental Impact Assessment, November 1981.

Birds Rock Colliery Groundwater study Mine Inflows Appendix H, Australian Groundwater Consultants Pty Ltd, Publisher: Sinclair, Knight & Partners, Report 691, April 1981. Includes: folded plans, maps.

Birds Rock Colliery Water Quality Monitoring Program Appendix G, Publisher: Sinclair, Knight & Partners, May 1981. Includes: folded plans, maps.

Birds Rock Colliery Project, Birds Rock Colliery Pty Ltd Submission by the National Parks and Wildlife Service March 1981

underground coal mine near Birds Rock on the Newnes Plateau and export this coal to Japan².

The second proposal has been more difficult to formally identify. This proposal was to establish and operate a power station in conjunction with the Birds Rock Colliery, drawing on water supplies from a proposed dam on the Colo River. Oblique references to this proposal can be found in a commissioned survey of the Newnes Plateau / Colo River area by the Electricity Commission of NSW³,

“...the Museum was advised that the faunal survey was required as background information, to be used in the preparation of environmental impact statements. Such statements will be prepared by the Electricity Commission in connection with a number of possible development projects planned for this area. No details of any such proposals were furnished to the Museum although some of these, at least in outline, were mentioned in informal discussions.”

A map, Figure 2.1, showing the proposed corridor from a dam site on the Colo River to the Newnes Plateau via Mount Cameron is included in the report between pages 3 and 4. A copy is reproduced as part of this document.

A further oblique reference is contained in a paper prepared by the Colo Committee,⁴

“A power station on Newnes Plateau would inevitably pollute the Colo Wilderness with heavy metals and other toxic pollutants, both by water and air.”

The Colong Foundation for Wilderness further advised,

“On 6th September 1977, the NSW Electricity Commission advised the National Parks Association of its intention to build a power station near Birds Rock in Newnes State Forest. At the time, the proposed 6,000 MW power station was to be the biggest in the world”.

Associated with the proposed power station on Newnes Plateau, a 110 metre high dam was proposed for the Colo River near Boorai Creek. A three kilometre road along Boorai Ridge and a helipad was constructed. A track from the ridge to the Colo River was established and a flow meter constructed.

The Sydney Bushwalker,⁵ May, 1978. Editorial

“Most readers will be aware of the proposed dam on the Colo River and, rightly, are horrified at the prospect of the last wilderness area close to Sydney being destroyed. To argue that dammed water is not unattractive or sometimes even improves the landscape is ridiculous, for the associated construction sites, roads, power-lines, etc. are the real destroyers of beauty. (In a satellite photo I have of the whole of Tasmania, taken from about 3,500 km above the earth, not even Hobart shows as a blot on the green of the island, yet the construction roads to, and power-line clearing from, Lake

² Birds Rock Colliery – Review of Environmental Impact Statement Submissions, May 1981, p.2.

³ Faunal Survey of the Newnes Plateau/ Colo River Area, September 1979, “Appendix J,” Australian Museum, p.1.

⁴ Wilderness and Power, the case against a power station on Newnes Plateau and suggested alternatives – with special reference to heavy metals, Colo Committee, February 1979, Abstract, p.1.

⁵ The Sydney Bushwalker is an official publication of Sydney Bushwalkers Inc.

Pedder show as huge scars even from that height.) The Colo's waters will not be used for drinking water or for hydro-electric power. The plan is to mine coal on the Newnes Plateau, build a huge coal power-station there – Wallarawang (sic) size: - and use the dammed water for cooling. The used, heated water will no doubt be stored in artificial lakes near the power station. We are therefore protesting not just at the building of a dam but the destruction of a huge area of bushland. Let's look at the Colo from a bushwalker's point of view. It is an area of spectacular scenery with huge cliffs close to the river, quite unlike the Grose and other Blue Mountain valleys. It is an area of real challenge, with no tracks, long distances. The river is still clean, drinkable, and well-stocked with fish. For we bushwalkers, faced with increasing petrol costs and the inevitable fuel shortages of the future, a wilderness area and ideal walking country so close to Sydney is especially attractive. In the last 25 years we have lost the Warragamba Gorge, the Burragorang, and many miles of the Cocks River. We have seen the flooding of the Kangaroo River and part of the Shoalhaven we have lost so many valleys in the Snowy Mountains."

The then Director of National Parks and Wildlife Service, D A Johnstone, wrote in scathing terms to the Secretary, Department of Environment and Planning, 17th March 1981, about the inadequacy of the Environmental Impact Statement issued by the proponent, Birds Rock Colliery. Extracts from the letter are set out below.

"...In assessing the Environmental Impact Statement, the Service has been severely hampered by the paucity of information and detail within the Environmental Impact Statement...

...The Service is most concerned that no attempt has been made to consider alternative sites for the proposed development; even though a series of constraints on the potential locations of alternative development areas is presented. In fact the site chosen appears to have been selected on only one of the criteria advanced ... that is the access drifts have been located so that they penetrate both the Katoomba and Lithgow seams, clearly this is a non-selective criterion and appears to be on entirely economic grounds, disregarding important environmental considerations...

The Statement has not addressed a number of critical issues with respect to the potential impact on the existing environment and land use of the area. No assessment is made of, inter alia,

- 1 the impact of the proposed rail line*
- 2 the existing recreational usage of the area*
- 3 the effect of subsidence on hydrological regimes, both surface and groundwater and subsidence effects on geomorphology of the area*

Further, the survey for Aboriginal relics has proven to be totally inadequate...

The development proposals outlined in the EIS appear to be a primitive approach for such a potentially fragile environment."

It appears that the castigation of the NPWS about the inadequacy of the survey for Aboriginal relics, caused the urgent commissioning of a detailed EIS for the proposed Rail Spur from Newnes Junction to the colliery site. A document dated July 1981⁶, reads, inter alia,

"The Survey

The route was inspected at every point of vehicle access, and surveys on foot made along most sections of the route from these points.

Many of the creeks are swampy, and owing to the nature of the soil and vegetation cover, very little erosion occurs in the area. Open sites were therefore unlikely to be found. Attention was paid to ridges and rock outcrops, where most sites in this area north of Clarence have been found.

What was found?

At 4110 9922 a shelter, was found with flakes of fine grained siliceous material on the surface of a shallow deposit, and 10 axe grinding grooves on top of the outcrop.

This site is on top of a ridge, above the railway easement. Although it looks stable, it is recommended that the site be inspected by a geologist and consideration be given to the possible effects of vibration.

Two additional sites were found near Bald Trig, a shelter, at 4318 9575, with a small amount of deposit, and one flake of fine grained siliceous material being seen on the surface. At 433 9580 one axe grinding groove. This groove is on a flattish rock near an outcrop, and only about 22 m away from the road, and very close to the proposed railway line."

The letter of transmission from the Service, dated 31st March 1981, in the ultimate paragraph, slams the proposal.

"...In conclusion, the National Parks and Wildlife Service considers that the environmental impact statement should be rejected and lodges a strong objection to the proposed development, pending a complete review of the proposal, preferably in the form of a Regional Environmental Plan for the Newnes Plateau. Such an exercise should take into account the full range of possible land use options for the area including nature conservation, coal mining and pine planting. Accordingly it is suggested that, if a new EIS for the Birds Rock Colliery is to be presented, any approval of the proposed development should be deferred until after the completion of any such Regional Environmental Plan."

The Bushwalker⁷, Volume 6, Number 4, May 1981, carried the following article

⁶ Birds Rock Colliery Pty Ltd, Environmental Assessment of Proposed Rail Spur from Newnes Junction to Colliery Site, July 1981, Sinclair Knight & Partners Pty Ltd, Appendix 3, a paper 'Archaeological Survey of proposed route of railway line between Newnes Junction and Birds Rock' June, 1981, Helen Brayshaw, Consultant Archaeologist, p2.

⁷ The Bushwalker is an official publication of the Confederation of NSW Bushwalking Clubs

"The Electricity Commission of NSW has recently released an Environmental Impact Statement for a proposed coal mine on Newnes Plateau to be known as the Birds Rock Colliery. The head works for the mine are to be sited in the headwaters of Carne Creek, otherwise known as the east branch of the Wolgan River. Mining would be underground, extending north towards Birds Rock, and east into tributaries of the Bungleboori Creek.

Submissions objecting to the proposal have been submitted by the Federation, the Colong Committee, NPA, TEC and NPWS. Conservation groups believe that the Birds Rock EIS is the worst since the new Environment legislation came into being. In fact, the TEC believes that the EIS contravenes the Environmental Planning and Assessment Act, and has threatened the Electricity Commission with legal action if the EIS is not withdrawn and rewritten. Even the Forestry Commission is reported to be unhappy with the proposal, as the proposed railway servicing the mine will go through one of its pine plantations.

The proposal, if it goes ahead will have severe impact on the natural environment of Upper Carne Creek, and could cause pollution to the Wolgan River. Numerous swamps at the head of Carne Creek could be drained. These swamps are particularly important ecologically, supporting many interesting plant species, and two rare birds, the Tawny Grassbird, and the Beautiful Firetail.

Water for the mine and for coal processing will be obtained from tributaries of Carne Creek. These tributaries at present are an important wildlife habitat mainly because of the relatively large amount of water flowing along them. Reduction of the water flow due to damming of these creeks would seriously downgrade their value as habitat and would surely cause changes in vegetation along the creeks.

The proposed mine will be serviced by a railway running from Newnes Junction. The route of the line is to the east of the old Wolgan Valley Railway and crosses into the catchments of Wollangambe and Bungleboori Creeks. The line will have a deleterious impact on the Wollangambe Wilderness, being visible and audible well into this area

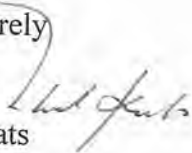
Recent cliff collapses at mines in the Lithgow area have highlighted the problems of siting mines in dissected sandstone country. The EIS claim that there are no significant cliffs in the area to be mined. On a recent inspection trip, cliffs of 30 to 50m were commonly sighted as were a few small canyons which would be destroyed if the walls collapsed."

In December 1979, The NSW State Government effectively put a stop to all development of the power station proposal by creating the Wollemi National Park, which included the Colo River, and the site of the proposed dam, an essential element of the power station plan. Whilst the worst aspects of the power station proposal have now been killed, the Newnes State Forest remains unprotected and the Birds Rock Colliery is still a possible development. The correct course of action from here is to stop the rape of NSW irreplaceable heritage, proclaim the area as a State Conservation area, engage with the tourism industry and Lithgow City Council and make the Newnes Plateau asset a crown jewel for future generations of domestic and overseas tourists.

If there is opportunity to appear before public hearings on this crucial issue for our State Heritage I would like to speak.

I have made no donations to any political parties

Yours sincerely


Michael Keats

The Gardens of Stone National Park and beyond

Book 6 - The Gardens of Stone National Park and beyond
Bushwalks on the northern Newnes Plateau;
plus Regional Flora and Fauna.

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Front cover photo: Four Level Cave. Photo: Brian Fox
Back cover photo: Hall of Elrond. Photo: Yuri Bolotin

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Contents

The Gardens of Stone National Park and beyond – Titles in this series

Preface

Introduction

The Authors

Acknowledgements

Disclaimer and Warning

About The Bush Club

Defining the area

Exploring the Gardens of Stone National Park and beyond

The Vegetation Communities of the Gardens of Stone National Park and beyond

Flora

The Vascular Plants

Fauna

Invertebrates

Amphibians

Reptiles

Non-passerines

Passerines

Mammals

Fungi, Slime Moulds and Lichens

- 6.1 The Cliffs east of Wolgan Gap
- 6.2 The Temples of Doom
- 6.3 Last Crusade Point and Holy Grail Ravine
- 6.4 Indiana Gorge and Indiana Slot
- 6.5 The Spanish Steps to the Wolgan Falls
- 6.6 The Wolgan Falls
- 6.7 Ravines north west of the Wolgan Falls
- 6.8 Ravines and cliffs around Firecat Walls
- 6.9 Sahara Point to Cape Pinnacle
- 6.10 Rockflower Ridge and Creek
- 6.11 Sunnyside Canyon cliffs and Bushrangers Creek
- 6.12 Sunnyside Canyon and Ravines
- 6.13 Flat Bottom Creek
- 6.14 Donkey View Pass
- 6.15 Sunnyside Gully

- 6.16 Sunnyside Point and Wolgan Pinnacle
- 6.17 Wolgan Pinnacle and Sunnyside Gully
- 6.18 Sunnyside Gully and the ridge east
- 6.19 Endorphin Gully to Wolgan Pinnacle
- 6.20 Endoephin Slot and Endorphin Gully
- 6.21 The Infinity Caves
- 6.22 The western side of the Adrenalin Gorge
- 6.23 Adrenalin Ledge Traverse
- 6.24 The eastern side of the Adrenalin Gorge
- 6.25 Adrenalin Ledge east, Adrenalin Slot and the Thom Slot
- 6.26 Zorro Canyon, Rapier Slot, Bullwhip Slot and more
- 6.27 Pleasant View Canyon
- 6.28 Pyramid Pass to Zorro Pass
- 6.29 The Sinusoidal Ravine and the cliffs above Carne Creek
- 6.30 Striolata Ravine and Window in the Sky Ravine
- 6.31 Birds Rock Creek
- 6.32 Carne Creek and Convolution Creek
- 6.33 Convolution Creek and Tagine Point
- 6.34 Upper Carne Creek and the Glory Box
- 6.35 Wild Gorge, Pinch Point Circle and more
- 6.36 Gang Gang Creek and Gang Gang Canyon
- 6.37 Carnes Playground
- 6.38 Devils Throat and the Cliffs of East Creek
- 6.39 Silkpod Point and Silkpod Gorge
- 6.40 Seven Caves of Carne Creek and Pyramid Rocks

Abbreviations

Bibliography

Index

This preface is unique. It is unique for several reasons. Firstly, it has been graciously compiled by the three people who were so moved by the beautiful nature of this terrain that the coined name is most apposite The Gardens of Stone. Secondly, one of the contributions is in the form of the photograph opposite, giving truth to the statement that a picture is worth a thousand words. Thirdly, as you read it, it is charged with emotion and passion, a truly fitting way to celebrate this extraordinary place.

The Wall. This highly eroded rock face lies within a narrow canyon. It is accessed via Glowworm Tunnel Road and Waratah Ridge Road, 3.3km south south east of the junction of Waratah Ridge Road and Two Trees Road and 200m north of Bungleboori Creek. Photo by David Gilbert Blackwell. Sadly, David passed away on 10th March 2012.

Preface

by Rodney Falconer, Haydn Washington and David Blackwell

When Charles Darwin visited the Wolgan Valley in the mid nineteenth century, he marvelled at seeing platypus sporting in a deep river pool but remarked poorly on the endless monotony of the burnt Eucalypt bushland around it. It was a shame he had no time to venture into the steeper gorges nor to visit the surrounding scarps, set irregularly with grey monoliths, golden stone castles and hidden gardens. On cliffs in the nearby Capertee Valley grow perhaps the easternmost tussocks of that intrinsically desert plant and dry ice age relic, Porcupine Grass. Mere hundreds of metres away are deep chasms dominated by some of the tallest Coachwood trees on earth, remnants of Australia's ancient Miocene rainforests. This incongruity and diversity exemplifies the nature of the pagoda country. In a brief walk anywhere in the Gardens of Stone travellers are faced with a vast array of differences of scale, stone architecture, forests, sedge meadows and scrubland. Haydn, David and I returned time and again over a couple of decades, as we do still today, though much less frequently. Like decades of bushwalkers before us, we came to revere and treasure this ragged patchwork quilt. We took friends, politicians and many others to be amazed and surprised at almost every turn. Mysterious winding rock passages, the overwhelming honey scent of spring myrtles and mint bushes, lone pools set in rocks plated with dark ironstone the texture of dragon's skin, vistas for kilometres beside intimate miniature works of ikebana in stone combine with the ever present calls of Lyrebirds and Honeyeaters. It is divine to find yourself high on some ancient stone citadel looking down at distant forests and mere humans in the sprawling valleys with their roads, scattered farmhouses and day to day concerns. The land invites endless curiosity, wonderment, affection and elation. **Rodney**

One can look at the pagoda country in two ways, first as a scientist, and second as a poet. As a scientist, I see the bio diversity and geo diversity side of the pagodas. They are hotspots of both. Like remnants of lost peoples in the Himalayas, the pagodas are rich in rare and threatened species. The species themselves change from north to south, but you always find rare species there. As an icon of geo diversity, the pagodas are special, and I have seen nothing quite the same anywhere in Australia or the world. For a poet, these are places of magic and mystery. They abound with lost cities, temples, tables and chairs, stone bells and pulpits. They evoke the imagination in wondrous ways. They inspire the muse. They are simply and overwhelmingly a thing of beauty. To me the pagoda country was always the 'land of the sandstone wizard'. It is a symphony in stone we should witness and feel wonder in and keep in trust for the future. **Haydn**

David has asked that his contribution to the preface be in the form of a picture. The evocative and powerful image captured by David pictured opposite says more than a thousand words. **David**

Introduction

The Gardens of Stone National Park, 15,010 hectares as presently gazetted, consists of three disparate areas separated by rural land used for broad acre grazing and, increasingly, subdivided into life style blocks. The current National Park boundaries exclude some of the finest rock formations and bushwalking destinations.

The political reality is that royalties from 'king coal', lurking hundreds of metres below the surface, fund the mendicant state of NSW distorting and dictating government decisions to the detriment of our heritage.

This book therefore encompasses some of the territory advocated by the Colong Foundation and allied conservation groups as proposed extensions to the existing Gardens of Stone National Park. The geographic scope of this text is however more than 100% larger than the presently gazetted Gardens of Stone National Park. This text does not visit the debate about the title such land should have or whether the proposed boundaries are appropriate – that is a separate brief being pursued by others.

The existing boundaries of the Gardens of Stone National Park are somewhat arbitrary, so for the purpose of this work some adjoining areas on the eastern border with the Wollemi and Blue Mountains National Parks are included, as from an access point of view for bushwalkers they sit more logically with the scope of this discourse.

What are the characteristics that make the Gardens of Stone National Park so distinct? The National Parks and Wildlife Service 'Draft Plan of Management, August 2004' in the synopsis about the existing park state inter alia,

"Important values of the park include the spectacular wild and rugged scenery, a diversity of natural environments, the occurrence of threatened or restricted native plant and animal species, extensions to plant communities of neighbouring biogeographical regions and its cultural landscape. Because of its values, Gardens of Stone National Park has been included as part of the Greater Blue Mountains World Heritage Area."

The Colong Foundation Hon. Secretary Alex Colley, O.A.M., in presenting the case for extension of the Gardens of Stone National Park (Stage 2), writes,

"The aim of this proposal is to preserve the whole of the Gardens of Stone area by adding the areas omitted from the Stage One (i.e. the existing) declaration. The Blue Mountains parks have ensured the preservation of most of the outstanding scenic and recreational assets of the Mountains but have not covered the unique qualities of the Gardens of Stone. These include the "pagoda" formations created by ironstone bands within the sandstone, and a high density of rare plants and endangered upland swamps. Despite the infertility of its soils, the area is threatened by development proposals because of proximity to Sydney, but it contains no commercial natural resources that are not found in abundance elsewhere. Its real value is in its scenic and bio diversity qualities, which are enhanced by its ready accessibility."

Pagodas are amongst the most beautiful natural landforms that jointly Mother Nature and Father Time have wrought. The Greater Blue Mountains of NSW are blessed with one of the finest examples and one of the largest contiguous areas of this erosion residual land form found anywhere in the world.

The susceptible sandstones with their ironstone banding give rise to these bizarre sculptural manifestations that are scattered over hundreds of square kilometres. Where these sandstones outcrops appear in ravines and gorges, running water charged with the products of erosion has carved dramatic forms that adorn or have become canyon walls, embellishing surrounding cliffs and gullies with unique features.

There are great slots, contorted twisting canyons; winding ramps; gentle waterfalls; rushing rapids, great caverns; keyholes; sinuous passage ways, and high above, turreted peaks and pinnacles that reach for the sky. Exploring this terrain is to embark on a never ending adventure of discovery. Every journey in this wonderland requires patience, careful navigation, physical stamina, constant vigilance, resourcefulness and self discipline.

Where massive cliff lines overhang deep valleys, 'ways of route' can be discovered, often presenting as a complex combination of ramps and slots; within these routes are countless glorious formations, deep caves and overhangs, subsidiary clefts and canyons, secret pools, waterfalls, spiral ramps and more.

Of the many forms and manifestations of the bushwalking condition, an addiction to pagodas is one of the most virulent and impossible to cure. The desire to be a recidivist overcomes rational thought and makes the need for yet another 'fix' more compelling. Capturing pictures, whilst never totally satisfactory, is a great way to relive each pagoda journey and ease the agony of waiting for the next trip.

Pagodas are fragile, decorative pieces that must be handled with, and trod on (preferably not at all), with enormous care. Tens of thousands of millennia have passed to create them, yet one careless footfall can destroy delicate ironstone and sandstone tracery in seconds.

The authorities in their collective wisdom have drawn artificial lines on maps for land use and naming purposes. Pagoda country follows the underlying geology and therefore the scope of this book transcends many conventional and politically expedient boundaries. In October 2005, the Colong Foundation together with allied conservation groups advanced a proposal to extend the western boundaries of three National Parks (Wollemi, Gardens of Stone and Blue Mountains) to include a lot more of the pagoda country.

Whilst this proposal is admirable and has our fullest support, it is less than perfect because it is forced to acknowledge the economic land use of much of the area – sub surface coal mining and forestry to name two activities. There is an urgent need to put an end to trail bikes and 4WD vehicles (ab)using the area. The surface destruction is devastating. The effects of fracturing of pagodas and the consequential damage and interruption to watercourses and the dependent ecological environments caused by long wall coal mining will take years to totally manifest themselves, and by then it will be irreversible.

No one bushwalker or even group of bushwalkers can fully explore these landscapes in a lifetime. This text is a record of adventures and experiences in pagoda country that we have shared with fellow aficionados. It is an attempt to convey an intense passion and compelling addiction to others, who may find it useful to read a bit, before they too become hooked on pagodas.

The Authors

Michael Keats

When I was growing up at Balmoral during the Second World War, the beaches and headlands provided me with a diversity of experiences - walking, climbing, swimming as well as opportunities to observe and question the natural world rocks, plants, insects, reptiles and sea life.

Holidays were times of great adventures – whether it was the hills around Camden, the underground marvels of Jenolan Caves, or exploring the New England Ranges. My dad was a shutter bug. There was nothing he liked more than to capture a dew drop on a rose petal, a bird in flight or a luminous fungus in the dead of night. It was unremarkable to be in what others regarded as outlandish places – we went where the spirit of adventure called.

Coming to bushwalking at a time in life when the cares of commerce are over, I made it my de facto occupation. At least twice a week and sometimes more often I make forays into the wilder parts of the Greater Blue Mountains National Parks. Abseiling, pack walking and canyoning add to the diversity of places I visit and experiences I enjoy. A compulsive chronicler, I document each walk experience systematically, compiling relevant maps and annotating photographs. When I am not in the bush, my time is split between desk and library research.

In 2011, a singular honour was bestowed upon me. I was made a Life Member of The Bush Club Inc., “In recognition of Long and Loyal Service to the Club as a Leader of Walks and an Adventurous Member during many years of continuous membership.”

Our family includes my devoted wife Jenny, two married sons and one amazing grand daughter. Jenny and I plan to keep travelling and adding to the adventure in our lives. My published bushwalking books include:

Day Walks in the Lower Grose River and Tributaries with particular reference to the Engineers Track, 2005, 61pp. Snap Printing Pty Ltd, Wetherill Park; ISBN 0646 44522 7

Day Walks in Therabulat Country, also known as the Wild Dog Mountains in the Blue Mountains National Park, 2006, 200pp. Southwood Press Pty Ltd; ISBN 0 646 45582 6

Bush Club Leaders, 2014, 226pp. Whirlwind Print Pty Ltd ISBN 9780987583611

Brian Fox

Brian Fox's professional career with the Department of Lands started after he finished his Higher School Certificate in 1970. In 1976 the department, then known as the Central Mapping Authority, moved to Bathurst. During the course of his career, Brian's main expertise has been in the area of topographical mapping. Whilst in Bathurst, Brian has been involved in many and varied community activities, such as

teaching gymnastics, church activities, being a youth leader and a part of the local Bush Fire Brigade. His community involvement was honoured when he was selected as one of the torch bearers for the 2000 Olympics.

In his younger years, Brian was a member of the Boys Brigade, where he gained its highest award – the Queens Badge. He moved through the ranks and became a leader of Epping Boys Brigade. This was the start of his love for the bush, his first walk to the Blue Gum Forest being in 1968.

It was his involvement in the 3rd edition of Blue Mountains topographic maps and his love of bushwalking that kindled a passion for investigating the origin of Blue Mountains names. To date, he has documented over 3,000 geographical place names and his bushwalking over the last 15 years has included over 800 day walks.

Brian has written four books, the latest being the Blue Mountains Geographical Dictionary, produced in 2006. He has contributed over 60 short articles to various publications. Brian is a member of the Bathurst and the Blue Mountains Historical Societies as well as a member of The Bush Club, a Sydney based bushwalking club.

Brian is married to Elaine and has three children and nine grandchildren. His published works include:-

Upper Blue Mountains Geographical Encyclopedia, 1999; 166pp. ISBN 0 646 36960 1

Upper Blue Mountains Geographical Encyclopedia, 2nd edition, 2001; 174pp. ISBN 0 9578737 1 9

The Origin of Leura, Blue Mountains, 2001; 23pp. ISBN 0 9578737 0 0

Blue Mountains Geographical Dictionary, 2006; 310pp. ISBN 0 9578737 2 7

Joint Publications - Michael Keats & Brian Fox

The Passes of Narrow Neck, 2008, Ligare Pty Ltd; 126pp. ISBN 978064648112-8 (pbk)

The Upper Grose Valley – Bushwalkers Business, 2010, Whirlwind Print Pty Ltd; 569pp. ISBN 9780646473192. (pbk)

The Gardens of Stone National Park and beyond, Book 1, 2011, 400pp. Whirlwind Print Pty Ltd; ISBN9780987054609 (pbk)

The Gardens of Stone National Park and beyond, Book 2, 2012, 492pp. Whirlwind Print Pty Ltd; ISBN 9780987054616 (pbk)

The Gardens of Stone National Park and beyond, Book 3, 2012, 448pp. Whirlwind Print Pty Ltd; ISBN 9780987054623 (pbk)

The Gardens of Stone National Park and beyond, Book 4, 2013, 932pp. Whirlwind

Print Pty Ltd, ISBN 9780987054630 (pbk)

The Gardens of Stone National Park and beyond, Book 5, 2012, 448pp. Whirlwind
Print Pty Ltd; ISBN 9780987054647 (pbk)

Acknowledgements

A work of this magnitude cannot be written without extensive research, supplemented with contributions by passionate specialists who have willingly given of their time and expertise. We owe each of them generous thanks.

The diversity of content matter has caused the authors to consult widely on subjects as diverse as historic railways, rare and endangered species, water quality and Wywandy and Wiradjuri Aboriginal tribal descendants. It has been a rewarding journey and one we have thoroughly enjoyed. Individually and together we have met some wonderful people and developed lasting friendships. The networking process has enriched our lives and we hope that our efforts translate into real benefits for you as readers and users of this text that will help you appreciate the rich tapestry encapsulated by the Gardens of Stone National Park and beyond.

It is a rare and singular experience to know the trio concept bushwalker founders of the Gardens of Stone National Park. Brian and I feel a very special affinity with Dr Haydn Washington, the late David Blackwell, and Rodney Falconer. It is due to their vision, perseverance against powerful vested interests and dogged determination backed by the resources of the Colong Foundation for Wilderness that the present Gardens of Stone National Park exists at all.

A work of this size would not be possible without some direction. Fellow bushwalker and young retired entrepreneur Yuri Bolotin has brought to bear an array of skills across many disciplines to ensure that the authors' vision translated into a practical reality.

Fellow walker on many adventures and protagonist to see the venture succeed John Cooper put up his hand to create the hundreds of maps – one for each walk, required for the series. John's painstaking attention to detail is deeply appreciated.

A special mention must be recorded to Barry Hanlon for typesetting and assembly. Barry continues the work undertaken by Natasha Foley in Books 1 to 3.

Increasingly, we have enjoyed including the work of photographers far better skilled and equipped than ourselves. We particularly pay tribute to John Fox, Brian Graetz, Emanuel Conomos, Geoff Fox, Cotter Erickson, Yuri Bolotin, Stephen Imrie, Jeanette Holdsworth, Tom Brennan, Chris Sterling and Daryl Watson.

David Crestani, Blue Mountains Botanic Garden Senior Horticulturist who has been called upon numerous times for plant identification and very freely offered his advice, escorted us on botanical walks and viewed and labelled our DVD of 150 flora photos.

The shock accidental discovery of unexploded ordnance at Marrangaroo led to helpful contacts with the Australian Armed Services, including M. St C. Mark Walton, Non-Defence Training Area Manager, Joint Operations Support Staff, NSW; Kevin Cuthbertson, E.O.D. Department of Defence and Neil Hutchinson of the Defence Facility at Marrangaroo, who each helped significantly in documenting the story of what has gone on at Marrangaroo. Geoff Plunkett, author of Chemical Warfare in

Australia, helped clarify many of the finer points. Craig Brown, senior research analyst for the Australian Bunker & Military Museum, provided copies of significant historical documents.

Arising from the same story, there was the benefit of the helpful input of Cameron Dobson, Acting Regional Manager, Forests NSW, whose jurisdiction is impacted by the Marrangaroo Defence Facility. Cameron was also very helpful in providing information about the Newnes Afforestation Camp as well as rare and endangered plant species across the State Forests administrative area.

Writing the challenging chapter on Aboriginal history of the area was made more comprehensible after a full day was spent in the field with Danny Whitty, who has direct connections with the Wywandy tribe of the Gundungurra Aboriginal people. Danny's ancestry is also connected to early European settlement of the Wolgan Valley. He willingly provided access to his comprehensive records. A day was also spent with Wendy Lewis, a legally recognised traditional owner and member of the Wiradjuri people. Dr Geoff Ford, a specialist in Aboriginal Studies, has assisted in our understanding of this complex issue.

The story of the Wolgan Valley Railway has been greatly assisted by a number of dedicated specialists, including Leonie Knapman, author of several books on shale oil towns in NSW. Further, Leonie allowed use of her personal library to access and research early geological maps and books.

Mark Langdon, historic railway buff and author of arguably the definitive work on the Wolgan Valley Railway, generously provided information and photos from his collection for us to use.

Officers of the NSW Branch of the Australian Railway Historical Society clarified a number of contentious issues relating to the Wolgan Valley Railway line.

Stephen Imrie, bushwalker and historian with a passion for the Lithgow - Newnes area, has taken us to places not normally visited and also provided hundreds of photos and maps to select the most defining images for illustrating our work. Better still, Stephen has come with us into the field. We are also indebted to him for maps and information about the mining history of Blackmans Crown.

Duo Allan Watson and Thomas Ebersoll each contributed significant input into the story of what is now affectionately called by bushwalkers the Newnes Hotel. Allan also provided constructive input into the first drafts of the story of the Wolgan Valley Railway and access to rarely seen field notebooks of the late Eric Stephens, author of 'The Wolgan Valley Notebook', 1996.

Kay Skirt, Local Studies Librarian, Lithgow City Council Library, facilitated access to Council records about the dam constructed on the Bungleboori River and put us in contact with Brian Hustwayte, who not only gave approval for us to use historic pictures from the film archive on the building of the dam and associated infrastructure, but who patiently worked with us to secure the images we wanted.

Eminent NSW geologist and University of Sydney lecturer Dr David Branagan provided guidance on the chapter on the geology of the area, while gold and diamond miner and entrepreneur Col Ribaux made us welcome on his mineral leases. Four geomorphologists, Dr Paul Hesse, Dr Marshall Wilkinson, Dr Robert Wray and Dr Osborne Armstrong, have advanced our knowledge of the formation of pagodas and the unique Newnes Plateau sand dunes.

Public relations staff of arguably the most expensive development yet in the Wolgan Valley, the Emirates owned *Wolgan Valley Resort*, provided assistance with all our questions about how the Dubai based company came to invest in Australia and the Wolgan Valley in particular.

One of the most significant and supportive groups in the whole project are the many members of The Bush Club Inc., who joined the authors over many years on the exploratory adventures that are the essence of this work.

Bushwalking icon, the late Wilf Hilder, has been a staunch supporter and mentor, never afraid of questioning or challenging established thought. We valued Wilf's incisive mind and the many occasions when some rewriting had to be done.

Inevitably, National Parks have boundaries with privately held land. Some of our most respected friends are landholders whom we have approached for permission to access otherwise remote and inaccessible areas. At all times we respect conditions imposed by them on us. They live in the area 24/7. They know.

For the comprehensive history of the formation of the Gardens of Stone National Park the authors wish to thank Geoff Mosley, author of *The Battle for The Bush*, 1999. He allowed us to reproduce the detailed blow-by-blow history documented in this book.

The board of the Colong Foundation for Wilderness Ltd has generously allowed us to reproduce pages of the Gardens of Stone Proposal – Stage 2 that was used in the quest to achieve the ultimate goal of protecting the irreplaceable but presently unprotected marvels currently outside the Gardens of Stone National Park. We are also indebted to the Foundation for being able to reproduce the material relating to coal and sand mining.

Andrew Valja and Karen McLaughlin, staunch conservationists, cartographers and monitors of trail bike activities, have been generous in sharing their expertise and knowledge.

More and more, water quality is an issue for every bushwalker. Gone forever are the days when it was safe to drink water from any stream without question. Dr Ian Wright, postdoctoral fellow at the UWS, has spent more than 20 years studying the ecology of the streams of the Greater Blue Mountains. His detailed analysis of the waterways of the Gardens of Stone National Park and beyond is a revelation.

When it comes to Fungi identification, no one does it better than Don and Judith Gover of the Sydney Fungal Studies Group. These two dedicated specialists have been able to identify most of the images we have sent them. What is more, the Sydney Fungal Studies Group has produced a field booklet to assist in identification. There

are also instructions on how to take the right photos to ensure a successful and accurate ID. We are indebted to these experts.

Tim Hager of the NPWS has marshaled the extensive resources at his command to contribute a comprehensive list of the flora and fauna of the area. While this listing cannot be fully illustrated, we have chosen a selected number of endangered species for more extensive notes and treatment.

Unsung heroes, our wives and families, have put up with much, including numberless mornings leaving home before daybreak and returning in the dark of night that day or several days later. Absentmindedness to the minutiae of the activities of daily living is also a case we plead guilty to.

Disclaimer and Warning

The walking Track Notes in these volumes are not to be interpreted as implying the requirements necessary to successfully accomplish the walks described. Some of the 'walks' include activities such as swimming, use of ropes, abseiling, canyoning, rock hopping and rock climbing with exposure. Very few of the walks in this text are on a made track. Having the skills and confidence to navigate through rough country where there are no or few landmarks is essential.

Most of the Gardens of Stone country and beyond as described is a wilderness area, some of the walks are on land designated as State Forest, and some walks are on land that has been resumed from agricultural activity. Land adjoining the Army base at Marrangaroo is a very dangerous place. In all cases, the areas visited are remote, wild, unpredictable and, at times, very dangerous places. Weather conditions can change rapidly, particularly in remote catchments. Many rivers in the area have extensive drainage catchments and can rise suddenly. Snowstorms and sudden hailstorms are common. The intending bushwalker should be proficient in all aspects of the craft, navigation, first aid, and be equipped to handle unexpected 'benighting', that is being unexpectedly forced to spend the night sleeping rough in the bush.

It is strongly recommended that an aspiring explorer of these wild places goes with others who have been there before and preferably first becomes a member of a recognised walking club affiliated with the Bushwalking NSW. Leaving behind a copy of your planned route, campsites and intended date and time of return will save anxiety for those you said farewell to when setting out on your adventures.

Modern communications such as mobile telephones are not reliable in the area except from some high peaks, and even then only under favourable conditions. Carrying a Personal Locator Beacon (PLB) for emergencies as well as using a GPS in plotting your way will ensure the time spent in the Gardens of Stone country and beyond is as you planned it.

Special attention should be given to the choice of footwear for a particular walk. Each walker has his or her own preference in footwear. Whatever your choice, make sure it is in sound condition and will not result in blisters. On some walks, carrying a second set of footwear with superior grip is an advantage.

Becoming 'benighted' can happen on any walk for a variety of circumstances. When it does happen, it is important to remember that walking in the dark in this terrain, even with a reliable headlight torch, can be extremely dangerous. It is far better to have a safe night 'sleeping rough' than to stumble and fall with possible serious injury. This concept needs to be explained to loved ones and family before you leave on your adventures. They should not panic and call emergency services or your club until you are 15 hours overdue. Within this time frame, it is these days usually possible to make contact and give reassurance of your safe return.



About The Bush Club

The Bush Club was brought into being when the first meeting was held on 19th September 1939. The auspicing co-founders were Marie Byles and Paddy Pallin.

At the first meeting, the seven members – Paddy Pallin, Beryl Carne, Mrs Hanna Lemberg, Eckart Hill (then Heilpern), Marie Byles, Mrs S.Clark and Hans Curtis – paid an annual subscription of five shillings to form the nucleus of the club. They were joined by a further 15 stalwarts before the end of the year.

In the year 2014, the Club boasts a membership in excess of 700, a comprehensive program of walks that every week provides choice of day walks at different levels of difficulty and longer walks involving camping. This program is supported by relevant publications and a committee that is very much aware of the important social and environmental issues that attach to bushwalking in the 21st century.

In the Club publication 'Looking Back - Walking On' commemorating the Club's first half century (1989), is recorded an important quote from co-founder Marie Byles: "Do try to form an active, strenuous walking section within the club consisting of people trained and also able to train others in leadership, map and compass, bushcraft and camping."

A perceptive editor writing in The Bush Club 60th anniversary publication (1999) 'Sixty Years – Sixty Mountains' said, "The real challenges for the club into the next decade are (inter alia) – to produce walks that have appeal to the membership and are sufficiently differentiated to attract additional members. One possible way may be for individual leaders from time to time to develop their own mini projects."

The Bush Club is a dynamic and evolving organisation. It is engaged with the latest in information technology. It is responsive to the need to be flexible in encouraging leaders. The advent of the short notice walk convened by email as an adjunct to a published program has provided undreamed of opportunities for additional walks with as little as 48 hours notice. The Club website is one of the most highly regarded in the bushwalking fraternity. Within this program flexibility, the club is responsive to the needs of a part time work force whose free days for walking can occur at equally short notice.

The future of the Club is unlimited, and provided the governance of the club is always focused on walking and opportunities to expand the range and diversity of the program, it will continue to grow and fulfil a very important physical, social and emotional role in society.

Defining the area

The territorial area encompassed by these books is broadly triangular in shape and generally contained within a boundary line drawn east from the tiny hamlet of Running Stream to the former kerosene shale mining town of Glen Davis, a distance of about 35km, and then due south to the hamlet of Bell, about 60km. The south western edge of the area is generally contained by the Chifley Highway and sections of the Great Western and the Castlereagh Highways – in all nearly 900 square kilometres.

Within this broadly defined boundary, apart from the three separate areas of the Gardens of Stone National Park, there are also the Mount Airly Genowlan Mountain massif, the Ben Bullen State Forest and the entire Newnes Plateau. On the Newnes Plateau, there is a significant State Forest and a large area of Commonwealth Land currently occupied by the Australian Army. A large segment of the adjoining western edge of the Wollemi National Park and part of the Blue Mountains National Park are also included.

Nine 1:25000 Department of Lands topographic maps encompass this area – namely, Glen Alice, Ben Bullen, Mount Morgan, Cullen Bullen, Rock Hill, Lithgow, Hartley, Capertee and Wollangambe.

A section of the Great Dividing Range falls within and parallels the south of the western boundary. The high country is essentially an elevated, dissected plateau that is epitomised by grand mesas such as Pantoneys Crown and spectacular erosion residuals such as Mount Canobla, Donkey Mountain and Birds Rock. Whilst Birds Rock is not so prominent, the view from the trig point at the top is very special and worth the effort of a visit.

The major rivers draining the area are the Capertee, generally flowing from west to east in the northern part, the Wolgan, generally flowing from the south to the north and then east, and the Coxs, flowing from north to south. A complex network of tributary creeks and streams feeds these major rivers. Of particular interest are Carne Creek, Deanes Creek, Rocky Creek and upper sections of the Bungleboori Creek and the Wollangambe River.

The influence of human activity permeates the entire area. Mining has wrought the greatest changes. In the late 19th and early 20th centuries, exploitation of the kerosene shale deposits saw the development of towns at Glen Davis, Newnes, Airly and Torbane, all long since depopulated, and except for Glen Davis, reduced to place names. A railway some 51km in length was constructed between Newnes Junction (previously on the Main Western Line) and Newnes to haul out kerosene shale and shale oil products. During WWII, a petrol pipeline stretched from a refinery operation at Glen Davis to Newnes Junction on the Main Western Line.

Currently most of the area is subject to underground coal mining. There is some open cut mining of the Irondale seam on the western edge, however the main issue is underground long wall mining of the Lithgow Seam with mine heads at Airly, Baal Bone, Angus Place and Springvale. Geological survey and drilling rigs have traversed

much of the area, and many of the current tracks and trails have evolved from roads pushed through for mineral exploration purposes.

Apart from the obvious visual pollution of mine dumps and air shafts, the Wolgan River is the unwilling recipient of contaminated mine water above the Wolgan Falls. Dams for water supply for the former Wolgan Railway and for Lithgow City have been constructed on a number of waterways. In times past the Wolgan River at Newnes used to catch fire from a careless cigarette as it was so polluted with hydrocarbons.

The coal mining industry has a lot of accountability to address. The Wollangambe River is so polluted with coal fines from the Clarence Colliery that it flows black. The cliffs and pagodas in Ben Bullen State Forest above Baal Bone Colliery operations are collapsing from long wall mining. Many sacred Aboriginal art sites are under threat, hanging swamps that sustain entire ecosystems are being destroyed, and the Coxs River water, a major source of Sydney's water supply, is contaminated to dangerous levels.

Much of the Newnes Plateau is subject to active forestry operations and the logging of old growth forest. Significant areas have been planted with *Pinus radiata*, an exotic species that reduces the under storey into a biological desert.

In the south, some 12 square kilometres of the Marrangaroo catchment have been designated as Commonwealth Land occupied by the Australian Armed Forces for decades. Unexploded ordnance and stored chemical weapons are still live issues over a large area that, until recently, had been an undisclosed land use. The most recent Department of Lands topographic map 1: 25000, Lithgow, 2006, fails to identify this significant and most concerning area.

To add to the above litany of issues, the State Government gave approval for the construction and operation of the first six star resort in Australia adjacent to the Donkey Mountain section of the Gardens of Stone National Park, at the confluence of Carne Creek and the Wolgan River, opened 2009. Despite all the caveats agreed to, we are fearful of the long term impact of this resort on the integrity of the National Park.

Notwithstanding current undertakings, we were wondering how long it would be before there is a constant service of helicopters ferrying in international guests who cannot accept the drive from Sydney International Airport, compromising the integrity of not only the Gardens of Stone National Park, but also the Blue Mountains National Park and the Wollemi National Park. On the positive side, there are requirements on the resort operator to eradicate feral animals and implement flora and fauna management plans, which presents a golden opportunity to improve the current state of the environment in that area. Fortunately helicopter use to-date has been minimal. The Wolgan Road, from Wolgan Gap to the gate the Wolgan Valley Resort has now been upgraded, sealed with line marking and safety signage.

The unfettered access given to 4WD drive vehicles and unregistered motor bikes into areas controlled by Forests NSW results in a major degradation issue that could, and should, be resolved immediately. These abusers of the natural environment have no

concern for the irreversible damage they do. Their predilection to advertise their presence with aerosol paint cans and scarify the landscape must be stopped now.

Despite the above negative factors, the Gardens of Stone National Park and surrounding areas still present a unique and compelling experience to the keen bushwalker explorer. Rarely sighted animals and plants can still be found; day walks and pack walks can be constructed to completely avoid the worst degraded areas; the challenges of high dry canyons, finding stunning views and exploring pristine creeks and abseiling in wet canyons can still be your experience.

Exploring the Gardens of Stone National Park and beyond

The Sydney motorway network has made destinations within the Gardens of Stone National Park and beyond accessible for day walks like never before, with formerly remote destinations such as Genowlan Mountain and Donkey Mountain now well within reach. Even a climb and traverse of Pantoneys Crown can be undertaken as an extended day walk, a situation unheard of ten years ago.

The scale of the Gardens of Stone National Park and surrounding areas is huge. One of the most basic tenets for exploring in this area is to set achievable goals. In this country, distances are deceptive. Unless you are walking on a made road or rare track, progress is inevitably slow. This applies equally to the dry ravine country in the western part and the terrain in the wetter, eastern part. Exploring in an area with deeply dissected topography takes time. Many walks are included in these volumes that may show on a map as less than 5km in length, yet 6 hours or more may be entailed in completing the walk. It is not country to hurry in. At all times, the safety of yourself and your party must be the prime consideration.

Carrying a 20m tape, while not mandatory, is strongly recommended. Situations can and do arise where setting a tape can make all the difference to the comfort, wellbeing and safety of the party. Having training in remote area first aid and keeping your qualifications current is essential for leaders and good for all participants. Always make sure every member of your party carries an appropriate first aid kit.

Exploring the Gardens of Stone National Park in most 'off the beaten track' areas requires above average fitness together with some true grit of spirit. Working out at home, visiting a gym or a rock climbing gym on a regular weekly basis is a good way to prepare yourself for the rigors of enjoying this special place. If you ever needed a motive for fitness, fall in love with the Gardens of Stone National Park.

Available maps of this area have many deficiencies. Many Department of Lands topographic maps show topography with 20m contour intervals. The scale of 1:25000 is also inappropriate for this country, so many major features are not shown and the maps portray a simplicity which is very much at variance with reality. One of our bushwalking colleagues, who is besotted with the area, has spent thousands of dollars in commissioning maps at a scale of 1:15000 with 10m contours. These maps are a vast improvement, but even they fail to show features that can prove insurmountable.

Carrying a GPS and a copy of the best quality map you can buy is mandatory in this frequently complex terrain to be able to verify your actual position. High resolution aerial photographs are useful adjunct aids. Also, we never put on our packs unless a Personal Locator Beacon (PLB) is included. It is that kind of country.

Water. Carrying an adequate supply of water is absolutely essential in this country. Many of the creeks and rivers are heavily polluted. In the drier times, many creeks have ceased flowing and cannot be relied on. In some places, you may even need to lower a billy on a rope to collect water from a pool within a deep canyon.

The Vegetation Communities of the Gardens of Stone National Park and beyond

Much of the following information was compiled from DEC (2006) *The Vegetation of the Western Blue Mountains*. An unpublished report funded by the Hawkesbury – Nepean Catchment Management Authority produced by the Department of Environment and Conservation, Hurstville.

Notes on specific occurrences of each vegetation type have been added to make the information relevant to the current study area.

1. Vegetation of more fertile soils of the tablelands

MU11 Tableland Gully Snow Gum – Ribbon Gum Grassy Forest

This is a tall forest with the canopy dominated by snow gum (*E. pauciflora*), candlebark (*E. rubida*) and ribbon gum (*E. viminalis*), with other Eucalypts present in lower abundance. Wattles – mainly *Acacia dealbata* – can be found as occasional plants, or sometimes as a dense stand. The dense grassy groundcover is dominated by cool-climate grasses such as *Poa* and *Microlaena* with a range of herbs such as *Stellaria*, *Gonocarpus*, *Dichondra* and *Cymbonotus*. Within the study area, this vegetation type is mainly found in the upper Coxs River catchment within Ben Bullen State Forest, with a smaller occurrence in upper Airly Creek.

Trees: *E. pauciflora*, *E. rubida*, *E. viminalis*, *Eucalyptus bridgesiana*, *E. dalrympleana*, *E. dives* **Shrubs:** *Acacia dealbata*, *Hibbertia obtusifolia* **Ground Covers:** *Acaena novae-zelandiae*, *Asperula conferta*, *Austrodanthonia racemosa*, *Cymbonotus lawsonianus*, *Desmodium varians*, *Dichondra repens*, *Gonocarpus tetragynus*, *Hydrocotyle laxiflora*, *Lomandra filiformis*, *Microlaena stipoides*, *Oreomyrrhis eriopoda*, *Poa labillardierei*, *Poa sieberiana*, *Poranthera microphylla*, *Scleranthus biflorus*, *Senecio quadridentatus*, *Stellaria pungens*, *Themeda australis*, *Veronica plebeia*, *Viola betonicifolia* **Climbers:** *Glycine clandestine*

MU14 Tableland Mountain Gum – Snow Gum – Daviesia Montane Open Forest

This is a relatively low forest found on shallow depressions, hollows and minor drainage lines on the Newnes Plateau. These locations are likely to be cold air sinks. The canopy typically includes taller mountain gum (*Eucalyptus dalrympleana* ssp. *dalrympleana*) and lower growing snow gum (*E. pauciflora*), broad-leaved peppermint (*E. dives*), Blue Mountains ash (*E. oreades*) and brittle gum (*E. mannifera*). The groundcover is dominated by snow grass and the shrub layer by *Daviesia latifolia*.

Trees: *Eucalyptus dalrympleana*, *E. dives*, *E. pauciflora* **Shrubs:** *Daviesia latifolia* **Ground Covers:** *Gonocarpus tetragynus*, *Hibbertia obtusifolia*, *Lomandra filiformis*, *Microlaena stipoides*, *Poa sieberiana*

MU35 Tableland Gully Mountain Gum – Broadleaved Peppermint Grassy Forest

The deeper gullies and sheltered slopes of the metamorphic and Permian hills of the western Cox's catchment carry a dry, grassy, moderately tall open forest. The primary tree species are tall mountain gum (*E. dalrympleana*) and ribbon gum (*E. viminalis*)

with smaller broad-leaved peppermint (*E. dives*). Snow gum (*E. pauciflora*) is present on sites close to the creeklines, and red stringybark (*E. macrohyncha*) occurs on partly sheltered sites on Permian sediments. The understorey is generally grassy with a taller layer of tussock-like plants such as *Joycea pallida*, *Lomandra longifolia* and *Dianella*, and a lower layer of smaller lomandras, *Poa* and a variety of forbs. Within the study area, it primarily occurs within Ben Bullen State Forest in moderately well sheltered position at elevations between 780 metres and 1100 metres above sea level. There are smaller occurrences near Angus Place. The distribution of the community spans a rainfall band between 800 millimetres to 1100 millimetres *per annum* though most falls in the lower range.

Trees: *Eucalyptus dalrympleana*, *E. dives*, *E. pauciflora*, *E. viminalis*, *E. bridgesiana*
Shrubs: *Acacia falciformis*, *Leucopogon lanceolatus*, *Lissanthe strigosa* **Ground Covers:** *Asplenium flabellifolium*, *Cymbonotus lawsonianus*, *Desmodium varians*, *Dianella caerulea*, *D. revoluta*, *Dichondra repens*, *Geranium solanderi*, *Gonocarpus tetragynus*, *Helichrysum scorpioides*, *Hydrocotyle laxiflora*, *Joycea pallida*, *Lomandra filiformis*, *Lomandra longifolia*, *Microlaena stipoides*, *Oxalis perennans*, *Poa sieberiana*, *Pteridium esculentum*, *Senecio quadridentatus*, *Stackhousia monogyna*, *S. viminea*, *Stellaria pungens*, *Viola betonicifolia* **Climbers:** *Clematis glycinoides*, *Glycine clandestine*

MU53 Mountain Hollow Grassy Fen

These grassy swamps are found in the often waterlogged alluvial peats and clay loams of the Long Swamp area in the upper reaches of the Cocks River & Ben Bullen Creek, near Angus Place and Marrangaroo. The community is largely devoid of trees though stunted black gum (*E. aggregata*) and black sally (*E. stellulata*) are rarely present. The groundcover sward is strongly dominated by tussock grass (*Poa labillardierei*) and sedges or rushes such as *Carex gaudichaudiana* and *Juncus sarophorus*. There are a range of small, inundation tolerant herbs such as *Epilobium gunnianum*, *Stellaria angustifolia* and *Viola caleyana*. They range in altitude between 865 and 950 metres above sea level, and receive between 800 and 930 millimetres of precipitation. However, groundwater and surface inflow is probably more important in sustaining the community.

Ground Covers: *Poa labillardierei*, *Carex gaudichaudiana*, *Epilobium gunnianum*, *Juncus sarophorus*, *Stellaria angustifolia*, *Viola Caleyana*

2. Vegetation of poorer soils of the tablelands

MU32 Tableland Scribbly Gum – Narrow-leaved Stringybark Shrubby Open Forest

This is an open forest found along the spine of the Great Dividing Range and in the upper Wolgan Valley. Tableland scribbly gum (*E. rossii*) and narrow-leaved stringybark (*E. sparsifolia*) dominate the canopy, sometimes with grey gum (*E. punctata*). Localised occurrences of Sydney peppermint (*E. piperita*) and silvertop ash (*E. sieberi*) are common along the Great Divide. Shrubs are generally patchy and low growing and include a range of wattle species *Acacia* sp., *Dillwynnia*, *Monotoca* and *Podolobium*. The grasses, *Joycea pallida*, *Entolasia stricta* and exposed rocks, soil and litter, typify the ground cover. The favoured lithology is the quartz rich Permian and metamorphic materials immediately overlying Sydney Basin sediments that weather to a shallow, stony, well-drained sandy loam soil. The main distribution of

the community is in the upper Wolgan Valley above Donkey Mountain, with outliers in the Capertee west of Pantoneys Crown and near Glen Davis, and in to the Cox's catchment around Ben Bullen State Forest. The altitudinal range is from 290 metres to 1100 metres above sea level, although the bulk of the community occurs between 600 metres and 700 metres above sea level in the Wolgan and 1000 metres and 1100 metres in the Cox's. Precipitation is of the order of 750 millimetres to 900 millimetres *per annum*.

Trees: *Eucalyptus rossii*, *E. sparsifolia*, *E. mannifera*, *E. punctata* **Shrubs:** *Acacia buxifolia*, *A. decora*, *A. terminalis*, *A. ulicifolia*, *Brachyloma daphnoides*, *Dillwynia phyllioides*, *Hovea heterophylla*, *Lissanthe strigosa*, *Monotoca elliptica*, *Platysace ericoides*, *Podolobium ilicifolium* **Ground Covers:** *Astroloma humifusum*, *Cheilanthes austrotenuifolia*, *Dianella revoluta*, *Entolasia stricta*, *Gonocarpus tetragynus*, *Goodenia bellidifolia*, *Goodenia hederacea*, *Hibbertia obtusifolia*, *Joycea pallida*, *Patersonia sericea*, *Rhytidosporum procumbens*, *Stackhousia viminea*, *Stylidium graminifolium* **Climbers:** *Billardiera scandens*, *Hardenbergia violacea*

MU37 Cox's Permian Red Stringybark – Brittle Gum Woodland

The exposed Permian escarpment slopes and ridges of the Upper Cox's catchment typically support a low open woodland approximately 12 metres in height. The most frequently observed tree species include red stringybark (*E. macrohyncha*) and brittle gum (*E. mannifera*). This vegetation type commonly occurs on exposed sites across much of the central and southern tablelands. Other species that may appear at localised sites include tablelands scribbly gum (*E. rossii*), candlebark (*E. rubida*) and broad-leaved peppermint (*E. dives*). This dry woodland has a patchy shrub cover with *Lissanthe strigosa* being most commonly encountered. The groundcover consists of a sparse forbs and occasional grasses. Within the Gardens of Stone area, this woodland occurs on the western side of Newnes Plateau, in Ben Bullen State Forest and between Lithgow, Angus Place and Mount Piper. It ranges in altitude from 840 metres to 1020 metres above sea level. The average annual precipitation is of the order of 760 millimetres to 1000 millimetres *per annum*.

Trees: *Eucalyptus macrorhyncha*, *E. mannifera* **Shrubs:** *Lissanthe strigosa* **Ground Covers:** *Acaena novae-zelandiae*, *Galium gaudichaudii*, *Geranium solanderi*, *Hibbertia obtusifolia*, *Hypericum gramineum*, *Lomandra filiformis*, *Oxalis radicata*, *Veronica calycina*, *Viola betonicifolia*

3. Vegetation of more fertile soils in the low rainfall parts of the Capertee & Wolgan valleys

MU18 Capertee Marl Box Grassy Woodlands

This grassy open forest is found in the southern part of the Capertee Valley amongst residual limestone outcrops and lime influenced shale known as Marl. The canopy is dominated by white box (*E. albens/molucanana*) with some narrow-leaved ironbark (*E. crebra*). A very open and scattered dry grassy understorey also defines this community. Grass trees and spinifex are typically present in the understorey on the larger limestone outcrops. This vegetation type occurs on soils that are unique in the region. It primarily occurs in the catchment of Crown Creek, with smaller patches in the Coco and Red Rock Creek catchments.

Trees: *Eucalyptus albens/moluccana* **Low Trees and Shrubs:** *Brachychiton populneus*, *Pimelea latifolia* ssp. *elliptifolia*, *Solanum brownii*, *S. prinophyllum*
Ground Covers: *Abutilon oxycarpum*, *Austrodanthonia racemosa*, *Calotis lappulacea*, *Cheilanthes austrotenuifolia*, *C. distans*, *Chloris ventricosa*, *Cymbopogon refractus*, *Desmodium varians*, *Dichondra* spp., *Einadia nutans*, *Enneapogon gracilis*, *Gahnia aspera*, *Lomandra filiformis*, *Nicotiana suaveolens*, *Notodanthonia longifolia*, *Oxalis perennans*, *Paspalidium gracile*, *Plantago hispida*
Climbers: *Glycine clandestina*, *Pandorea pandorana*

MU19 Capertee Box – Narrow-leaved Ironbark – Callitris Grassy Woodland

This grassy woodland is extensively distributed across the basal Permian sediments of the Capertee Valley floor, with smaller outliers in the Wolgan. The understorey is characterised by wire grass (*Aristida*) and windmill grass (*Chloris truncata*) with tussocks of dry country sedges and mat-rush. Shrubs are quite infrequent, and where present are usually wattles, *Bursaria* or immature cypress pine. The canopy is typically white box (*E. molucanna/albens*) in combination with narrow-leaved ironbark (*E. crebra*). The community favours the friable loam soils that form on the basal sandstone and conglomerate units of the Sydney Basin, although some clay influence can be evident in many places. The bulk of the distribution is between 280 and 550 metres above sea level, although the community will extend up to 700 metres where the favourable conditions are found higher in the north-western Capertee and the southern Wolgan. The rainfall values are around 600 to 700 millimetres *per annum*, rising to about 780 millimetres *per annum* in the Wolgan.

Trees: *Eucalyptus albens*, *E. crebra* **Low Trees and Shrubs:** *Brachychiton populneus*, *Callitris endlicheri*, *C. glaucophylla* **Ground Covers:** *Aristida ramosa*, *A. vagans*, *Astroloma humifusum*, *Austrostipa scabra*, *Calotis lappulacea*, *Cheilanthes austrotenuifolia*, *C. sieberi*, *Chloris truncata*, *Chrysocephalum apiculatum*, *Cymbopogon refractus*, *Desmodium varians*, *Dichondra* spp., *Gahnia aspera*, *Lomandra filiformis*, *Microlaena stipoides*, *Oxalis perennans*, *Vittadinia dissecta* **Climbers:** *Glycine clandestine*

MU20 Capertee Rough-Barked Apple – Redgum – Yellow Box Grassy Woodland

The gentle rises, gullies and depressions in the dry Capertee Valley support a woodland with a diverse, grassy groundcover. The canopy is dominated by rough-barked apple (*Angophora floribunda*), yellow box (*Eucalyptus melliodora*) and Blakely's red gum (*E. blakelyi*). Red box (*E. polyanthemos*) and small stands of black cypress pine (*Callitris endlicheri*) may also be present. The shrubs are usually scattered with blackthorn (*Bursaria spinosa*) dominating. The main grasses are speargrasses (*Austrostipa* and *Aristida* species), barbwire grass (*Cymbopogon*) and kangaroo grass (*Themeda*), with a wide array of herbs. This vegetation type is found throughout the floor of the Capertee valley and is also reasonably common in the Wolgan valley. It primarily occurs between 270m and 600m in the Capertee or up to 750m in the Wolgan. It receives an average 600 millimetres to 800 millimetres of precipitation *per annum*, and is found on Devonian era metasediments, finer-grained Permian strata of the lower Sydney Basin, and fine grained alluvial deposits along streams.

Trees: *Angophora floribunda*, *Eucalyptus blakelyi*, *E. cannonii*, *E. melliodora*, *E. polyanthemos*, *E. punctata* **Shrubs:** *Acrotriche rigida*, *Bursaria spinosa*, *Indigofera*

australis, *Solanum prinophyllum* **Ground Covers:** *Acaena ovina*, *Aristida vagans*, *Asperula conferta*, *Astroloma humifusum*, *Austroanthonia laevis*, *Austroanthonia racemosa*, *Austrostipa scabra*, *Cheilanthes sieberi*, *Cymbopogon refractus*, *Desmodium varians*, *Dichondra* sp. A, *Echinopogon intermedius*, *Echinopogon ovatus*, *Eragrostis leptostachya*, *Gahnia aspera*, *Goodenia hederacea*, *Hydrocotyle laxiflora*, *Lagenifera stipitata*, *Plantago hispida*, *Poa sieberiana*, *Themeda australis*, *Veronica plebeia* **Climbers:** *Clematis glycinoides*, *Glycine tabacina*

MU54 Capertee – Wolgan Riparian Rough-Barked Apple – River Oak Open Forest

This river flat forest still remains in parts of the Wolgan and Capertee Valleys. Examples can be found along Carne Creek in the Emirates property, along the Wolgan River between Wolgan Gap and Newnes, along Coco Creek and the Capertee River near Glen Davis. These tall forests are distinguished by a ribbon of river oak (*Casuarina cunninghamia*) that grow on the banks of the river, with an assortment of Eucalypts that prefer the adjoining flats, terraces and rises. These may include roughbarked apple (*Angophora floribunda*), grey gum (*E. punctata*), ribbon gum (*E. viminalis*) and red gum (*E. blakelyi*). Grassy and herbaceous species and those tolerant of short-term flooding usually dominate the understorey. *Microlaena stipoides*, *Lomandra longifolia* and *Dichondra repens* are the most consistent of the ground covers. Shrub layers are generally sparse. Proximity to water and palatable herbage have resulted in grazing and clearing disturbance within much of these forests, with many stands of regrowth and pioneering shrub species observed. The rainfall experienced by the community is of the order of 600 to 750 millimetres per annum, but flow in the stream and shallow groundwater in the alluvium largely support the community.

Trees: *Angophora floribunda*, *Brachychiton populneus*, *Casuarina cunninghamiana*, *Eucalyptus blakelyi*, *Eucalyptus punctata* **Shrubs:** *Acacia filicifolia*, *Austrostipa verticillata*, *Bursaria spinosa*, *Persoonia linearis*, *Pteridium esculentum*, *Solanum prinophyllum* **Ground Covers:** *Desmodium varians*, *Dianella revoluta*, *Dichondra repens*, *Echinopogon ovatus*, *Einadia trigonos*, *Entolasia stricta*, *Gahnia aspera*, *Hydrocotyle laxiflora*, *Lomandra longifolia*, *Microlaena stipoides*, *Notodanthonia longifolia*, *Pimelea latifolia* ssp. *elliptifolia*, *Sigesbeckia* spp., *Veronica* spp. **Climbers:** *Billardiera scandens*, *Clematis aristata*, *Geitonoplesium cymosum*, *Passiflora cinnabarina*, *Stephania japonica*, *Tylophora barbata*

4. Vegetation of the poorer soils in the low rainfall parts of the Capertee valley

MU38 Capertee Grey Gum – Narrow-leaved Stringybark – Scribbly Gum – Callitris – Ironbark Shrubby Forest

This shrubby, dry forest is found on moderate to steep slopes and ridge crests throughout the western Capertee Valley, and with localised occurrences in the eastern parts. It is common in Gardens of Stone National Park and Mugii Murum-ban State Conservation Area from Conobla Gap to north of Airly Mountain. Tree species are highly variable and exhibit localised patterns. The most consistent member of the community is grey gum (*E. punctata*) though it may not dominate all sites. Combinations of stringybarks (*E. cannonii*, *E. sparsifolia*, *E. tenella*) were encountered as were local patches of red ironbark (*E. fibrosa*), tablelands scribbly gum (*E. rossii*) and native pine (*Callitris*). The understorey is usually shrubby, dominated by wattles, epacrids and with scattered tussocks of coarse grasses such as

Joycea pallida. *Persoonia linearis* is a regular member of the community. It mainly occurs on stony soils, derived from finer grades of talus falling from sandstone escarpments, or on the metamorphic basement rocks. Loose rock at the surface is a common feature of the community. It ranges from 400 to about 750 metres altitude, although the bulk of occurrence is between 500 and 650 metres. Annual rainfall is in the order of 600 to 700 millimetres *per annum*.

Trees: *Eucalyptus cannonii*, *E. fibrosa*, *E. punctata*, *E. rossii*, *E. sparsifolia* **Low Trees and Shrubs:** *Acacia decora*, *Acrotriche rigida*, *Brachyloma daphnoides*, *Bursaria spinosa*, *Callitris endlicheri*, *Leucopogon muticus*, *Lissanthe strigosa*, *Melichrus urceolatus*, *Persoonia linearis*, *Pultenaea scabra*. **Ground Covers:** *Astroloma humifusum*, *Cheilanthes austrotenuifolia*, *Dianella revoluta*, *Dichelachne micrantha*, *Goodenia hederacea*, *Hibbertia obtusifolia*, *Joycea pallida*, *Lepidosperma gunnii*, *Lomandra confertifolia*, *L. filiformis*, *L. glauca*, *Microlaena stipoides*, *Pomax umbellata*

MU39 Capertee Hills Blue-leaved Ironbark – *Callitris* Shrubby Forest

This vegetation type is found in the hills of the Capertee Valley where environmental conditions are similar to those occurring in western NSW. It is a forest with the canopy dominated by blue-leaved ironbark (*Eucalyptus nubila*) with a shrubby understorey dominated by *Leucopogon muticus*, heath shrubs and legumes. The ground layer is usually sparse, with little grassy cover but a moderate diversity of forbs and ephemeral species such as ground orchids. There are places in this community, which lack eucalypt cover, being dominated by open to dense stands of cypress pine. It is mainly found on ridges with a very thin veneer of Permian sediments overlying the basement metamorphics. The soils are often stony, but are usually sandy in nature. The distribution is highly localised with occurrences in three discontinuous blocks, in the Crown Creek catchment, the Coco Creek catchment and on the north side of Genowlan Point. The lowest patch of the community occurs at about 450 metres above sea level, the largest area from 500 to 570 metres and the highest (southern) block extends from 730 to 760 metres above sea level. Rainfall for the community ranges from 630 to 700 millimetres *per annum*.

Trees: *Callitris endlicheri*, *Callitris glaucophylla*, *Eucalyptus crebra*, *Eucalyptus nubila* **Shrubs:** *Acacia decora*, *Acrotriche rigida*, *Babingtonia densifolia*, *Brachyloma daphnoides*, *Grevillea triternata*, *Leucopogon muticus*, *Persoonia linearis*, *Phebalium bifidum* **Ground Covers:** *Astroloma humifusum*, *Austrodanthonia racemosa*, *Austrostipa scabra*, *Cheilanthes sieberi*, *Digitaria diffusa*, *Entolasia stricta*, *Goodenia bellioides*, *Goodenia hederacea*, *Microlaena stipoides*, *Patersonia longifolia*, *Pomax umbellata*

MU40 Capertee Slopes Red Ironbark – Red Stringybark – Narrow-leaved Stringybark Shrubby Woodland

The dry, north-facing slopes below the escarpment of the Mount Airly mesa, Pantoneys Crown and the Red Rocks support an open forest characterised by red ironbark (*E. fibrosa*). It is often found with stunted grey gum (*E. punctata*) and stringybarks (*E. cannonii/macrohyncha*) and occasionally with red box (*E. polyanthemosa*). This community occupies the driest and most impoverished of sites below the escarpment of the Capertee Valley. The ground cover is generally very sparse and rocky, though there is a moderate cover of dry sclerophyllous shrubs such

as *Lissanthe strigosa* and *Pultanea microphylla*. The altitudinal range is from 300 to 800 metres above sea level, with mean annual precipitation between 640 and 850mm

Trees: *Eucalyptus fibrosa*, *E. cannonii/macrohyncha*, *E. polyanthemos*, *E. dawsonii*, *E. punctata*, *E. sideroxylon* **Shrubs:** *Acacia buxifolia*, *Acacia clandestina*, *Cassinia arcuata*, *Lissanthe strigosa*, *Olearia microphylla*, *Pultanea microphylla* **Ground Covers:** *Aristida vagans*, *Cheilanthes distans*, *C. sieberi*, *Chrysocephalum apiculatum*, *Dianella revoluta*, *Dichelachne inaequiglumis*, *Entolasia stricta*, *Goodenia hederacea*, *Joycea pallida*, *Lepidosperma gunnii*, *L. laterale*, *Lomandra confertifolia*, *Lomandra glauca*

5. Vegetation of the sandstone plateaux

MU7 Newnes Plateau Narrow-leaved Peppermint – Mountain Gum – Brown Stringybark Layered Forest

This is a tall forest dominated by narrow-leaved peppermint (*E. radiata*) and brown stringybark (*E. blaxlandii*) with occasional Blue Mountains ash (*E. oreades*) and mountain gum (*E. dalrympleana*). The ground cover is relatively open with *Lomatia*, *Leucopogon* and *Polyscias* being commonly present. This community is distinctive on the plateau as it is taller and grassier than the surrounding shrub forests and woodlands. The understorey is quite diverse, and has a diverse array of graminoids (*Dianella* and *Lomandra*) and herbs. It primarily occurs on sandy loam soils derived from Triassic era Narrabeen sediments in the central, flat part of Newnes Plateau. Its altitudinal range is between 1000 metres and 1180 metres above sea level, dropping to about 900 metres in a few places on the eastern side of the Newnes Plateau. Precipitation values are between 960 millimetres and 1100 millimetres *per annum*.

Trees: *Eucalyptus blaxlandii*, *E. dalrympleana*, *E. fastigata*, *E. oreades*, *E. radiata* **Shrubs:** *Boronia microphylla*, *Daviesia latifolia*, *Hibbertia obtusifolia*, *Leucopogon lanceolatus*, *Lomatia myricoides*, *Lomatia silaifolia*, *Monotoca scoparia*, *Olearia myrsinoides*, *Persoonia myrtilloides*, *Polyscias sambucifolia* **Ground Covers:** *Amperea xiphoclada*, *Brunonia australis*, *Chrysocephalum apiculatum*, *Dianella caerulea*, *Dianella revoluta*, *Dianella tasmanica*, *Gonocarpus teucrioides*, *Helichrysum leucopsidium*, *Helichrysum scorpioides*, *Hovea heterophylla* (includes *H. linearis*), *Hydrocotyle laxiflora*, *Hypericum japonicum*, *Joycea pallida*, *Lomandra filiformis*, *Lomandra longifolia*, *Lomandra multiflora*, *Microlaena stipoides*, *Opercularia diphylla*, *Patersonia sericea*, *Pimelea linifolia*, *Poa sieberiana*, *Poranthera microphylla*, *Pteridium esculentum*, *Senecio lautus*, *Solenogyne belliioides*, *Stackhousia viminea*, *Viola betonicifolia*, *Viola sieberiana*, *Wahlenbergia stricta* **Climbers:** *Billardiera scandens*, *Clematis glycinoides*

MU 26 Newnes Plateau Narrow-leaved Peppermint – Silvertop Ash Layered Open Forest

This community unites a range of similar sclerophyllous shrub dominant assemblages found on shallow soils around the fringes of the central, flat portion of the Newnes Plateau. The shrub layer is diverse and moderately dense and is dominated by *Proteaceae*, legumes and *Boronia*. The tree species vary with soil depth and topographic position. In gentle depressions, brittle gum (*E. mannifera*), scribbly gum (*E. sclerophylla*), and mountain gum (*E. dalrympleana*) are prominent, often with broad-leaved peppermint (*E. dives*). Ridges support a taller forest with brown

stringybark (*E. blaxlandii*), narrow-leaved peppermint (*E. radiata*) and silvertop ash (*E. sieberi*). Blue Mountains ash (*E. oreades*) is inconsistently found throughout this community. The lowest storey varies in its density, but is usually of moderate cover, dominated by tussock grasses (*Austrostipa*, *Poa* and *Joycea*) and graminoids such as lomandras, *Patersonia* and *Dianella*. A diverse range of small herbs also occupies the groundcover stratum. It is found on Triassic era Narrabeen sandstones at altitudes of 900 metres to 1180 metres above sea level and with mean annual rainfall of similar figures. The grassy ground stratum and the composition of the canopy suggests that the sandstone soils where it occurs may be enriched by a long eroded basalt or shale cap.

Trees: *Eucalyptus blaxlandii*, *E. dives*, *E. oreades*, *E. piperita*, *E. radiata*, *E. sieberi*
Shrubs: *Acacia terminalis*, *Banksia cunninghamii*, *Boronia microphylla*, *Daviesia latifolia*, *Hakea dactyloides* (includes *H. laevipes*), *Isopogon anemonifolius*, *Leucopogon lanceolatus*, *Lomatia silaifolia*, *Monotoca scoparia*, *Persoonia myrtilloides*, *Petrophile pulchella*, *Pimelea linifolia*
Ground Covers: *Amperea xiphoclada*, *Austrostipa pubescens*, *Chrysocephalum apiculatum*, *Dampiera stricta*, *Dianella caerulea*, *Dianella revoluta*, *Gonocarpus teucroides*, *Goodenia bellidifolia*, *Hovea heterophylla* (includes *H. linearis*), *Joycea pallida*, *Lindsaea linearis*, *Lomandra filiformis*, *Lomandra glauca*, *Lomandra longifolia*, *Microlaena stipoides*, *Mirbelia platyloboides*, *Patersonia sericea*, *Phyllota squarrosa*, *Platysace linearifolia*, *Poa sieberiana*, *Poranthera microphylla*, *Pteridium esculentum*, *Rhytidosporum procumbens*, *Thysanotus tuberosus*, *Viola sieberiana*
Climbers: *Billardiera scandens*

MU27 Mount Airly Sydney Peppermint – Narrow-leaved Stringybark – Grey Gum Shrubby Open Forest

An open forest community is found on drier and lower areas of Narrabeen Sandstone with a canopy dominated by Sydney peppermint (*E. piperita*), narrowleaved stringybark (*E. sparsifolia* / *E. tenella*) and grey gum (*E. punctata*). The understorey varies from lightly to densely shrubby, depending on fire frequency. The shrubs *Leucopogon muticus* and *Persoonia linearis* are most common. The groundcover is sparse with a low diversity of species with *Pomax umbellata*, red-anther wallaby grass (*Joycea pallida*), weeping grass (*Microlaena stipoides*) and *Dianella revoluta* being typically present. The community is found on shallow earthy sand and loamy sand soils derived from the Triassic era Narrabeen sediments – in particular the sandstone units of the Grose Sub-group. The community occurs in areas with lower elevations and rainfall than the Newnes Plateau. Elevation ranges between 440 metres and 800 metres and precipitation between 675 millimetres and 850 millimetres of *per annum*. The sandstone mesa of Mount Airly has the largest area of this vegetation type, but it also occurs on the Wolgan Capertee divide and on the plateau north of Mt Cameron.

Trees: *Eucalyptus mannifera*, *E. oblonga*, *E. piperita*, *E. punctata*, *E. sparsifolia*
Low Trees and Shrubs: *Acacia obtusifolia*, *Allocasuarina littoralis*, *Exocarpos strictus*, *Leucopogon muticus*, *Persoonia linearis*, *Podolobium ilicifolium*, *Styphelia* spp.
Ground Covers: *Austrostipa pubescens*, *Dianella caerulea*, *Gonocarpus tetragynus*, *Joycea pallida*, *Lepidosperma gunnii*, *Lomandra glauca*, *Microlaena stipoides*, *Poa sieberiana*, *Pomax umbellata*
Climbers: *Amyema pendulum*, *Billardiera scandens*, *Clematis aristata*

MU28 Sandstone Plateau and Ridge Scribbly Gum Silvertop Ash Shrubby Woodland

This is probably the most widespread community on the shallow soils and rocky sites across the upper Blue Mountains sandstones. Within the Gardens of Stone area, it is extensive on Newnes plateau and the plateaux between Deanes Creek and the Wolgan and between Newnes and Glen Davis. It is usually an open forest with a canopy of silvertop ash (*E. sieberi*) and scribbly gum (*E. sclerophylla*), although other species are occasionally present. The shrub layer is a diverse range of species from legumes (*Acacia* and *Bossiaea*), epacrids (*Leucopogon* and *Monotoca* mainly), Proteaceae (*Hakea*, *Persoonia* and *Lomatia*) and Myrtaceae (especially *Leptospermum*). With showy species such as *Boronia microphylla* and *Telopea speciosissima* being common members of the community, the springtime flowering is a spectacular sight. The groundcover is also quite diverse, and is dominated by legumes and graminoids, particularly sedges and flag iris (*Patersonia*). The soils are usually shallow, with sandy loams and earthy sands dominating. The underlying substrates are almost invariably Triassic era Narrabeen sandstones. The elevation range is between 680 metres and 1140 metres above sea level, although the majority of the community is above 1000 metres above sea level. The precipitation is between 730 millimetres and 1050 millimetres *per annum*.

Trees: *Eucalyptus sclerophylla*, *E. sieberi*, *E. radiata* **Shrubs:** *Acacia terminalis*, *Allocasuarina nana*, *Banksia ericifolia*, *Boronia microphylla*, *Bossiaea heterophylla*, *Hakea dactyloides* (including *H. laevipes*), *Isopogon anemonifolius*, *Leptospermum arachnoides*, *Leptospermum trinervium*, *Lomatia silaifolia*, *Monotoca elliptica*, *Monotoca scoparia*, *Persoonia levis*, *Petrophile canescens*, *Petrophile pulchella*, *Pomaderris andromedifolia* **Ground Covers:** *Amperea xiphoclada*, *Caustis flexuosa*, *Dianella revoluta*, *Entolasia stricta*, *Gahnia filifolia*, *Goodenia bellidifolia*, *Hibbertia rufa*, *Hovea heterophylla*, *Lomandra glauca*, *Mirbelia platyloboides*, *Patersonia glabrata*, *Patersonia longifolia*, *Patersonia sericea*, *Phyllota squarrosa*, *Platysace linearifolia*, *Rhytidosporum procumbens*, *Stylidium lineare* **Climbers:** *Cassytha racemosa*

MU29 Sandstone Slopes Sydney Peppermint Shrubby Forest

The semi sheltered sandstone slopes and deeper soils on ridges on lower elevation of the Newnes Plateau carry a tallish forest often solely dominated by Sydney peppermint (*E. piperita*), but sometimes including brown stringybark (*E. blaxlandii*). It occupies slopes with intermediate protection from solar radiation and drying winds between the ridgetop woodlands and in the protected gully forests. The midstratum is often dense, dominated by wattles, Proteaceae and epacrids, particularly *Leucopogon*, *Monotoca* and *Persoonia*. The groundcover layer is often relatively sparse, although the ground is well covered by litter and plant debris. The main species in the groundcover reflect the somewhat sheltered position and include the native broom (*Amperea*), flax-lilies (*Dianella*), lomandras and bracken fern (*Pteridium*). The community is restricted to occurrences of Narrabeen sandstones, favouring ridges and upper slopes. It mainly occurs on slopes above the streams draining the Newnes Plateau and in Mugii Murum-ban State Conservation Area. Elevation range lies between 670 metres and 1160 metres above sea level with these receiving between 690 millimetres and 1070 millimetres of precipitation *per annum*.

Trees: *Eucalyptus blaxlandii*, *E. piperita*, *E. punctata*, *E. radiata* **Shrubs:** *Acacia obtusifolia*, *Leptospermum polygalifolium*, *Leucopogon lanceolatus*, *Leucopogon muticus*, *Monotoca elliptica*, *Monotoca scoparia*, *Persoonia linearis*, *Podolobium ilicifolium* **Ground Covers:** *Amperea xiphoclada*, *Dianella caerulea*, *Lomandra longifolia*, *Poa sieberiana*, *Pomax umbellata*, *Poranthera microphylla*, *Pteridium esculentum*, *Viola sieberiana* **Climbers:** *Billardiera scandens*

MU30 Exposed Blue Mountains Sydney Peppermint – Silvertop Ash Shrubby Woodland

Along with vegetation type 28, this is the community commonly occurring on the broad sandstone ridges found across extensive areas of the Blue Mountains region. In the Gardens of Stone area, it is found across the Newnes Plateau (excepting the flat, central portion) extending north to the Wolgan River. This moderately tall forest of less than 20 metres in height is usually dominated by two eucalypt species Sydney Peppermint (*E. piperata*) and Silvertop Ash (*E. sieberi*). The shrub layer is typically rich in legumes, epacrids and members of the Proteaceae family. Taller shrubs such as *Leptospermum* and *Hakea* are also a distinctive component of the mid-stratum. The groundcover is typically sparse, and dominated by tough-leaved plants such as the smaller lomandras and the leafless small shrub *Amperea*. Within the study area the community is distributed from 700 to 1100 metres above sea level and typically receives between 700 and 1100 millimetres of precipitation *per annum*.

Trees: *Eucalyptus piperita*, *E. sieberi*, *E. sclerophylla* **Shrubs:** *Acacia terminalis*, *Hakea dactyloides*, *Leptospermum trinervium*, *Lomatia silaifolia*, *Monotoca scoparia*, *Platysace linearifolia*, *Pteridium esculentum*, *Telopea speciosissima* **Ground Covers:** *Amperea xiphoclada*, *Caustis flexuosa*, *Dampiera stricta*, *Lomandra glauca*, *Patersonia glabrata*

MU43 Pagoda Rock Sparse Shrubland

Massive residual sandstone rock outcrops known as pagodas are a spectacular sight on the edges of the sandstone plateaux and mesas. This community is one of several heath communities that grow in and around these rock formations. The heath species that are consistently present are *Calytrix tetragona*, *Leptospermum parvifolium* and *L. arachnoides* and *Leucopogon muticus*. Exposed rock makes up a large proportion of each of the sites and as result total vegetation cover is variable. Some sites include scattered *Callitris* pines or low stunted eucalypts. The community occurs exclusively on Triassic era Narrabeen sediments. It is found wherever pagodas occur on all of the sandstone plateaux within the Gardens of Stone. The altitude range for the community is between 650 and 1150 metres above sea level, although the majority of the community is distributed at about 900 to 950 metres above sea level, and there is between 680 millimetres and 1080 millimetres of precipitation *per annum*.

Emergents (mostly trees) *Callitris rhomboidea*, *Callitris endlicheri*, *Eucalyptus blaxlandii*, *E. piperita* **Shrubs:** *Acacia obtusifolia*, *Allocasuarina distyla*, *Allocasuarina nana*, *Banksia penicillata*, *Calytrix tetragona*, *Isopogon anethifolius*, *Leptospermum arachnoides*, *Leptospermum parvifolium*, *Leptospermum trinervium*, *Leucopogon muticus*, *Monotoca scoparia*, *Ozothamnus diosmifolius*, *Petrophile pulchella*, *Platysace lanceolata* **Ground Covers:** *Gonocarpus teucrioides*, *Goodenia bellidifolia*, *Lepidosperma gunnii*, *Lepidosperma laterale*, *Lomandra confertifolia*,

Lomandra glauca, *Platysace linearifolia*, *Stylidium graminifolium*, *Stylidium lineare*
Climbers: *Cassytha pubescens*, *Cassytha racemosa*

MU44 Sandstone Plateaux Tea Tree – Dwarf Sheoak – *Banksia* Rocky Heath

The sandstone escarpments around the edge of the Newnes Plateau support a low heath community that grows on rock plates and rock terraces amongst rock pagodas and cliff edges. It also occurs along the edge of Ben Bullen State Forest from Angus Place to Blackmans Flat, and in Gardens of Stone National Park north of Ben Bullen and around Carne Creek. This patchy though widespread community is characterised by three consistently occurring species - dwarf she oak (*Allocasuarina nana*), *Banksia ericifolia*, and tea tree (*Leptospermum arachnoides*). The groundcover is rarely more than localised in nature, with sedges (particularly *Lepidosperma*) being the dominant cover, and the small shrub *Platysace linearifolia* also common. The dwarf triggerplant (*Stylidium lineare*) is a ubiquitous member of the community. The community is found in areas of shallow to skeletal soils over the iron-banded sandstones of the Triassic era Narrabeen series. The soils are loamy sands or earthy sands, freely draining and often dry, although groundwater seepage may sustain the community in many places. The altitude range occupied by the community extends from 760 to 1160 metres above sea level (most commonly over 950 metres), and precipitation values are between 700 millimetres and 1080 millimetres *per annum*.

Emergents (mostly low trees) *Banksia ericifolia*, *Eucalyptus piperita* **Shrubs:** *Allocasuarina nana*, *Baeckea brevifolia*, *Hakea dactyloides* (includes *H. laevipes*), *Hakea gibbosa*, *Isopogon anemonifolius*, *Leptospermum arachnoides*, *Leptospermum grandifolium*, *Leptospermum trinervium*, *Leucopogon lanceolatus*, *Lomatia silaifolia*, *Micromyrtus ciliata*, *Monotoca scoparia*, *Petrophile pulchella*, *Philotheca obovalis*, *Platysace lanceolata* **Ground Covers:** *Dampiera stricta*, *Gonocarpus teucrioides*, *Goodenia bellidifolia*, *Laxmannia gracilis*, *Lepidosperma laterale*, *Lepidosperma tortuosum*, *Lomandra confertifolia*, *Lomandra glauca*, *Lomandra longifolia*, *Patersonia longifolia*, *Platysace linearifolia*, *Poa sieberiana*, *Pteridium esculentum*, *Stylidium lineare* **Climbers:** *Billardiera scandens*, *Cassytha racemosa*

MU46 Newnes Plateau Dwarf Sheoak – *Banksia* Heath

In the east of the Newnes Plateau in the Farmers Creek catchment and south of Waratah Ridge, there are limited though locally extensive patches of a dense, low heath dominated by dwarf sheoak (*Allocasuarina nana*) with a range of dwarf Myrtaceae (*Micromyrtus*, *Darwinia*, *Calytrix*), Rutaceae (*Philotheca*) and Proteaceae (*Banksia*, *Isopogon*). Occasional mallee eucalypts including the uncommon Wolgan snow gum (*E. gregsoniana*), mallee ash (*E. stricta*) & brittle gum (*E. mannifera*) and tall *Banksia ericifolia* and *Leptospermum trinervium* may also occur. The groundcover is mainly herbaceous, with *Goodenia bellidifolia* and *Lindsaea linearis* joining the wiry grass *Entolasia* and the sedges *Lepidosperma* and *Schoenus*. *Stylidium lineare*, the dwarf trigger plant, may also form a prominent part of the groundcover. Found on Narrabeen sediments, the soils are shallow to skeletal loamy or earthy sands. Typically the moisture content is raised by seepage out of the rock, or by localised runoff from adjacent rock surfaces. The elevation range for the community is between 940 and 1150 metres, although it is much more abundant above 1050 metres above sea level. The precipitation values are 900 millimetres to 1075 millimetres *per annum*. The Endangered Ecological Community Genowlan

Point Dwarf Sheoak Heathland on the northern end of the Genowlan Mountain sandstone mesa in the Capertee Valley is included in this community.

Emergents *Banksia ericifolia*, *Eucalyptus gregsoniana*, *E. mannifera*, *E. stricta*, *Leptospermum trinervium* **Shrubs:** *Acacia gunnii*, *Allocasuarina nana*, *Austrostipa pubescens*, *Brachyloma daphnoides*, *Calytrix tetragona*, *Darwinia fascicularis*, *D. taxifolia*, *Hakea dactyloides* (includes *H. laevipes*), *Hibbertia obtusifolia*, *Isopogon anemonifolius*, *Leionema lamprophyllum*, *Leptospermum arachnoides*, *Micromyrtus ciliata*, *Pimelea linifolia*, *Philothea obovalis* **Ground Covers:** *Entolasia stricta*, *Goodenia bellidifolia*, *Hibbertia serpyllifolia*, *Hovea heterophylla* (includes *H. linearis*), *Lepidosperma viscidum*, *Lindsaea linearis*, *Lomandra glauca*, *Mirbelia platyloboides*, *Patersonia glabrata*, *Phyllota squarrosa*, *Rhytidosporum procumbens*, *Schoenus ericetorum*, *Schoenus villosus* **Climbers:** *Cassytha pubescens*

MU50 Newnes Plateau Shrub Swamp

This Endangered Ecological Community occurs on long gentle open drainage lines on the Newnes Plateau. Most occurrences are within Newnes State Forest in the upper reaches of the Wolgan River and the Carne, Rocky, Nayook and Bungleboori Creek catchments. Within Wollemi National Park, examples are found in the headwaters of Deanes and Galah Creeks. It forms a dense, wet heath with an unevenly-textured, tussock sedge understorey. Trees are typically absent, although occasional eucalypts do occur on better drained soils associated with the accumulation of incoming sediments. The main shrub species are *Baeckea linifolia*, *Boronia deanei*, *Grevillea acanthifolia*, *Epacris* species and *Leptospermum* species. The consistent component of the ground cover is the sedges *Lepidosperma limicola*, and button grass (*Gymnoschoenus sphaerocephalus*) and rushes such as *Empodisma minus*. *Xyris*, the yellow flag, is also very common in the community. While the community is typically within the Triassic age Narrabeen Sandstone, the community itself occurs within recent alluvial deposits that form in the low-lying, broad valleys of the plateau. They range in elevation from 900 to 1130 metres above sea level, although most are above 1000 metres above sea level. There is usually between 880 millimetres and 1080 millimetres of precipitation *per annum*. This particular swamp community is restricted to the high elevations of the Blue Mountains. While some examples occur within the Blue Mountains reserve system, the largest patches are within Newnes State Forest.

Shrubs: *Baeckea linifolia*, *Banksia marginata*, *Callistemon sieberi*, *Epacris paludosa*, *Grevillea acanthifolia*, *Leptospermum continentale*, *L. grandifolium*, *Pultenaea divaricata* **Ground Covers:** *Baloskion australe*, *Celmisia longifolia*, *Drosera* spp., *Empodisma minus*, *Gleichenia dicarpa*, *Gymnoschoenus sphaerocephalus*, *Lepidosperma limicola*, *Lepyrodia scariosa*, *Olearia quercifolia*, *Patersonia fragilis*, *Viola hederacea*, *Xyris ustulate*

MU51 Newnes Plateau Hanging Swamp

While Newnes Plateau Hanging Swamps share a similar distribution and many species with Newnes Plateau Shrub Swamps, they occupy a different habitat niche. The Hanging Swamps occupy gully heads and ridgetop sites at seepage points where percolating groundwater travelling through the sandstone is forced flow sideways to the edge of the rock stratum by impermeable shale layers. This seepage forms ephemeral wet peaty soils on which a range of swamp heath plants grows. The

uppermost stratum, which may include mallees such as Wolgan snow gum (*E. gregsoniana*) and tea tree (*Leptospermum juniperinum*) and *Banksias* are usually only a few metres above ground level and may only be sparse. By contrast the lowest stratum may be a metre off the ground or more, with coral fern (*Gleichenia*) and umbrella fern (*Sticherus*) combining with large saw-sedge (*Gahnia sieberiana*) to form a nearly impenetrable layer. Diversity is relatively low, but the species present are often restricted to wet habitats. Soils are permanently saturated peat and humic loams, formed by the build up of the plants growing in the community. In the study area, the community occurs between 900 and 1170 metres above sea level almost exclusively on the Triassic era Narrabeen sediments. Although groundwater is of primary importance for sustaining the community, it typically occurs in areas from 900 to 1070 millimetres of precipitation *per annum*.

Low Trees and Shrubs: *Babingtonia densifolia*, *Baekkea linifolia*, *Banksia marginata*, *Epacris brevifolia*, *Epacris microphylla*, *Eucalyptus gregsoniana*, *Eucalyptus rossii*, *Grevillea acanthifolia*, *Hakea dactyloides* (includes *H. laevipes*), *Leptospermum continentale*, *Leptospermum lanigerum*, *Leptospermum parvifolium*, *Leptospermum sphaerocarpum* **Ground Covers:** *Drosera binata*, *Drosera peltata*, *Drosera spatulata*, *Empodisma minus*, *Gahnia sieberiana*, *Gleichenia dicarpa*, *Lepidosperma limicola*, *Lepidosperma tortuosum*, *Leptocarpus tenax*, *Olearia quercifolia*, *Patersonia longifolia*, *Xyris juncea*, *Xyris ustulate*

MU52 Newnes Plateau Rush – Sedge Snow Gum Hollow Wooded Heath

The highest ridgelines of the Newnes Plateau include open depressions that are sites of semi permanent water seepage. A wet woody shrub swamp occupies these locations. The uppermost stratum is a very open cover of snow gum (*E. pauciflora*), with occasional mountain gum (*E. dalrympleana*). Taller shrubs of tea tree (*Leptospermum obovatum*, *L. trinervium*) and swamp grevillea (*Grevillea acanthifolia*) are by far the most abundant feature of the community. A dense, uneven cover of various sedges and rushes – dominated by *Empodisma minus* – is to be found covering the ground along with small, moisture loving forbs. The distribution of this vegetation type is very similar to Newnes Plateau Shrub Swamps. Found at elevations of 1150 to 1170 metres above sea level, growing in saturated, humic-loam sediments overlying the Narrabeen sandstones. There is about 1020 millimetres of precipitation *per annum*, but the landscape position suggests that groundwater and seepage are more important for the persistence of the community.

Emergents: *Eucalyptus dalrympleana*, *E. mannifera*, *E. pauciflora* **Shrubs:** *Epacris microphylla*, *Grevillea acanthifolia*, *Leptospermum obovatum*, *Pultenaea capitellata* **Ground Covers:** *Baloskion australe*, *Brachyscome scapigera*, *Deyeuxia gunniana*, *Empodisma minus*, *Gahnia sieberiana*, *Galium liratium*, *Gonocarpus micranthus*, *Gonocarpus tetragynus*, *Hydrocotyle peduncularis*, *Lepyrodia anarthria*, *Lomandra filiformis*, *Lomandra longifolia*, *Mitrasacme serpyllifolia*, *Murdannia graminea*, *Poa sieberiana*, *Sowerbaea juncea*, *Thelymitra venosa*, *Velleia montana*, *Viola hederacea*, *Viola sieberiana*, *Xanthosia dissecta*

6. Communities of the talus slopes below the escarpment

MU3 Hillslope Talus Mountain Grey Gum – Brown Stringybark – Grey Gum – Broadleaved Hickory Moist Forest

A moist forest is often found on steep sheltered slopes on Permian sediments below the escarpment of the Wolgan and Capertee Valleys. It has a tall, open canopy of eucalypts – mainly mountain grey gum (*E. cypellocarpa*), grey gum (*E. punctata*), red box (*E. polyanthemos*) and brown stringybark (*E. blaxlandii*) above a patchy canopy of wattles. The groundcover is also discontinuous, with areas of graminoids and forbs separated by areas of fallen litter or rockfall. It primarily occurs on protected slopes below the escarpment such as near the Wolgan Road below Wolgan Gap, the southern side of Donkey Mountain, the Airly-Mt Genowlan plateau, Pantoneys Crown and below the southern escarpment between Woolpack Gap and Mt Dawson.

Trees: *Angophora floribunda*, *Eucalyptus blaxlandii*, *E. cypellocarpa*, *E. polyanthemos*, *E. punctata* **Shrubs:** *Acacia falciformis*, *A. filicifolia*, *A. obtusifolia*, *Bursaria spinosa*, *Indigofera australis*, *Leucopogon lanceolatus*, *Persoonia linearis*, *Solanum prinophyllum* **Ground Covers:** *Adiantum aethiopicum*, *Arthropodium milleflorum*, *Asplenium flabellifolium*, *Austrodanthonia racemosa*, *Cheilanthes sieberi*, *Cynoglossum suaveolens*, *Desmodium varians*, *Dianella caerulea*, *Dichondra repens*, *Echinopogon ovatus*, *Galium binifolium*, *G. propinquum*, *Hydrocotyle laxiflora*, *Lomandra filiformis*, *L. longifolia*, *L. multiflora*, *Microlaena stipoides*, *Notodanthonia longifolia*, *Opercularia hispida*, *Oxalis perennans*, *Plantago hispida*, *Poa sieberiana*, *Poranthera microphylla*, *Pteridium esculentum*, *Stellaria pungens*, *Viola* spp., *Wahlenbergia stricta* **Climbers:** *Billardiera scandens*, *Clematis glycinoides*, *Geitonoplesium cymosum*, *Glycine clandestine*

MU21 Capertee – Wolgan Slopes Red Box – Grey Gum – Stringybark Grassy Woodland

This widespread vegetation type is found on the slopes below the sandstone cliffs and occasionally on higher elevation shale enriched sandstone ridges throughout the Wolgan valley and in the western part of the Capertee. The community is quite variable in the understorey, with the canopy species being relatively consistent throughout. The main species present in this dry sclerophyll forest is grey gum (*Eucalyptus punctata*) with box and stringybark companions. The box is typically one of the smooth-bark types, such as yellow box (*E. melliodora*) or red box (*E. polyanthemos*), and the stringybarks may be either in the red stringybark group (*E. cannonii* or *E. macrorhyncha*) or in the narrow-leaved group (*E. tenella* and *E. sparsifolia*). The understorey may vary from a grass and forb dominated form on better soils, to a shrubbier understorey on poorer soils that is the more widespread form. The community is primarily found in areas receiving 600 to 850 millimetres of rain *per annum*, and from altitudes of 330 to 900 metres above sea level. Substrates may be intact Permian – Triassic sandstone strata, or more usually the talus below the Triassic sandstone cliff lines.

Trees: *Eucalyptus cannonii*, *E. polyanthemos*, *E. punctata* **Shrubs:** *Acacia falciformis*, *Indigofera australis*, *Persoonia linearis* **Ground Covers:** *Acaena ovina*, *Astroloma humifusum*, *Austrodanthonia racemosa*, *Cheilanthes austrotenuifolia*, *Desmodium varians*, *Dichondra repens*, *Echinopogon* spp., *Gonocarpus tetragynus*, *Hydrocotyle laxiflora*, *Hypericum japonicum*, *Lagenifera stipitata*, *Lomandra filiformis*, *Lomandra multiflora*, *Microlaena stipoides*, *Oxalis perennans*, *Plantago hispida*, *Poranthera microphylla*, *Veronica plebeia*, *Wahlenbergia stricta* **Climbers:** *Clematis aristata*, *Glycine clandestine*

MU41 Capertee Slopes Slaty Gum – Grey Gum – Mugga – *Callitris* Open Forest

The footslopes and benches of the Capertee Valley escarpment between Glen Davis and Point Anderson feature a tallish forest (c. 25 metres) that includes the locally endemic tree slaty gum (*E. dawsonii*). Companion species include grey gum (*E. punctata*) and ironbarks (*E. sideroxylon* and *E. fibrosa*) while black cypress pine (*Callitris endecheri*) was recorded at almost every site. The community favours sandy soils derived from weathering of sandstone talus falling from the cliff lines above. It varies from the escarpment bench down to the lower slopes, and may occur on either deep sandy or relatively shallow and stony soils. In all cases it would seem that the soil is very well drained. The understorey includes a low, sparse and patchy shrub cover and often a fair cover of grasses and with cycads prolific at some locations. Sometimes the groundcover is very sparse, especially where a dense canopy of pine or wattles occurs. This is likely to reflect past grazing and clearing activities that have impacted on the lower slopes. It extends from about 280 metres above sea level to about 600 metres with rainfall values between 650 and 750 millimetres *per annum*.

Trees: *Eucalyptus dawsonii*, *E. fibrosa*, *E. punctata*, *E. sideroxylon* **Low**

Trees/Shrubs: *Callitris endlicheri*, *Dodonaea viscosa* ssp. *cuneata*, *Lissanthe strigosa* **Ground Covers:** *Aristida* spp., *Austrostipa scabra*, *Brunoniella australis*, *Entolasia stricta*, *Gahnia aspera*, *Goodenia hederacea*, *Lepidosperma gunnii*, *Lomandra confertifolia*, *Notodanthonia longifolia*

7. Communities of the dissected gorges

MU4 Sheltered Gully Brown Barrel Ferny Forest

A tall forest is found in the deeper gorges where large sandstone cliffs offer considerable topographic protection. It is usually dominated by brown barrel (*E. fastigata*) with localised occurrences of monkey gum (*E. cypellocarpa*) and peppermints (*E. dives*, *E. radiata* and *E. piperita*). Small trees may include the broad-leaved hickory (*Acacia falciformis*) and *Leptospermum polygalifolium*, and various soft leaved 'rainforest' species such as *Rapanea* and *Polyosma*. The groundcover is usually dense and dominated by taller ground-ferns such as soft bracken fern (*Calochlaena dubia*) and gristle ferns (*Blechnum* species). The larger patches occur in Wollemi National Park in upper Rocky and Nayook Creeks. Smaller patches occur in Blue Mountains National Park in Bungleboori Creek, in the deeper grottoes around Mt Airly & Mt Genowlan, the headwaters of Baal Bone Creek and around Wolgan Falls in Newnes State Forest.

Trees: *Eucalyptus cypellocarpa*, *E. fastigata*, *E. viminalis* **Shrubs:** *Acacia falciformis*, *Cyathea australis*, *Leptospermum polygalifolium*, *Polyosma cunninghamii*, *Rapanea variabilis* **Ground Covers:** *Asplenium flabellifolium*, *Blechnum cartilagineum*, *Blechnum nudum*, *Calochlaena dubia*, *Desmodium varians*, *Doodia aspera*, *Geranium* spp. (mainly *G. solanderi*), *Polystichum proliferum*, *Pteridium esculentum*, *Stellaria pungens*, *Viola sieberiana* **Climbers:** *Clematis glycinoides*, *Geitonoplesium cymosum*

MU8 Newnes Sheltered Peppermint – Brown Barrel Shrubby Forest

This is a tall forest (c. 35 metres) that occupies steep protected slopes and gorges that dissect the outer areas of the Newnes Plateau. The principal canopy species are peppermints (*Eucalyptus piperita*, *E. radiata*) and brown barrel (*E. fastigata*) while

Blue Mountains ash (*E. oreades*), monkey gum (*E. cypellocarpa*) and mountain gum (*E. dalrympleana* subsp. *dalrympleana*) occur less frequently. One of the characteristic features of this community is the moderately dense mid stratum of shrubs and small trees that includes *Leptospermum polygalifolium*, *Leucopogon lanceolatus*, *Monotoca scoparia* and *Polyscias sambucifolia*. Moister sites include taller mesic species such as *Callicoma serratifolia*. The ground cover features a consistently occurring mix of graminoids such as *Lomandra longifolia*, the distinctive *Dianella tasmanica* and an abundance of small ferns such as *Pteridium esculentum* and *Sticherus flabellatus* var. *flabellatus*. It is found in all the streams draining from the Newnes Plateau and the south eastern part of Ben Bullen State Forest.

Trees: *Eucalyptus fastigata*, *E. radiata*, *E. piperita*, *E. cypellocarpa*, *E. oreades*, *E. blaxlandii* **Small Trees and Shrubs:** *Callicoma serratifolia*, *Banksia cunninghamii*, *Leptospermum polygalifolium*, *Polyscias sambucifolia*, *Monotoca scoparia*, *Acacia obtusifolia*, *Acacia terminalis*, *Lomatia silaifolia*, *Poranthera microphylla* **Ground Covers:** *Pteridium esculentum*, *Lomandra longifolia*, *Dianella tasmanica*, *Amperea xiphoclada*, *Gonocarpus teucroides*, *Microlaena stipoides* var. *stipoides*, *Viola sieberiana*, *Gahnia sieberiana*, *Dianella caerulea*, *Blechnum nudum* **Climbers:** *Billardiera scandens*, *Clematis glycinoides*

Vascular plants

Family	Scientific name	Common name	Status
Adiantaceae	<i>Adiantum aethiopicum</i>	Common Maidenhair	
	<i>Cheilanthes austrotenuifolia</i>	Rock Fern	
	<i>Cheilanthes distans</i>	Bristly Cloak Fern	
	<i>Cheilanthes sieberi</i>		
	<i>Pellaea falcata</i>	Sickle Fern	
Amaranthaceae	<i>Amaranthus</i> spp.		
Apiaceae	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	
	<i>Hydrocotyle peduncularis</i>		
	<i>Oreomyrrhis eriopoda</i>	Australian Carraway	
	<i>Platysace ericoides</i>		
	<i>Platysace lanceolata</i>		
	<i>Platysace linearifolia</i>		
	<i>Xanthosia atkinsoniana</i>		
	<i>Xanthosia dissecta</i>		
	<i>Xanthosia pilosa</i>	Woolly Xanthosia	
	<i>Xanthosia tridentata</i>	Rock Xanthosia	
Apocynaceae	<i>Gomphocarpus fruticosus</i>	Narrow-leaved Cotton Bush	
	<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>	Native Pear	
	<i>Tylophora barbata</i>	Bearded Tylophora	
Araliaceae	<i>Astrotricha floccosa</i>		
	<i>Polyscias sambucifolia</i>	Elderberry Panax	
Asparagaceae	<i>Asparagus officinalis</i>	Asparagus	Introduced
Aspleniaceae	<i>Asplenium flabellifolium</i>	Necklace Fern	
Asteraceae	<i>Arrhenechthites mixta</i>	Purple Fireweed	
	<i>Bidens pilosa</i>	Cobbler's Pegs	Introduced
	<i>Brachyscome scapigera</i>		
	<i>Brachyscome spathulata</i>		
	<i>Cassinia arcuata</i>	Sifton Bush	
	<i>Cassinia laevis</i>	Cough Bush	
	<i>Cassinia uncata</i>	Sticky Cassinia	
	<i>Chrysocephalum apiculatum</i>	Common Everlasting, Yellow Buttercup	
	<i>Cirsium vulgare</i>	Spear Thistle	Introduced
	<i>Conyza</i> spp.		Introduced
	<i>Conyza sumatrensis</i>	Tall fleabane	Introduced
	<i>Craspedia</i> spp.		
	<i>Cymbonotus lawsonianus</i>	Bear's Ear	
	<i>Euchiton involucrat</i>	Star Cudweed	
	<i>Euchiton sphaericus</i>		
	<i>Helichrysum adenophorum</i> var. <i>waddelliae</i>		
	<i>Helichrysum leucopsidium</i>	Satin Everlasting	
	<i>Helichrysum rutidolepis</i>	Pale Everlasting	

Asteraceae	<i>Helichrysum scorpioides</i>	Button Everlasting	
	<i>Hypochaeris radicata</i>	Catsear	Introduced
	<i>Lagenophora stipitata</i>	Blue Bottle-daisy, Common Lagenophora	
	<i>Leucochrysum graminifolium</i>		Rare
	<i>Olearia erubescens</i>	Silky Daisy Bush	
	<i>Olearia myrsinoides</i>	Blush Daisy Bush	
	<i>Olearia quercifolia</i>		Rare
	<i>Ozothamnus diosmifolius</i>	White Dogwood	
	<i>Senecio diaschides</i>		
	<i>Senecio glomeratus</i>		
	<i>Senecio linearifolius</i>		
	<i>Senecio madagascariensis</i>	Fireweed	Introduced
	<i>Senecio minimus</i>		
	<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	Indian Weed	
	<i>Sonchus oleraceus</i>	Common Sowthistle	Introduced
	<i>Taraxacum officinale</i>	Dandelion	Introduced
	<i>Vernonia cinerea</i>		
	<i>Vittadinia dissecta</i>		
	<i>Xerochrysum bracteatum</i>	Golden Everlasting	
Baueraceae	<i>Bauera rubioides</i>	River Rose, Dog Rose	
Blechnaceae	<i>Blechnum cartilagineum</i>	Gristle Fern	
	<i>Blechnum nudum</i>	Fishbone Water Fern	
	<i>Blechnum patersonii</i>	Strap Water Fern	
	<i>Blechnum wattsii</i>	Hard Water Fern	
	<i>Doodia aspera</i>	Prickly Rasp Fern	
Boraginaceae	<i>Halgania brachyrhyncha</i>		
Brassicaceae	<i>Hirschfeldia incana</i>	Buchan Weed	Introduced
Campanulaceae	<i>Wahlenbergia communis</i>	Tufted Bluebell	
	<i>Wahlenbergia gracilis</i>	Sprawling or Australian Bluebell	
Caryophyllaceae	<i>Stellaria flaccida</i>		
	<i>Stellaria pungens</i>	Prickly Starwort	
Casuarinaceae	<i>Allocasuarina distyla</i>		
	<i>Allocasuarina littoralis</i>	Black Sheoak	
	<i>Allocasuarina nana</i>		
	<i>Allocasuarina torulosa</i>	Forest Oak	
	<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	River Oak, River Sheoak	
Celastraceae	<i>Apatophyllum constablei</i>		Rare
Chenopodiaceae	<i>Einadia hastata</i>	Berry Saltbush	
Clusiaceae	<i>Hypericum gramineum</i>	Small St John's Wort	
	<i>Hypericum perforatum</i>	St. Johns Wort	Introduced
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed	
	<i>Dichondra</i> sp. A		
Crassulaceae	<i>Crassula sieberiana</i>	Australian Stonecrop	
Cunoniaceae	<i>Callicoma serratifolia</i>	Black Wattle	

Cupressaceae	<i>Callitris endlicheri</i>	Black Cypress Pine	
	<i>Callitris muelleri</i>		
Cyperaceae	<i>Carex longebrachiata</i>	Bergalia Tussock	
	<i>Caustis flexuosa</i>	Curly Wig	
	<i>Cyathochaeta diandra</i>		
	<i>Eleocharis gracilis</i>		
	<i>Gahnia aspera</i>	Rough Saw-sedge	
	<i>Gahnia clarkei</i>	Tall Saw-sedge	
	<i>Gahnia filifolia</i>		
	<i>Gahnia melanocarpa</i>	Black Fruit Saw-sedge	
	<i>Gahnia microstachya</i>		
	<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge	
	<i>Gahnia subaequiglumis</i>		
	<i>Gymnoschoenus sphaerocephalus</i>		
	<i>Isolepis habra</i>		
	<i>Lepidosperma filiforme</i>		
	<i>Lepidosperma gunnii</i>		
	<i>Lepidosperma laterale</i>		
	<i>Lepidosperma limicola</i>		
	<i>Lepidosperma urophorum</i>		
	<i>Lepidosperma viscidum</i>		
	<i>Schoenus brevifolius</i>		
	<i>Schoenus ericetorum</i>		
	<i>Schoenus melanostachys</i>		
	<i>Schoenus villosus</i>		
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken	
Dicksoniaceae	<i>Calochlaena dubia</i>	Common Ground Fern	
Dilleniaceae	<i>Hibbertia acicularis</i>		
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>		
	<i>Hibbertia obtusifolia</i>	Hoary guinea flower	
	<i>Hibbertia riparia</i>		
	<i>Hibbertia serpyllifolia</i>		
Dipsacaceae	<i>Scabiosa atropurpurea</i>	Pincushion	
Droseraceae	<i>Drosera auriculata</i>		
	<i>Drosera binata</i>	Forked Sundew	
	<i>Drosera spatulata</i>		
Dryopteridaceae	<i>Polystichum proliferum</i>	Mother Shield Fern	
Elaeocarpaceae	<i>Elaeocarpus holopetalus</i>	Black Olive Berry	
	<i>Tetratheca ericifolia</i>		
Ericaceae	<i>Acrotriche rigida</i>		
	<i>Acrotriche serrulata</i>	Honeypots	
	<i>Astroloma humifusum</i>	Native Cranberry	
	<i>Astroloma pinifolium</i>	Pine Heath	
	<i>Brachyloma daphnoides</i>	Daphne Heath	
	<i>Dracophyllum secundum</i>		
	<i>Epacris crassifolia</i>		

Ericaceae	Epacris microphylla		
	Epacris muelleri		Rare
	Epacris paludosa	Swamp Heath	
	Epacris pulchella		
	Leucopogon ericoides		
	Leucopogon lanceolatus		
	Leucopogon muticus	Blunt Beard-heath	
	Leucopogon virgatus		
	Lissanthe strigosa	Peach Heath	
	Melichrus urceolatus	Urn Heath	
	Monotoca scoparia		
	Rupicola decumbens		Rare
	Sprengelia incarnata		
	Styphelia triflora	Pink Five-Corners	
	Woollsia pungens		
Euphorbiaceae	Amperea xiphoclada		
	Breynia oblongifolia	Coffee Bush	
	Phyllanthus hirtellus		
	Poranthera corymbosa		
	Poranthera ericifolia		
	Poranthera microphylla		
	Pseudanthus divaricatissimus		Rare
	Ricinocarpos bowmanii		
Faboideae	Almaleea incurvata		Rare
	Aotus ericoides		
	Bossiaea ensata		
	Bossiaea heterophylla	Variable Bossiaea	
	Bossiaea neo-anglica		
	Bossiaea obcordata	Spiny Bossiaea	
	Daviesia corymbosa		
	Daviesia latifolia		
	Daviesia leptophylla		
	Daviesia squarrosa		
	Daviesia ulicifolia	Gorse Bitter Pea	
	Desmodium brachypodum	Large Tick-trefoil	
	Dillwynia juniperina		
	Dillwynia phyllicoides		
	Dillwynia retorta species complex		
	Dillwynia stipulifera		Rare
	Glycine clandestina		
	Gompholobium huegelii	Pale Wedge Pea	
	Gompholobium latifolium	Golden Glory Pea	
	Gompholobium uncinatum	Red Wedge Pea	
	Hardenbergia violacea	False Sarsaparilla	
	Hovea linearis		
	Indigofera australis	Australian Indigo	

	<i>Mirbelia platylobioides</i>		
	<i>Mirbelia rubiifolia</i>		
	<i>Phyllota phyllicoides</i>	Heath Phyllota	
	<i>Phyllota squarrosa</i>	Dense Phyllota	
	<i>Podolobium ilicifolium</i>	Prickly Shaggy Pea	
	<i>Pultenaea glabra</i>	Smooth Bush-Pea	Vulnerable
	<i>Pultenaea microphylla</i>		
	<i>Pultenaea procumbens</i>		
	<i>Pultenaea scabra</i>		
	<i>Pultenaea</i> sp. Genowlan Point		Endangered
	<i>Sphaerolobium vimineum</i>		
	<i>Trifolium repens</i>	White Clover	
Mimosoideae	<i>Acacia asparagoides</i>		Rare
	<i>Acacia buxifolia</i>	Box-leaved Wattle	
	<i>Acacia caesiella</i>	Blue Bush	
	<i>Acacia dawsonii</i>	Poverty Wattle	
	<i>Acacia dealbata</i>	Silver Wattle	
	<i>Acacia decora</i>	Western Golden Wattle	
	<i>Acacia decurrens</i>	Black Wattle, Green Wattle	
	<i>Acacia dorothea</i>	Dorothy's Wattle	
	<i>Acacia echinula</i>	Hedgehog Wattle	
	<i>Acacia elongata</i>	Swamp Wattle	
	<i>Acacia falciformis</i>	Broad-leaved Hickory	
	<i>Acacia filicifolia</i>	Fern-leaved Wattle	
	<i>Acacia floribunda</i>	White Sally	
	<i>Acacia gunnii</i>	Ploughshare Wattle	
	<i>Acacia hamiltoniana</i>	Hamilton's Wattle	
	<i>Acacia implexa</i>	Hickory Wattle	
	<i>Acacia ixiophylla</i>		
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	Sydney Golden Wattle	
	<i>Acacia maidenii</i>	Maiden's Wattle	
	<i>Acacia matthewii</i>		Rare
	<i>Acacia melanoxylon</i>	Blackwood	
	<i>Acacia obliquinervia</i>	Mountain Hickory	
	<i>Acacia obtusifolia</i>		
	<i>Acacia paradoxa</i>	Kangaroo Thorn	
	<i>Acacia parvipinnula</i>	Silver-stemmed Wattle	
	<i>Acacia penninervis</i>		
	<i>Acacia stricta</i>	Straight Wattle	
	<i>Acacia suaveolens</i>	Sweet Wattle	
	<i>Acacia subtilinervis</i>		Rare
	<i>Acacia terminalis</i>	Sunshine Wattle	
	<i>Acacia ulicifolia</i>	Prickly Moses	
	<i>Acacia verniciflua</i>	Varnish Wattle	
Gentianaceae	<i>Centaurium erythraea</i>	Common Centaury	Introduced
	<i>Centaurium tenuiflorum</i>		Introduced
Geraniaceae	<i>Geranium homeanum</i>		

	<i>Geranium potentilloides</i>		
	<i>Geranium solanderi</i>	Native Geranium	
Gleicheniaceae	<i>Gleichenia dicarpa</i>	Pouched Coral Fern, Tangle Fern	
Goodeniaceae	<i>Dampiera stricta</i>		
	<i>Goodenia bellidifolia</i>		
	<i>Goodenia dimorpha</i> var. <i>dimorpha</i>		
	<i>Goodenia hederacea</i>	Ivy Goodenia	
	<i>Goodenia heterophylla</i>		
	<i>Goodenia ovata</i>	Hop Goodenia	
	<i>Goodenia paniculata</i>		
	<i>Scaevola albida</i>	Pale Fan-flower	
	<i>Scaevola ramosissima</i>	Purple Fan-flower	
Haemodoraceae	<i>Haemodorum corymbosum</i>		
	<i>Haemodorum planifolium</i>		
Haloragaceae	<i>Gonocarpus longifolius</i>		Rare
	<i>Gonocarpus micranthus</i>		
	<i>Gonocarpus micranthus</i> subsp. <i>ramosissimus</i>		
Haloragaceae	<i>Gonocarpus tetragynus</i>		
	<i>Gonocarpus teucrioides</i>	Raspwort	
	<i>Myriophyllum pedunculatum</i> subsp. <i>pedunculatum</i>		
Iridaceae	<i>Patersonia fragilis</i>		
	<i>Patersonia glabrata</i>	Leafy Purple-flag, Bugulbi (Cadigal)	
	<i>Patersonia longifolia</i>		
	<i>Patersonia sericea</i>	Silky Purple-Flag	
	<i>Patersonia</i> spp.		
Juncaceae	<i>Juncus bulbosus</i>		
	<i>Juncus continuus</i>		
	<i>Juncus fockei</i>		
	<i>Juncus planifolius</i>		
	<i>Juncus remotiflorus</i>		
	<i>Juncus sarophorus</i>		
	<i>Juncus subsecundus</i>		
	<i>Juncus usitatus</i>		
	<i>Luzula densiflora</i>		
Lamiaceae	<i>Ajuga australis</i>	Austral Bugle	
	<i>Mentha diemenica</i>	Slender Mint	
	<i>Plectranthus parviflorus</i>		
	<i>Prostanthera cryptandroides</i> subsp. <i>cryptandroides</i>	Wollemi Mint-bush	Vulnerable
	<i>Prostanthera hindii</i>		Rare
	<i>Prostanthera rotundifolia</i>	Round-leaved Mint-bush	
	<i>Prostanthera scutellarioides</i>		
	<i>Prostanthera stricta</i>		Vulnerable

Lauraceae	Cassytha pubescens		
Lentibulariaceae	Utricularia dichotoma	Fairy Aprons	
Lobeliaceae	Lobelia gibbosa	Tall Lobelia	
	Pratia purpurascens	Whiteroot	
	Pratia surrepens	Mud Pratia	
Loganiaceae	Mitrasacme polymorpha		
Lomandraceae	Lomandra confertifolia subsp. pallida		
	Lomandra filiformis subsp. coriacea	Wattle Matt-rush	
	Lomandra filiformis subsp. filiformis	Wattle Matt-rush	
	Lomandra fluviatilis		Rare
	Lomandra glauca	Pale Mat-rush	
	Lomandra longifolia	Spiny-headed Mat-rush	
	Lomandra multiflora subsp. multiflora	Many-flowered Mat-rush	
Loranthaceae	Amyema pendulum subsp. pendulum		
Loranthaceae	Atkinsonia ligustrina		Rare
Loranthaceae	Muellerina eucalyptoides		
Luzuriagaceae	Geitonoplesium cymosum	Scrambling Lily	
Lycopodiaceae	Lycopodiella lateralis		
	Lycopodium deuterodensum	Bushy Clubmoss	
Malaceae	Malus pumila	Apple	Introduced
Malvaceae	Hibiscus sturtii	Hill Hibiscus	
	Modiola caroliniana	Red-flowered Mallow	Introduced
	Sida rhombifolia	Paddy's Lucerne	Introduced
Monimiaceae	Atherosperma moschatum	Black Sassafras	
Moraceae	Ficus rubiginosa	Port Jackson Fig, Rusty Fig	
Myoporaceae	Eremophila debilis	Amulla	
	Eremophila deserti	Turkeybush	
	Myoporum montanum	Western Boobialla	
Myrsinaceae	Myrsine howittiana		
Myrtaceae	Acmena smithii	Lilly Pilly	
	Angophora floribunda	Rough-barked Apple	
	Backhousia myrtifolia	Grey Myrtle	
	Baeckea linifolia		
	Baeckea utilis	Mountain Baeckea	
	Callistemon citrinus	Crimson Bottlebrush	
	Callistemon pallidus	Lemon Bottlebrush	
	Calytrix tetragona		
	Eucalyptus agglomerata	Blue-leaved Stringybark	
	Eucalyptus albens	White Box	
	Eucalyptus beyeriana		
	Eucalyptus blaxlandii		
	Eucalyptus bridgesiana	Apple Box	
	Eucalyptus cannonii	Capertee Stringybark	Vulnerable

	<i>Eucalyptus cannonii</i> -- <i>macrorhyncha</i> intergrade		Rare
	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	
	<i>Eucalyptus cypellocarpa</i>	Monkey Gum	
	<i>Eucalyptus dalrympleana</i>	Mountain Gum	
	<i>Eucalyptus dawsonii</i>	Slaty Gum	
	<i>Eucalyptus dives</i>	Broad-leaved Peppermint	
	<i>Eucalyptus eugenioides</i>	Thin-leaved Stringybark	
	<i>Eucalyptus fastigata</i>	Brown Barrel	
	<i>Eucalyptus fibrosa</i>	Red Ironbark	
	<i>Eucalyptus goniocalyx</i>	Bundy	
	<i>Eucalyptus gregsoniana</i>	Wolgan Snow Gum	Rare
	<i>Eucalyptus laophila</i>		
	<i>Eucalyptus ligustrina</i>	Privet-leaved Stringybark	
	<i>Eucalyptus macrorhyncha</i>	Red Stringybark	
	<i>Eucalyptus mannifera</i> subsp. <i>gullickii</i>	Brittle Gum	
	<i>Eucalyptus mannifera</i> subsp. <i>mannifera</i>	Brittle Gum	
	<i>Eucalyptus melliodora</i>	Yellow Box	
	<i>Eucalyptus moluccana</i>	Grey Box	
	<i>Eucalyptus oreades</i>	Blue Mountains Ash	
	<i>Eucalyptus pauciflora</i>	White Sally	
	<i>Eucalyptus piperita</i>	Sydney Peppermint	
	<i>Eucalyptus polyanthemus</i>	Red Box	
	<i>Eucalyptus praecox</i>	Brittle Gum	
	<i>Eucalyptus punctata</i>	Grey Gum	
	<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	Narrow-leaved Peppermint	
	<i>Eucalyptus rossii</i>	Inland Scribbly Gum	
	<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum	
	<i>Eucalyptus sieberi</i>	Silvertop Ash	
	<i>Eucalyptus sparsifolia</i>	Narrow-leaved Stringybark	
	<i>Eucalyptus tenella</i>	Stringybark	
	<i>Eucalyptus tereticornis</i>	Forest Red Gum	
	<i>Eucalyptus viminalis</i>	Ribbon Gum	
	<i>Leptospermum arachnoides</i>		
	<i>Leptospermum blakelyi</i>		Rare
	<i>Leptospermum</i> <i>continentale</i>	Prickly Teatree	
	<i>Leptospermum</i> <i>grandifolium</i>	Woolly Teatree	
	<i>Leptospermum lanigerum</i>	Woolly Teatree	
	<i>Leptospermum</i> <i>macrocarpum</i>		
	<i>Leptospermum multicaule</i>	Silver Tea-tree	
	<i>Leptospermum</i> <i>myrtifolium</i>		
	<i>Leptospermum obovatum</i>		

	<i>Leptospermum parvifolium</i>		
	<i>Leptospermum polygalifolium</i> subsp. <i>polygalifolium</i>	Tantoon	
	<i>Leptospermum sphaerocarpum</i>		
	<i>Leptospermum squarrosus</i>		
	<i>Leptospermum trinervium</i>	Slender Tea-tree	
	<i>Melaleuca decora</i>		
	<i>Micromyrtus sessilis</i>		
Oleaceae	<i>Ligustrum lucidum</i>	Large-leaved Privet	Introduced
Oleaceae	<i>Notelaea longifolia</i>	Large Mock-olive	
Onagraceae	<i>Epilobium billardioreanum</i> subsp. <i>hydrophilum</i>		
Onagraceae	<i>Epilobium gunnianum</i>		
Orchidaceae	<i>Acianthus</i> spp.		
	<i>Caladenia catenata</i>	White Caladenia	
	<i>Chiloglottis formicifera</i>	Ant Orchid	
	<i>Chiloglottis trilabra</i>		
	<i>Corybas</i> spp.		
	<i>Cyrtostylis reniformis</i>	Gnat Orchid	
	<i>Dendrobium linguiforme</i>	Tongue Orchid	
	<i>Dendrobium speciosum</i>	Rock Lily	
	<i>Dendrobium striolatum</i>		
	<i>Dendrobium teretifolium</i>		
	<i>Dipodium hamiltonianum</i>		
	<i>Dipodium punctatum</i>		
	<i>Dipodium roseum</i>		
	<i>Diuris aurea</i>		
	<i>Diuris sulphurea</i>	Tiger/Hornet Orchid	
	<i>Eriochilus autumnalis</i>		
	<i>Eriochilus cucullatus</i>	Parson's Bands	
	<i>Liparis reflexa</i>		
	<i>Orthoceras strictum</i>	Horned/Bird's-mouth Orchid	
	<i>Plectorrhiza tridentata</i>	Tangle Orchid	
	<i>Pterostylis longicurva</i>		
	<i>Pterostylis nutans</i>	Nodding Greenhood	
	<i>Pterostylis parviflora</i>	Tiny Greenhood	
	<i>Pterostylis truncata</i>	Little Dumplings	
	<i>Sarcochilus hillii</i>		
	<i>Spiranthes australis</i>		
	<i>Thelymitra circumsepta</i>	Naked Sun Orchid	
Oxalidaceae	<i>Oxalis chnoodes</i>		
	<i>Oxalis corniculata</i>	Creeping Oxalis	
Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-lily	
	<i>Dianella longifolia</i>		
	<i>Dianella prunina</i>		

	<i>Dianella revoluta</i> var. <i>revoluta</i>		
	<i>Dianella tasmanica</i>		
	<i>Styandra glauca</i>	Nodding Blue Lily	
	<i>Thelionema caespitosum</i>		
Pinaceae	<i>Pinus radiata</i>	Radiata Pine	Introduced
Pittosporaceae	<i>Billardiera scandens</i>	Appleberry	
	<i>Bursaria longisepala</i>		
	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Native Blackthorn	
	<i>Rhytidosporum procumbens</i>		
Plantaginaceae	<i>Plantago debilis</i>		
	<i>Plantago gaudichaudii</i>		
	<i>Plantago lanceolata</i>	Lamb's Tongues	Introduced
	<i>Plantago varia</i>		
Poaceae	<i>Anisopogon avenaceus</i>	Oat Speargrass	
	<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>		
	<i>Aristida ramosa</i> var. <i>speciosa</i>		
	<i>Aristida vagans</i>	Threeawn Speargrass	
	<i>Aristida warburgii</i>		
	<i>Austrodanthonia monticola</i>		
	<i>Austrodanthonia racemosa</i>		
	<i>Austrodanthonia richardsonii</i>	Wallaby Grass	
	<i>Austrodanthonia setacea</i>		
	<i>Austrostipa pubescens</i>		
	<i>Cleistochloa rigida</i>		
	<i>Cortaderia selloana</i>	Pampas Grass	Introduced
	<i>Cymbopogon refractus</i>	Barbed Wire Grass	
	<i>Deyeuxia gunniana</i>		
	<i>Digitaria</i> spp.		
	<i>Echinopogon caespitosus</i>	Bushy Hedgehog-grass	
	<i>Echinopogon intermedius</i>	Erect Hedgehog Grass	
	<i>Echinopogon ovatus</i>	Forest Hedgehog Grass	
	<i>Eleusine tristachya</i>	Goose Grass	
	<i>Entolasia marginata</i>	Bordered Panic	
	<i>Entolasia stricta</i>	Wiry Panic	
	<i>Holcus lanatus</i>	Yorkshire Fog	Introduced
	<i>Joycea pallida</i>	Silvertop Wallaby Grass	
	<i>Lachnagrostis filiformis</i>		
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping grass	
	<i>Notochloe microdon</i>		Rare
	<i>Notodanthonia longifolia</i>	Long-leaved Wallaby Grass	
	<i>Oplismenus aemulus</i>		
	<i>Paspalum dilatatum</i>	Paspalum	Introduced

	<i>Pennisetum clandestinum</i>	Kikuyu Grass	Introduced
	<i>Phragmites australis</i>	Common Reed	
	<i>Poa cheelii</i>		
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	Tussock	
	<i>Poa sieberiana</i> var. <i>cyanophylla</i>		
	<i>Poa sieberiana</i> var. <i>sieberiana</i>	Snowgrass	
	<i>Setaria gracilis</i>	Slender Pigeon Grass	Introduced
	<i>Sporobolus indicus</i>	Parramatta Grass	Introduced
Polygalaceae	<i>Comesperma ericinum</i>		
Polygonaceae	<i>Rumex brownii</i>	Swamp Dock	
	<i>Rumex conglomeratus</i>	Clustered Dock	Introduced
Polypodiaceae	<i>Pyrrosia rupestris</i>	Rock Felt Fern	
Proteaceae	<i>Banksia cunninghamii</i>		
	<i>Banksia ericifolia</i>	Heath-leaved Banksia	
	<i>Banksia marginata</i>	Silver Banksia	
	<i>Banksia oblongifolia</i>	Fern-leaved Banksia	
	<i>Banksia penicillata</i>		
	<i>Banksia serrata</i>	Old-man Banksia	
	<i>Banksia spinulosa</i> var. <i>collina</i>	Hairpin Banksia	
	<i>Banksia spinulosa</i> var. <i>spinulosa</i>	Hairpin Banksia	
	<i>Conospermum taxifolium</i>		
	<i>Grevillea acanthifolia</i> subsp. <i>acanthifolia</i>		
	<i>Grevillea evansiana</i>	Evans Grevillea	Vulnerable
	<i>Grevillea laurifolia</i>	Laurel-leaf Grevillea	
	<i>Grevillea obtusiflora</i> subsp. <i>fecunda</i>		Endangered
	<i>Hakea dactyloides</i>	Finger Hakea, Broad-leaved Hakea	
	<i>Hakea decurrens</i>		
	<i>Hakea microcarpa</i>	Small-fruited Hakea	
	<i>Hakea propinqua</i>		
	<i>Hakea sericea</i>	Needlebush	
	<i>Hakea teretifolia</i>	Needlebush	
	<i>Isopogon anemonifolius</i>	Broad-leaf Drumsticks	
	<i>Isopogon anethifolius</i>		
	<i>Isopogon dawsonii</i>		
	<i>Isopogon prostratus</i>		
	<i>Lambertia formosa</i>	Mountain Devil	
	<i>Lomatia myricoides</i>	River Lomatia	
	<i>Lomatia silaifolia</i>	Crinkle Bush	
	<i>Persoonia acerosa</i>	Needle Geebung	Vulnerable
	<i>Persoonia chamaepitys</i>	Mountain Geebung	
	<i>Persoonia hindii</i>		Endangered

	<i>Persoonia lanceolata</i>	Lance Leaf Geebung	
	<i>Persoonia laurina</i> subsp. <i>laurina</i>		
	<i>Persoonia levis</i>	Broad-leaved Geebung	
	<i>Persoonia linearis</i>	Narrow-leaved Geebung	
	<i>Persoonia marginata</i>	Clandulla Geebung	Vulnerable
	<i>Persoonia mollis</i> subsp. <i>mollis</i>		
	<i>Persoonia myrtilloides</i> subsp. <i>myrtilloides</i>		
	<i>Persoonia oblongata</i>		
	<i>Persoonia recedens</i>		Rare
	<i>Petrophile canescens</i>	Conesticks	
	<i>Petrophile pulchella</i>	Conesticks	
	<i>Petrophile sessilis</i>		
	<i>Telopea speciosissima</i>	Waratah	
Ranunculaceae	<i>Clematis aristata</i>	Old Man's Beard	
	<i>Clematis microphylla</i>	Small-leaved Clematis	
	<i>Ranunculus</i> spp.		
Restionaceae	<i>Baloskion australe</i>		
	<i>Empodisma minus</i>		
	<i>Eurychorda complanata</i>		
	<i>Lepyrodia anarthria</i>		
	<i>Lepyrodia scariosa</i>		
Rhamnaceae	<i>Cryptandra amara</i> var. <i>amara</i>		
	<i>Pomaderris andromedifolia</i> subsp. <i>andromedifolia</i>		
	<i>Pomaderris aspera</i>	Hazel Pomaderris	
	<i>Pomaderris betulina</i>		
	<i>Pomaderris eriocephala</i>		
	<i>Pomaderris ferruginea</i>		
	<i>Pomaderris ledifolia</i>		
	<i>Pomaderris ligustrina</i>		
Rosaceae	<i>Acaena novae-zelandiae</i>	Bidgee-widgee, Biddy Biddy	
	<i>Rosa rubiginosa</i>	Sweet Briar	Introduced
	<i>Rubus discolor</i>	Blackberry	Introduced
	<i>Rubus fruticosus</i> sp. agg.	Blackberry complex	Introduced
	<i>Rubus parvifolius</i>	Native Raspberry	
Rubiaceae	<i>Asperula conferta</i>	Common Woodruff	
	<i>Coprosma quadrifida</i>	Prickly Currant Bush	
	<i>Galium binifolium</i>		
	<i>Galium gaudichaudii</i>	Rough Bedstraw	
	<i>Galium propinquum</i>	Maori Bedstraw	
	<i>Nertera granadensis</i>		Introduced
	<i>Opercularia hispida</i>	Hairy Stinkweed	
	<i>Pomax umbellata</i>		
Rutaceae	<i>Boronia deanei</i>	Deane's Boronia	Vulnerable

	<i>Boronia microphylla</i>	Small-leaved Boronia	
	<i>Correa reflexa</i> var. <i>reflexa</i>	Native Fuschia	
	<i>Philotheca obovalis</i>		Rare
	<i>Zieria arborescens</i> subsp. <i>arborescens</i>		
Santalaceae	<i>Choretrum pauciflorum</i>	Dwarf Sour Bush	
	<i>Choretrum</i> sp. A		
	<i>Exocarpos cupressiformis</i>	Native Cherry	
	<i>Exocarpos strictus</i>	Dwarf Cherry	
	<i>Leptomeria acida</i>	Sour Currant Bush	
	<i>Omphacomeria acerba</i>		
Sapindaceae	<i>Dodonaea megazyga</i>		Rare
	<i>Dodonaea multijuga</i>		
	<i>Dodonaea sinuolata</i> subsp. <i>sinuolata</i>		
	<i>Dodonaea triquetra</i>	Large-leaf Hop-bush	
	<i>Dodonaea truncatiales</i>		
	<i>Dodonaea viscosa</i> subsp. <i>cuneata</i>		
Scrophulariaceae	<i>Derwentia blakelyi</i>		Vulnerable
	<i>Gratiola peruviana</i>	Australian Brooklime	
	<i>Veronica plebeia</i>	Trailing Speedwell	
Solanaceae	<i>Solanum elegans</i>	Spiny Kangaroo Apple	
	<i>Solanum prinophyllum</i>	Forest Nightshade	
	<i>Solanum stelligerum</i>	Devil's Needles	
Sterculiaceae	<i>Brachychiton populneus</i>	Kurrajong	
Stylidiaceae	<i>Stylidium graminifolium</i>	Grass Triggerplant	
	<i>Stylidium lineare</i>	Narrow-leaved Triggerplant	
Thymelaeaceae	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>		
Typhaceae	<i>Typha orientalis</i>	Broad-leaved Cumbungi	
Urticaceae	<i>Urtica incisa</i>	Stinging Nettle	
	<i>Urtica urens</i>	Small Nettle	
Uvulariaceae	<i>Schelhammera undulata</i>		
Verbenaceae	<i>Verbena bonariensis</i>	Purpletop	Introduced
Violaceae	<i>Hybanthus monopetalus</i>	Slender Violet-bush	
	<i>Melicytus dentatus</i>	Tree Violet	
	<i>Viola betonicifolia</i>	Native Violet	
	<i>Viola hederacea</i>	Ivy-leaved Violet	
	<i>Viola sieberiana</i>		
Viscaceae	<i>Notothixos cornifolius</i>	Kurrajong Mistletoe	
Vitaceae	<i>Cissus hypoglauca</i>	Giant Water Vine	
Xanthorrhoeaceae	<i>Xanthorrhoea arborea</i>		
	<i>Xanthorrhoea concava</i>		
	<i>Xanthorrhoea johnsonii</i>		
	<i>Xanthorrhoea media</i>		
	<i>Xanthorrhoea resinosa</i>		
Xyridaceae	<i>Xyris juncea</i>	Dwarf Yellow-eye	

	Xyris operculata		
	Xyris ustulata		
Zamiaceae	Macrozamia reducta		
	Macrozamia secunda		

Fauna

Invertebrates

Family	Scientific name	Common name	Status
Keroplatidae	Arachnocampa richardsae	Glow Worm	
Lycaenidae	Paralucia spinifera	Bathurst Copper Butterfly	Endangered
Noctuidae	Agrotis infusa	Bogong Moth	
Petaluridae	Petalura gigantea	Giant Dragonfly	Endangered
Agriolimnicidae	Deroceras reticulatum	Marsh Slug	
Ancylidae	Ferrissia tasmanica		
Athoracophoridae	Triboniophorus graeffei	Red Triangle Slug	
Bradybaenidae	Bradybaena similaris	Asian Tramp Snail	
Camaenidae	Austrochloritis wollemiensis	Wollemi Bristle Snail	
	Meridolum 'blue rock'	SN 29	
	Neveritis aridorum	Nomadic Velvet Snail	
	Pommerhelix exocarpi	Mudgee Woodland Snail	
	Pommerhelix monacha	Blue Mountains Woodland Snail	
	Sauroconcha caperteeana	Capertee Valley Corrugated snail	Rare
Charopidae	Coenocharopa multiradiata	Pale Bladed Pinwheel Snail	
	Decoriopea lirata	Beautiful Pinwheel Snail	
	Dentherona	SN 31	
	Discocharopa aperta	Miniscule White Pinwheel Snail	
	Elsothera brazieri	Sydney Basin Pinwheel Snail	
	Elsothera funerea	Grim Reaper Pinwheel Snail	
	Macrophallikoropa belli	Bells Pinwheel Snail	
	Sharniropea 'Blue Rock'	SN 30	
Cochlicopidae	Cochlicopa lubrica	Glossy Pillar Snail	
Gastrodontidae	Zonitoides arboreus	Orchid Snail	
Helicarionidae	Brevisentis atratus	Black Jewel Glass snail	
	Mysticarion porrectus	Golden Semi Slug	
Helicidae	Cornu aspersum	Common Garden Snail	
Hydridae	Hyridella australis	Freshwater Mussel	

Lymnaeidae	Austropeplea huonensis		
Physidae	Physa acuta		
Planorbidae	Glyptophysa gibbosa		
Punctidae	Iotula microcosmos	Miniscule Pinhead Snail	
	Paralaoma annabelli	Annabell's Pinhead Snail	
	Paralaoma caputspinulae	Prickle Pinhead Snail	
	Paraloma gelida	Snowy Mountains Pinhead Snail	
	Pseudiotula euryana	Timor Caves Pinhead Snail	
Pupillidae	Gastrocopta strangei	Strange's Pupasnail	
	Pupisoma circumlitum	Swollen Toothless Pupasnail	
	Pupisoma evada	Spiny Toothless Pupasnail	
	Pupisoma porti	Tall Toothless Pupasnail	
	Pupoides pacificus	Single Toothed Pupasnail	
Rhytididae	Annabellia occidentalis	Blackheath Carnivorous Snail	
	Austrorhytida capillacea	Common Southern Carnivorous Snail	
	Prolesophanta oclusa	Miniscule Carnivorous Snail	
	Vitellidelos dulcis	Sydney Carnivorous Snail	
Succineidae	Austrosuccinea macgillivrayi	Macgillivray's Amber Snail	
Valloniidae	Vallonia excentrica	Eccentric Grass Snail	
Zonitidae	Oxychilus alliarius	Garlic Snail	
	Oxychilus cellarius	Cellar Snail	

Amphibians

Family	Scientific name	Common name	Status
Hylidae	Litoria caerulea	Green Tree Frog	
	Litoria citropa	Blue Mountains Tree Frog	
	Litoria dentata	Bleating Tree Frog	

	<i>Litoria fallax</i>	Eastern Dwarf Tree Frog	
	<i>Litoria latopalmata</i>	Broad-palmed Frog	
	<i>Litoria lesueuri</i>	Lesueur's Frog	
	<i>Litoria peronii</i>	Peron's Tree Frog	
	<i>Litoria phyllochroa</i>	Leaf-green Tree Frog	
	<i>Litoria rubella</i>	Desert Tree Frog	
	<i>Litoria verreauxii</i>	Verreaux's Frog	
	<i>Litoria wilcoxii</i>	Stony Creek Frog	
Myobatrachidae.	<i>Crinia signifera</i>	Common Eastern Froglet	
	<i>Heleioporus australiacus</i>	Giant Burrowing Frog	Vulnerable
	<i>Limnodynastes dumerilii</i>	Eastern Banjo Frog	
	<i>Limnodynastes fletcheri</i>	Long-thumbbed Frog	
	<i>Limnodynastes peronii</i>	Brown-striped Frog	
	<i>Limnodynastes tasmaniensis</i>	Spotted Grass Frog	
	<i>Mixophyes balbus</i>	Stuttering Frog	Endangered
	<i>Paracrinia haswelli</i>	Haswell's Froglet	
	<i>Pseudophryne australis</i>	Red-crowned Toadlet	Vulnerable
	<i>Pseudophryne bibronii</i>	Bibron's Toadlet	
	<i>Uperoleia laevigata</i>	Smooth Toadlet	

Reptiles

Family	Scientific name	Common name	Status
Agamidae	<i>Amphibolurus muricatus</i>	Jacky Lizard	
	<i>Physignathus lesueurii</i>	Eastern Water Dragon	
	<i>Pogona barbata</i>	Bearded Dragon	
	<i>Rankinia diemensis</i>	Mountain Dragon	
Geckkonidae	<i>Diplodactylus vittatus</i>	Wood Gecko	
	<i>Oedura lesueurii</i>	Lesueur's Velvet Gecko	
	<i>Phyllurus platurus</i>	Broad-tailed Gecko	
	<i>Underwoodisaurus milii</i>	Thick-tailed Gecko	
Pygopodidae	<i>Pygopus lepidopodus</i>	Common Scaly-foot	
Scincidae	<i>Acritoscincus duperreyi</i>	Eastern Three-lined Skink	

	<i>Acritoscincus platynota</i>	Red-throated Skink	
	<i>Carlia tetradactyla</i>	Southern Rainbow-skink	
	<i>Carlia vivax</i>	Tussock Rainbow-skink	
	<i>Cryptoblepharus virgatus</i>	Cream-striped Shinning-skink	
	<i>Ctenotus robustus</i>	Robust Ctenotus	
	<i>Ctenotus taeniolatus</i>	Copper-tailed Skink	
	<i>Egernia cunninghami</i>	Cunningham's Skink	
	<i>Egernia saxatilis</i>	Black Rock Skink	
	<i>Egernia striolata</i>	Tree Skink	
	<i>Egernia whitii</i>	White's Skink	
	<i>Eulamprus heatwolei</i>	Yellow-bellied Water-skink	
	<i>Eulamprus leuraensis</i>	Blue Mountains Water skink	Endangered
	<i>Eulamprus quoyii</i>	Eastern Water-skink	
	<i>Eulamprus tenuis</i>	Barred-sided Skink	
	<i>Eulamprus tympanum</i>	Southern Water-skink	
	<i>Hemiergis decresiensis</i>	Three-toed Earless Skink	
	<i>Lampropholis delicata</i>	Dark-flecked Garden Sunskink	
	<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sunskink	
	<i>Lerista bougainvillii</i>	South-eastern Slider	
	<i>Lygisaurus foliorum</i>	Tree-base Litter-skink	
	<i>Morethia boulengeri</i>	South-eastern Morethia Skink	
	<i>Pseudemoia entrecasteauxii</i>	Tussock Cool-skink	
	<i>Pseudemoia pagenstecheri</i>	Tussock Skink	
	<i>Saiphos equalis</i>	Three-toed Skink	
	<i>Saproscincus mustelinus</i>	Weasel Skink	
	<i>Tiliqua nigrolutea</i>	Blotched Blue-tongue	

	<i>Tiliqua scincoides</i>	Eastern Blue-tongue	
Varanidae	<i>Varanus rosenbergi</i>	Rosenberg's Goanna	Vulnerable
	<i>Varanus varius</i>	Lace Monitor	
Cheluidae	<i>Chelodina longicollis</i>	Eastern Snake-necked Turtle	
Pythonidae	<i>Morelia spilota spilota</i>	Diamond Python	
Colubridae	<i>Boiga irregularis</i>	Brown Tree Snake	
Elapidae	<i>Acanthophis antarcticus</i>	Common Death Adder	
	<i>Austrelaps ramsayi</i>	Highland Copperhead	
	<i>Austrelaps superbus</i>	Lowland Copperhead	
	<i>Cryptophis nigrescens</i>	Eastern Small-eyed Snake	
	<i>Demansia psammophis</i>	Yellow-faced Whip Snake	
	<i>Drysdalia coronoides</i>	White-lipped Snake	
	<i>Drysdalia rhodogaster</i>	Mustard-bellied Snake	
	<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	Endangered
	<i>Notechis scutatus</i>	Tiger Snake	
	<i>Pseudechis guttatus</i>	Spotted Black Snake	
	<i>Pseudechis porphyriacus</i>	Red-bellied Black Snake	
	<i>Pseudonaja textilis</i>	Eastern Brown Snake	
Typhlopidae	<i>Ramphotyphlops nigrescens</i>	Blackish Blind Snake	

Non passerines

Family	Scientific name	Common name	Status
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	
Phalacrocoracidae	<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant	
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	
Threskiornithidae	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	
Anatidae	<i>Anas superciliosa</i>	Pacific Black Duck	

	<i>Aythya australis</i>	Hardhead	
	<i>Chenonetta jubata</i>	Australian Wood Duck	
	<i>Anas gracilis</i>	Grey Teal	
	<i>Biziura lobata</i>	Musk Duck	
Accipitridae	<i>Accipiter fasciatus</i>	Brown Goshawk	
	<i>Lophoictinia isura</i>	Square-tailed Kite	Vulnerable
	<i>Aquila audax</i>	Wedge-tailed Eagle	
	<i>Hieraaetus morphnoides</i>	Little Eagle	Vulnerable
	<i>Elanus axillaris</i>	Black-shouldered Kite	
	<i>Falco berigora</i>	Brown Falcon	
	<i>Falco cenchroides</i>	Nankeen Kestrel	
	<i>Falco longipennis</i>	Australian Hobby	
	<i>Falco peregrinus</i>	Peregrine Falcon	
	<i>Falco subniger</i>	Black Falcon	
Megapodiidae	<i>Alectura lathamii</i>	Australian Brush-turkey	
Odontophoridae	<i>Coturnix pectoralis</i>	Stubble Quail	
	<i>Coturnix ypsilophora</i>	Brown Quail	
	<i>Turnix varia</i>	Painted Button-quail	
Rallidae	<i>Fulica atra</i>	Eurasian Coot	
	<i>Gallinula tenebrosa</i>	Dusky Moorhen	
	<i>Porphyrio porphyrio</i>	Purple Swamphen	
Pedionomidae	<i>Vanellus miles</i>	Masked Lapwing	
	<i>Elseyaornis melanops</i>	Black-fronted Dotterel	
Columbidae	<i>Leucosarcia melanoleuca</i>	Wonga Pigeon	
	<i>Ocyphaps lophotes</i>	Crested Pigeon	
	<i>Phaps chalcoptera</i>	Common Bronzewing	
	<i>Phaps elegans</i>	Brush Bronzewing	
	<i>Geopelia cuneata</i>	Diamond Dove	
	<i>Geopelia humeralis</i>	Bar-shouldered Dove	
	<i>Geopelia placida</i>	Peaceful Dove	

Eurostopodidae	Macropygia amboinensis	Brown Cuckoo-Dove	
Cacatuidae	Cacatua galerita	Sulphur-crested Cockatoo	
	Cacatua sanguinea	Little Corella	
	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable
	Eolophus roseicapillus	Galah	
	Calyptorhynchus funereus	Yellow-tailed Black-Cockatoo	
	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable
Psittacidae	Lathamus discolor	Swift Parrot	Endangered
	Glossopsitta concinna	Musk Lorikeet	
	Glossopsitta pusilla	Little Lorikeet	Vulnerable
	Alisterus scapularis	Australian King-Parrot	
	Platycercus adscitus eximius	Eastern Rosella	
	Platycercus elegans	Crimson Rosella	
	Psephotus haematonotus	Red-rumped Parrot	
	Neophema pulchella	Turquoise Parrot	Vulnerable
	Melopsittacus undulatus	Budgerigar	
Cuculidae	Cacomantis flabelliformis	Fan-tailed Cuckoo	
	Cacomantis variolosus	Brush Cuckoo	
	Cuculus pallidus	Pallid Cuckoo	
	Cuculus saturatus	Oriental Cuckoo	
	Chalcites basalis	Horsfield's Bronze-Cuckoo	
	Chalcites lucidus	Shining Bronze-Cuckoo	
	Chalcites osculans	Black-eared Cuckoo	
Dacelonidae	Dacelo novaeguineae	Laughing Kookaburra	
Alcedinidae	Todiramphus sanctus	Sacred Kingfisher	
	Alcedo azurea	Azure Kingfisher	
Meropidae	Merops ornatus	Rainbow Bee-eater	
Leptosomidae	Eurystomus orientalis	Dollarbird	

Tytonidae	Ninox boobook	Southern Boobook	
Strigidae	Ninox connivens	Barking Owl	Vulnerable
	Ninox strenua	Powerful Owl	Vulnerable
Caprimulgidae	Eurostopodus mystacalis	White-throated Nightjar	
Aegothelidae	Aegotheles cristatus	Australian Owlet-nightjar	
Podargidae	Podargus strigoides	Tawny Frogmouth	
Apodidae	Hirundapus caudacutus	White-throated Needletail	

Passerines

Family	Scientific name	Common name	Status
Hirundinidae	Cheramoeca leucosternus	White-backed Swallow	
	Hirundo neoxena	Welcome Swallow	
	Petrochelidon ariel	Fairy Martin	
	Petrochelidon nigricans	Tree Martin	
Musicicapidae	Zoothera lunulata	Bassian Thrush	
Motacillidae	Anthus australis	Australian Pipit	
Alaudidae	Alauda arvensis	Eurasian Skylark	Introduced
	Mirafra javanica	Horsfield's Bushlark	
Locustellidae	Cincloramphus mathewsi	Rufous Songlark	
Campephagidae	Coracina novaehollandiae	Black-faced Cuckoo-shrike	
	Coracina papuensis	White-bellied Cuckoo-shrike	
	Coracina tenuirostris	Cicadabird	
	Lalage tricolor	White-winged Triller	
Pycnonotidae	Pycnonotus jocosus	Red-whiskered Bulbul	Introduced
Alaudidae	Eopsaltria australis	Eastern Yellow Robin	
	Melanodryas cucullata	Hooded Robin	Vulnerable
	Microeca fascinans	Jacky Winter	
	Petroica boodang	Scarlet Robin	Vulnerable
	Petroica goodenovii	Red-capped Robin	
	Petroica phoenicea	Flame Robin	Vulnerable
	Petroica rosea	Rose Robin	
	Colluricincla harmonica	Grey Shrike-thrush	
	Falcunculus frontatus	Eastern Shrike-tit	
	Pachycephala pectoralis	Golden Whistler	
	Pachycephala rufiventris	Rufous Whistler	

Cinclidae,	<i>Cinclosoma punctatum</i>	Spotted Quail-thrush	
	<i>Psophodes olivaceus</i>	Eastern Whipbird	
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler	
	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	Vulnerable
Cidaridae	<i>Malurus cyaneus</i>	Superb Fairy-wren	
	<i>Malurus lamberti</i>	Variegated Fairy-wren	
Acanthizidae	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	
	<i>Acanthiza lineata</i>	Striated Thornbill	
	<i>Acanthiza nana</i>	Yellow Thornbill	
	<i>Acanthiza pusilla</i>	Brown Thornbill	
	<i>Acanthiza reguloides</i>	Buff-rumped Thornbill	
	<i>Aphelocephala leucopsis</i>	Southern Whiteface	
	<i>Calamanthus pyrrhopygius</i>	Chestnut-rumped Heathwren	
	<i>Gerygone fusca</i>	Western Gerygone	
	<i>Gerygone mouki</i>	Brown Gerygone	
	<i>Gerygone olivacea</i>	White-throated Gerygone	
	<i>Origma solitaria</i>	Rockwarbler	
	<i>Pycnoptilus floccosus</i>	Pilotbird	
	<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	

	<i>Sericornis frontalis</i>	White-browed Scrubwren	
	<i>Sericornis magnirostris</i>	Large-billed Scrubwren	
	<i>Smicrornis brevirostris</i>	Weebill	
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	Vulnerable
Climacteridae	<i>Climacteris erythrops</i>	Red-browed Treecreeper	
	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	Vulnerable
	<i>Cormobates leucophaeus</i>	White-throated Treecreeper	
Meliphagidae.	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	
	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	
	<i>Anthochaera carunculata</i>	Red Wattlebird	
	<i>Anthochaera chrysoptera</i>	Little Wattlebird	
	<i>Gliciphila melanops</i>	Tawny-crowned Honeyeater	
	<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater	
	<i>Lichenostomus fuscus</i>	Fuscous Honeyeater	
	<i>Lichenostomus leucotis</i>	White-eared Honeyeater	
	<i>Lichenostomus melanops</i>	Yellow-tufted Honeyeater	
	<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater	
	<i>Manorina melanocephala</i>	Noisy Miner	
	<i>Manorina melanophrys</i>	Bell Miner	
	<i>Meliphaga lewinii</i>	Lewin's Honeyeater	
	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	
	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Vulnerable
	<i>Melithreptus lunatus</i>	White-naped Honeyeater	

	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	
	<i>Philemon citreogularis</i>	Little Friarbird	
	<i>Philemon corniculatus</i>	Noisy Friarbird	
	<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	
	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	
	<i>Phylidonyris pyrrhoptera</i>	Crescent Honeyeater	
	<i>Plectorhyncha lanceolata</i>	Striped Honeyeater	
	<i>Xanthomyza phrygia</i>	Regent Honeyeater	Critically endangered
Zosteropidae	<i>Zosterops lateralis</i>	Silveryeye	
Dicaeidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	
Pardalotidae	<i>Pardalotus punctatus</i>	Spotted Pardalote	
	<i>Pardalotus striatus</i>	Striated Pardalote	
Estrildidae.	<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	
	<i>Neochmia modesta</i>	Plum-headed Finch	
	<i>Neochmia temporalis</i>	Red-browed Finch	
	<i>Stagonopleura bella</i>	Beautiful Firetail	
	<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable
	<i>Taeniopygia bichenovii</i>	Double-barred Finch	
	<i>Taeniopygia guttata</i>	Zebra Finch	
Passeridae	<i>Passer domesticus</i>	House Sparrow	Introduced
Fringillidae	<i>Carduelis carduelis</i>	European Goldfinch	Introduced
Sturnidae	<i>Acridotheres tristis</i>	Common Myna	Introduced
	<i>Sturnus vulgaris</i>	Common Starling	Introduced
Oriolidae	<i>Oriolus sagittatus</i>	Olive-backed Oriole	
Dicruridae	<i>Grallina cyanoleuca</i>	Magpie-lark	
Monarchidae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	
	<i>Myiagra inquieta</i>	Restless Flycatcher	
	<i>Myiagra rubecula</i>	Leaden Flycatcher	
Rhipiduridae	<i>Rhipidura albiscapa</i>	Grey Fantail	
	<i>Rhipidura leucophrys</i>	Willie Wagtail	
	<i>Rhipidura rufifrons</i>	Rufous Fantail	
Corcoracidae	<i>Corcorax melanorhamphos</i>	White-winged Chough	

Artamidae	Artamus cyanopterus	Dusky Woodswallow	
	Artamus superciliosus	White-browed Woodswallow	
	Cracticus nigrogularis	Pied Butcherbird	
	Cracticus torquatus	Grey Butcherbird	
	Gymnorhina tibicen	Australian Magpie	
	Strepera graculina	Pied Currawong	
	Strepera versicolor	Grey Currawong	
Ptilonorhynchidae	Ptilonorhynchus violaceus	Satin Bowerbird	
Menuridae	Menura novaehollandiae	Superb Lyrebird	
Corvidae	Corvus coronoides	Australian Raven	
	Corvus mellori	Little Raven	

Mammals

Family	Scientific name	Common name	Status
Ornithorhynchidae	Ornithorhynchus anatinus	Platypus	
Tachyglossidae	Tachyglossus aculeatus	Short-beaked Echidna	
Dasyuridae	Antechinus agilis	Agile Antechinus	
	Antechinus flavipes	Yellow-footed Antechinus	
	Antechinus stuartii	Brown Antechinus	
	Antechinus swainsonii	Dusky Antechinus	
	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable
	Sminthopsis murina	Common Dunnart	
Peramelidae	Perameles nasuta	Long-nosed Bandicoot	
Phascolarctidae	Phascolarctos cinereus	Koala	Vulnerable
Vombatidae	Vombatus ursinus	Common Wombat	
Burramyidae	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable
Petauridae	Petaurus australis	Yellow-bellied Glider	Vulnerable
	Petaurus breviceps	Sugar Glider	
	Petaurus norfolcensis	Squirrel Glider	Vulnerable
Pseudocheiridae	Petauroides volans	Greater Glider	
	Pseudocheirus peregrinus	Common Ringtail Possum	
Acrobatidae	Acrobates pygmaeus	Feathertail Glider	
Phalangeridae	Trichosurus caninus	Short-eared Possum	

	Trichosurus vulpecula	Common Brushtail Possum	
Macropodidae	Macropus giganteus	Eastern Grey Kangaroo	
	Macropus robustus	Common Wallaroo	
	Macropus rufogriseus	Red-necked Wallaby	
	Petrogale penicillata	Brush-tailed Rock-wallaby	Endangered
	Wallabia bicolor	Swamp Wallaby	
Rhinolophidae	Rhinolophus megaphyllus	Eastern Horseshoe-bat	
Molossidae	Mormopterus norfolkensis	Eastern Freetail-bat	Vulnerable
	Mormopterus planiceps	Little Mastiff-bat	
	Mormopterus 'Species 2'	Undescribed Freetail Bat	
	Tadarida australis	White-striped Freetail-bat	
Vespertilionidae	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable
	Chalinolobus gouldii	Gould's Wattled Bat	
	Chalinolobus morio	Chocolate Wattled Bat	
	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable
	Miniopterus australis	Little Bentwing-bat	Vulnerable
	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable
	Nyctophilus geoffroyi	Lesser Long-eared Bat	
	Nyctophilus gouldi	Gould's Long-eared Bat	
	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable
	Scotorepens orion	Eastern Broad-nosed Bat	
	Vespadelus darlingtoni	Large Forest Bat	
	Vespadelus pumilus	Eastern Forest Bat	
	Vespadelus regulus	Southern Forest Bat	
	Vespadelus vulturnus	Little Forest Bat	
Muridae	Hydromys chrysogaster	Water-rat	
	Mus musculus	House Mouse	Introduced
	Pseudomys novaehollandiae	New Holland Mouse	
	Rattus fuscipes	Bush Rat	
	Rattus lutreolus	Swamp Rat	
	Rattus rattus	Black Rat	Introduced
Canidae	Canis lupus dingo	Dingo	
	Canis lupus familiaris	Dog	Introduced
	Vulpes vulpes	Fox	Introduced

Felidae	Felis catus	Cat	Introduced
Leporidae	Lepus capensis	Brown Hare	Introduced
	Oryctolagus cuniculus	Rabbit	Introduced
Equidae	Equus asinus	Donkey	Introduced
	Equus caballus	Horse	Introduced
Suidae	Sus scrofa	Pig	Introduced
Bovidae	Bos taurus	European cattle	Introduced
	Capra hircus	Goat	Introduced
Cervidae	Cervus sp.	Unidentified Deer	Introduced

Fungi, Slime Moulds and Lichens

Since the 1990s, significant changes have occurred in the classification of fungi. The true fungi, which make up the kingdom Fungi, comprise seven phyla, Chytridiomycota, Blastocladiomycota, Neocallimastigomycota, Microsporidia, Glomeromycota, Ascomycota, and Basidiomycota, 10 subphyla, 35 classes, 12 subclasses, and 129 orders.

Genetic studies have shown that fungi are more closely related to animals than to plants. Fungi become noticeable to humans when 'fruiting', either as mushrooms or moulds. Fungi perform an essential role in the decomposition of organic matter and have fundamental roles in nutrient cycling and exchange.

Although commonly included in botany curricula and textbooks, fungi are more closely related to animals than to plants. The taxonomy of the Fungi is in a state of constant flux, especially due to recent research based on DNA. Efforts among researchers are now underway to establish and encourage usage of a unified and more consistent nomenclature. Fungi species can have multiple scientific names depending on their life cycle and mode of reproduction.

The 2007 classification of Kingdom Fungi, the most recent readily available is the result of a large-scale collaborative research effort involving dozens of mycologists and other scientists working on fungal taxonomy. Because of similarities in morphology and lifestyle, the slime moulds and water moulds were formerly classified in the kingdom Fungi. They are now regarded as a separate grouping.

Although often inconspicuous, fungi occur in every environment and play very important roles in most ecosystems. Along with bacteria, fungi are the major decomposers in most terrestrial, and some aquatic ecosystems, and play a critical role in biogeochemical cycles and in many food webs. As decomposers, they play an essential role in nutrient cycling and degrading organic matter to inorganic molecules.

Lichens are formed by a symbiotic relationship between algae or cyanobacteria and fungi, in which individual cells are embedded in a tissue formed by the fungus. Lichens occur in every ecosystem on all continents, play a key role in soil formation and the initiation of biological succession and are the dominating life forms in extreme environments, including polar, alpine, and semi arid desert regions.

Lichens are able to grow on inhospitable surfaces, including bare soil, rocks, tree bark, wood, shells, barnacles and leaves. The functions of both symbiotic organisms are so closely intertwined that they function almost as a single organism, in most cases the resulting organism differs greatly from the individual components. Lichenisation is a common mode of nutrition. Around twenty percent of fungi are lichenised.

Phylla	Sub grouping	Family	Genus	Species
Basidiomycota	Agaricus & allies	Amanitaceae	Amanita	farinacea
				muscaria
		Auriscalpiaceae	Artomyces	colensoi
				ochrophylloides
		Marasmiaceae	Collybia	butyracea
				eucalyptorum
		Cortinariaceae	Cortinarius	sinapicolor
				sp.
				globuliformis
				mariae
				rotundisporus
				violaceus
			Descolea	recedens
		Crepidotaceae	Crepidotus	nephrodes
		Entolomataceae	Entoloma	hochstetteri
		Physalacriaceae	Cryptotrampa	aspratun
		Cortinariaceae	Dermocybe	cramesina
				sanguinea
				splendida
		Hygrophoraceae	Hygrocybe	miniata
				sp.
				leucogloea
		Russulaceae	Lactarius	sepiaceus
		Agaricaceae	Macrolepiota	clelandii
		Mycenaceae	Mycena	carmeliana
				fumosa
			Roridomyces	austrororidus
		Strophariaceae	Gymnopilus	allanotopus
				junonius
			Panaeolus	papilioaceus
			Russula	persanguinea
		Physalacriaceae	Xerula	australis
	Paxillus & allies	Serpulaceae	Austropaxillus	infundibuliformis
				muelleri
		Tricholomataceae	Omphalotus	nidiformis
			Phylloporus	clelandii
			Tapinella	panuoides
	Boletus & allies	Boletaceae	Austroboletus	niveus
			Boletellus	obscurecoccineus
		Hydnangiaceae	Hydnangium	carneum
	Clavaria & allies	Auriscalpiaceae	Clavicornia	piperata
		Clavulinaceae	Clavulina	subrugosa

	Ramaria & allies	Gomphaceae	Ramaria	capitata
				flaccida
				gracilis
	Simple puffballs	Lycoperdaceae	Lycoperdon	scabrum
	Earth Stars	Geastraceae	Geastrum	triplex
	Puffballs	Sclerodermatineae	Pisolithus	arhizus
			Scleroderma	cepa
			Calostoma	fuscum
	Polyporus & allies	Fistulinaceae	Fistulina	hepatica
		Hymenochaetaceae	Coltricia	cinnamomea
		Polyporaceae	Fomitopsis	lilacinogliva
			Ryvardenia	campyla
			Hexagonaria	aparia
		Ganodermataceae	Amauroderma	rude
			Ganoderma	applanatum
		Coriolaceae	Piptoporus	australiensis
	Leathery Shelf Fungi	Meruliaceae	Podoscypha	petalodes
		Stereaceae	Xylobolus	illudens
	Trumpet Fungi	Cantharellaceae	Craterellus	sp.
	Jelly Fungi	Dacrymycetaceae	Calocera	sp.
			Tremella	fimbriata
				fuciformis
				mesenterica
			Heterotextus	peziziformis
Ascomycota	Cup Fungi & relatives	Sarcosomataceae	Plectania	campylospora
		Helotiaceae	Banksiamyces	maccannii
			Disceinella	terrestris
Myxomycota	Slime Moulds	Arcyriaceae	Arcyria	sp.
		Ceratiomyxaceae	Ceratiomyxa	fruitculosa
		Stemonitaceae	Stemonitis	axifera
Lichen		Family	Genus	Species
		Cladoniaceae	Cladia	aggregata
			Cladonia	capitellata
				floerkeana
		Micrareaceae	Psilolechia	lucida

The Walks

- 6.1 The Cliffs east of Wolgan Gap
- 6.2 The Temples of Doom
- 6.3 Last Crusade Point and Holy Grail Ravine
- 6.4 Indiana Gorge and Indiana Slot
- 6.5 The Spanish Steps to the Wolgan Falls
- 6.6 The Wolgan Falls
- 6.7 Ravines north west of the Wolgan Falls
- 6.8 Ravines and cliffs around Firecat Walls
- 6.9 Sahara Point to Cape Pinnacle
- 6.10 Rockflower Ridge and Creek
- 6.11 Sunnyside Canyon cliffs and Bushrangers Creek
- 6.12 Sunnyside Canyon and Ravines
- 6.13 Flat Bottom Creek
- 6.14 Donkey View Pass
- 6.18 Sunnyside Gully
- 6.19 Sunnyside Point and Wolgan Pinnacle
- 6.20 Wolgan Pinnacle and Sunnyside Gully
- 6.18 Sunnyside Gully and the ridge east
- 6.19 Endorphin Gully to Wolgan Pinnacle
- 6.20 Endoephin Slot and Endorphin Gully
- 6.21 The Infinity Caves
- 6.22 The western side of the Adrenalin Gorge
- 6.23 Adrenalin Ledge Traverse
- 6.24 The estern side of the Adrenalin Gorge
- 6.25 Adrenalin Ledge east, Adrenalin Slot and the Thom Slot
- 6.26 Zorro Canyon, Rapier Slot, Bullwhip Slot and more
- 6.27 Pleasant View Canyon
- 6.28 Pyramid Pass to Zorro Pass
- 6.29 The Sinusoidal Ravine and the cliffs above Carne Creek
- 6.30 Striolata Ravine and Window in the Sky Ravine
- 6.31 Birds Rock Creek
- 6.32 Carne Creek and Convolution Creek
- 6.33 Convolution Creek and Tagine Point
- 6.34 Upper Carne Creek and the Glory Box
- 6.35 Wild Gorge, Pinch Point Circle and more
- 6.36 Gang Gang Creek and Gang Gang Canyon
- 6.37 Carnes Playground
- 6.38 Devils Throat and the Cliffs of East Creek
- 6.39 Silkpod Point and Silkpod Gorge
- 6.40 Seven Caves of Carne Creek and Pyramid Rocks

6.1 The Cliffs east of Wolgan Gap

Maps etc	Department of Lands Topographic Map 1:25000 Cullen Bullen, 8931 – 3N, second edition. GPS setting WGS 84.
Walk description and route	Park below the Blackfellows Hand Rock at approximately GR 315 093. Walk up the road to approximately GR 321 095. The gully heading approximately north goes all the way through the cliffs. It is dramatic. The Temples of Doom will be explored first by heading NW across the plateau and then the interesting cliff line that almost encircles them, (head south then wander west and then north to about GR 317 099, then west, descend the Donkey Stairs (Steps), circle under the 47m high cliffs above the Wolgan Valley and finish via a climb out in the gully already referred to. About 4km, +&- 200m several times.
Gear issues	PLB, Tape, 1 litre of water, electrolytes, camera and preparedness to have a good day out regardless. Change of gear.
Comments	It looks small but it is a big day out. This walk will have challenging sections. Rope assisted sections possible.

Date walked 7th September 2011.

The Weather

A perfect day, temperature range, 6 to 16 degrees, in the morning clear skies, a mid day change brought partly cloudy conditions and a temperature drop of about 5 degrees.

Background Notes

Iconic destinations need to be included in any literature about an area. Those that are evocative as well merit special consideration. In reviewing the walks selection for inclusion in the area of the Newnes State Forest south of the Wolgan River a walk including the Temples of Doom, is a must.

On paper this walk looks so simple and short, a bushwalker can be easily misled into believing it is of little consequence. The reality is that is so full of challenges, surprises and compelling charm that a second walk is merited to explore the complex of pagodas, ravines, slots and ramps that lure the exploratory walker deeper into its seductive labyrinth.

The boundaries of the Temples of Doom are not defined. The grid reference we have chosen is arbitrary, and is somewhere near the centre of the extensive, massive, almost squat, convoluted collection of pagodas that comprise the Temples.

If you have a desire to only make a cursory visit, then a drive along the section of the Blackfellows Hand Trail from the Wolgan Road to the parking area to access the Blackfellows Hand Rock, then the Temples will be a five minute road walk away. If

you own a fully- fledged 4WD vehicle, then you can drive through the outer edge of the Temples. Whilst this option provides a measure of scale, it falls short of fully really appreciating these pagoda formations and the context they belong in. Unsurprisingly we wanted to become more intimately acquainted with the Temples, their side chapels, their transepts, their chancelleries, their crypts and their vaults. We also wanted to explore all the shrines and all the places in between. This was not an issue for a party made up exclusively of 15 adventurous leaders, together with a prospective member, completing his final qualifying walk, who has a track record of derring-do.

Track Notes

At 0845, I stood on a convenient log and gave a brief outline of the proposed walk with some emphasis on the safety issues of pagoda walking and unstable cliff climbing. Minutes later the walk had started and initially we moved up the Blackfellows Hand Trail to approximately GR 319 095, where the trail leads up a hill while we progressed east up a narrowing ravine.

Along the way there, the massive pagodas average about 20m in height. Depending on the aspect of the exposed rock faces, some are sheathed in epiphytes whilst others are totally devoid of any cover and reveal the rich colours of the sandstone. In one such area a detour was made to acquaint us with the diverse offering, GR 321 095. This 'Y' shaped terminal canyon was also embellished with a small waterfall and the ground was carpeted in waist high ferns.

Exiting this spot we left the well trod paths behind and climbed into the complex terrain. Large, high pagodas of sculptured bare rock provided opportunities for the group to collect together and look down into complex watercourses, ravines and assess the plethora of options as to what to explore next. Generally the idea was to wander around within the high area approximately defined by the 1,000m contour before then proceeding west and down through the encircling cliff lines.

Within this high area we stopped at GR 322 095, and again at GR 321 098. In each case the pagoda formations were delightful. Upon leaving GR 321 098, a descent was negotiated into a ravine system via a series of narrow, platy shelves. The overall drop was less than 15m but sufficient to move from an exposed, barren, rocky world into a walled plaza like area bedecked with tall trees and carpeted with a fern under story. The centre of this area is approximately GR 320 098. Later I noted this is also part of the upper reaches of the negotiable ravine down through the cliffs to the Wolgan River.

Now we pressed west and then SW across an almost flat area of forest emerging above a deeply dissected fringing cliff line at GR 317 096. A relatively higher pagoda complex was chosen as a site for morning tea. The view south is unobstructed all the way down the Coxs River valley to Wallerawang power station - not my favourite point of visual focus, so I positioned myself to exclude it from view.

Descending through these cliffs was not as straightforward as we expected. In search of a way through we almost completed a full circle back to the morning tea site, all

the while testing each slot and possible descent point. Finally at GR 318 095, a combination ramp, slot and slide through a canopy of ferns were used.

Down below the cliffs we noted a significant dry overhang. On checking the walls, a collection of Aboriginal hand stencils was discovered. This was not surprising given that the major art site of the Blackfellows Hand Rock is less than 300m to the south. What was unexpected was the addition of latter day stencils, some in ochre but several in exterior gloss paint that have been added indiscriminately. Perhaps in 25 years time these will be regarded as important. In the meantime they are incongruous to say the least.

We moved on and at GR 316 095 came across a very substantial fence located west of the surveyed portion No. 40. Given knowledge of fences constructed for the purpose of rounding up and destroying feral animals that we have also found between Coco Creek and Baal Bone Point, I suspect that this fence would have a similar purpose. It comprised 10 strands of wire closely spaced, frequent droppers and terminal posts of concrete. The alignment is almost east west, and the eastern end abuts hard against the cliff face.

We moved on seeking a high point at GR 313 096 overlooking *Wolgan View* to assess our position in relation to the Donkey Steps.¹ As part of this walk we would visit the top end of these famous steps, locate the spring and then proceed to follow the base of the cliffs north into and above the Wolgan Valley.

At 1109 we stood on the edge of a cutting, GR 313 098, of what is now the abandoned original surveyed road of 1866. Even the current second edition, 1:25000 Cullen Bullen topographic map clearly shows the entire surveyed road section all the way from *Wolgan View*, on the top, down the eastern side of Wolgan Gap, and rejoining the present road near *Wolgan* at GR 323 118 on the valley floor, a drop of approximately 100m in every kilometre.

After taking pictures for the record we made our way down the old road noting the hand made pick marks created by the road builders when dressing the sand stone cliffs. The spring referred to discharges through a hole in the cliff line at approximately GR 313 099 and about 15m above the road. The water was flowing

¹ This pathway was on the eastern side of the present day Wolgan Gap Road near Wolgan Gap and locally named The Donkey Steps. This area is currently used as access for the telephone line into the Wolgan Valley. Cullen Bullen Topo Map. Top of Steps, 313 099.

The road down this steep section was surveyed 3rd March 1866 but the present road down Wolgan Gap was found to be a better alternative. Ref: Road Plan R587.1603r.

Referred to as the original access into the Wolgan, it was here that the first cattle were brought into the valley. Ref: Joe Bird, whose great, great grandfather lived and worked in the Wolgan Valley, oral history to Brian Fox 17th June 2009. Also; Ref: A Short History of the Wolgan Valley by H A MacLeod Morgan RAHS Journal Vol. 45, Pt. 2, p. 93.

Anything too large was lowered directly over the cliffs on rope. It was not until 1897 that the present Wolgan Road was constructed. Ref: Wolgan Valley Homestead Complex – Conservation Management Plan, prepared by Conybeare Morrison International, 2006.

The Survey Plan C2323-1507 shows 'permanent spring' near the top of the Donkey Steps.

strongly and the water is drinkable. Below where the water discharges, iron salts have built up as colourful stalactites.

Immediately below the spring we left the old road and climbed up to the base of the cliff line. This was a fraught process as the shales in the cliff are very friable and collapse as soon as pressure is applied to them. The entire cliff system is quite unstable.

After progressing around the base of the cliffs for about 300m I realised that the talus slope would soon become very steep indeed, and that risk of a cliff collapse triggered by us was very real. At GR 315 101, the decision was made to climb the cliffs and continue our explorations from the top. The climb was 47m as shown on the map. It was an interesting experience as there was no route as such. Strung out along the cliff base, we each made our way up, commandeering rocks, tree roots and grass to assist. The views at the top are spectacular and encompassed the western end of the Wolgan Valley from the Wool Pack Rocks.

Looking opposite to the cliffs above the nick point in Wolgan Gap, where the current road descends into the valley we were amazed at the number of serious rock fractures and the extent of them. Heavy rain, vibrations from underground mining or a very mild earth tremor could bring the whole cliff face crashing down.

The cliff edge walk was much easier and more enjoyable than being down below. A fine projecting rock at GR 318 102 was selected as measuring up for lunch. The views are extensive and interesting, particularly those of the cliffs to the north where the ravine system below Fire Trails 10 and 11 are negotiable. High points along here provide great views of the Wolgan Falls.

It was just before we settled for lunch that I became aware that a member of the party was having some difficulties in breathing after the exertion of the cliff climb. The walk would now be modified to the extent that descending into the Wolgan Valley via the ravine immediately to the east (nick point GR 319 102), and exploring under the 104m high cliffs would be abandoned. We would now head south and explore a ridgeline of pagodas, cross the ravine, and return via a generally level ridge to the vehicles.

This decision had positive effects as we discovered a cliff edge pagoda complex with a crenulated top at GR 319 099. From its crest we enjoyed great views, and when we descended, a hidden serpentine slot provided a way of route into the valley, GR 319 099. The valley floor was easy to negotiate and the climb up the eastern side was via a walk through overhang and a succession of small, easy ramps. Almost mirroring the pagoda we had just left, was a similarly proportioned one, however this one was endowed with a small tower with extended and incredibly thin ironstone plates projecting at regular intervals, GR 320 100.

Ahead we now generally had level walking. It was however impossible to resist climbing another isolated sandstone tower, pierced by a window near the top, GR 323 097. A bit of chimneying was required to complete the climb, but as always it was worthwhile. Erosion residuals along the ridge tops inspired some impromptu acting by some members of the group as we moved south

At 1400 we intercepted a trail bike track, GR 327 093, an infallible indicator that a driveable road was not far away. Also, in this same location was an interesting rock edge with a significant drop into a creek. From the map this creek appeared to provide a direct link to the Temples of Doom network, so we decided to drop down into the dry creek bed, follow it downstream and see whether it would go all the way. In short it did and within ten minutes we had linked up to our outward way of route, taken some 5 hours earlier.

In the Temples of Doom, a very, very narrow slot up through the cliffs at GR 319 095 was too tempting for several members of the party to resist. The vertical climb is about 18m and the slot a narrow 400mm. Once in there is no turning back, and the return is via a cliff top walk. The last determined 'slot sweeper' made it back down by 1445, and as a group we then returned to the vehicles.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0853	Park vehicles, briefing and start	315 093
0902	In the Temples of Doom	321 095
0921	On a pagoda	321 098
0944	In the 'plaza'	320 098
0949	On flat area of ridge	319 099
1001	Morning teas on a pagoda (13 mins)	317 096
1033	Slot /slide descent through cliff line	318 095
1040	Stencil art in cave	318 095
1047	Animal fence	316 095
1056	Pagoda	313 096
1109	Above Donkey Steps	313 098
1122	The spring	313 099
1151	Climbing cliff	315 101
1210	Lunch (40 mins)	318 102
1301	Big pagoda and slot descent	319 099
1310	Climb out of the valley	320 100
1340	On ridge top	322 099
1352	Rock platform	322 096
1400	Bike track and canyon entry	322 093
1410	Back in Temples of Doom	321 095
1420	Optional slot climb	319 095
1450	Return to vehicles	315 093

6.2 Temple of Doom²

Maps etc	Department of Lands Cullen Bullen, 8931–3N, topographic map, 1:25000, second edition, WGS 84.
Walk description and route	Start at GR 333 088 on Blackfellows Hand Trail and go through the magnificent Temple of Doom, then north west and down into a ravine. Find our way around and under the Wolgan cliffs and into another ravine to the east, at GR 334 098. Explore the tributaries of that ravine on the way back up. Explore the tributaries of that ravine on the way back up. If there is still time, the next ravine to the east can be done. About 6km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	Exploratory. Scrambling and exposure.

Date walked 4th June 2013.

The Weather

A glorious winter day, a crisp start evolving into a brilliantly sunny, windless and cloudless day, temperature range 2 to 12 degrees.

Background Notes

In bushwalking circles, The Temple of Doom is an iconic destination. The dozens of smooth pagodas that comprise this complex cover an extensive area and are vegetation free. Unusually, they are along the spine of a ridge, above 1060m, and appear to rise out of the surrounding forest. The name, attributed to the late Wilf Hilder is emotive, and this evocative name is reinforced by a visit to the site.

The location of the Temples of Doom is less than 200m from the Blackfellows Hand Road, making it an easily accessible destination. The walk to the Temples is on a track, however exploring the Temples requires good agility and preferably dry weather conditions. On the day, weather conditions were near perfect for an equally perfect experience.

The only downside to this spectacular site is the irreversible damage caused by underground coal mining that has caused extensive fracturing of the pagodas. This on going criminal act condoned by the authorities has gone unpunished, and while ever NSW is beholden to the coal industry the rapacious damage will continue. Together

² The Temple of Doom Located on the northern side and 3km from the Wolgan Road and Blackfellows Hands Trail intersection. Cullen Bullen Topo Map, 332 089. The Temple of Doom are spectacular smooth, rocky pagodas. Named after the 1984 adventure film Indiana Jones and *the Temple of Doom*, directed by Steven Spielberg. Possibly named by Wilf Hilder, c1991. Ref: Olive Noble's track notes from Woody Pear Walking Group, 1991. Also incorrectly known as The Temples of Doom.

with the nearby Blackfellows Hand Rock, the Temples of Doom make for a quick visit tourist destination.

As we discovered, there is a lot more to the immediate area than these two high profile locations. Flanking the ridge on which the Temples of Doom are located are two creeks. These creeks rise immediately to the south on the crest of the Blue Mountains Range at GR 331 088 and GR 335 089 respectively. Both diverge slightly away from due north, creating a club shaped headland, as they cut through the cliff line and descend into the Wolgan drainage. Both provide negotiable access into the Wolgan Valley and the base of the intervening encircling cliff line.

After some twenty minutes exploring the Temples of Doom and taking photographs, we commenced our descent into the western creek. Whilst easier options probably existed, we chose a complex one which proved a great way for people to get to know each other, take action photos and reinforce our love for the wonderful tactile experiences of exploring pagodas.

Progress down the creek was slow and full of wonderful surprises. The creek has tight canyon like sections that suddenly become tunnels or break out into rooms. There are great block ups caused by ancient cliff collapses and a huge variety of encrusting mosses and other epiphytes. At GR 331 094 we stopped for morning tea on a sunny pagoda.

This pagoda, thousands if not millions of years in its evolution, featured a series of stacked layers of ironstone bands. In one place the 2cm thick bands were four layers thick. The passage of time was so great that the intervening sandstone had eroded away. As we checked out the layers to count the number, we exposed a pair of large long legged spiders, Family *Lycosidae*. Under another rock was a beautiful tiny skink, its polished scales, a shiny green. An audit of species living on pagodas is on the 'to do' list.

Ten minutes later we were back exploring and in less than five minutes after that found a challenging slot to descend back into the creek. There was a lot of camaraderie as we descended and took pictures of each other. The creek was now more canyon than creek and every twist and turn yielded another must photograph place. At GR 330 095 we entered a 'room', perhaps 20m x 15m in area with 20m high walls. I called this place The Sacristy. It certainly is a place where nature keeps her sacred vessels and utensils. We were in awe of this magic place. The mosses literally draped over the rocks, the sunlight shone through cracks and bounced off honey coloured rocks filling the entire space with golden light.

Beyond The Sacristy, the creek enters a series of tunnels that twist and wind and rise and fall. Some are dry and some are just damp. All are totally captivating. This tunnel complex extends for about 200m downstream to GR 329 097. In keeping with the temple theme I have called this creek section The Catacombs, a special subterranean space. There are no bodies but there easily could be.

Very soon after this point, the canyon opens into a gully flanked by high cliffs that become higher as you proceed north. Just before the gully opens wide there are several caves on the western wall that could have been used as occupation caves. No

hard evidence was found, rather one had a sense that they could have been used for the purpose.

We then crossed over the gully mouth to the eastern wall and began walking around the base of a cliff line. I say a cliff line as there are several and we took one a bit too high and only reached GR 330 100 before it ran out and we had to back track to GR 330 097, drop down and follow a lower line. This diversion was no hardship. The cliffs are beautiful and have a bounty of different flora including Figs, Wattles, Boronias as well as several types of Eucalypts and many fern species. The return trip also let us enjoy the wonderful profiles of the cliff line west towards the Wolgan Gap and the Wolgan Trig surmounting the western wall of the Wolgan Valley where it is also the Blue Mountains Range.

The cliff line base walk is a great experience, engendering that feeling of being suspended mid way between the cliff tops and the valley floor. At 1140 we reached the most northerly point of the walk, GR 332 101. It is also the spot where you have the maximum view of the Wolgan Valley between the Wolgan Falls and Wolgan Gap. Whilst you cannot see either of these features you do get to see the extent of the valley and its amazing cliffs which also define the ragged edge of the Newnes Plateau. According to the topo map the cliffs above have a relative height of 122m.

This section of the cliff base is very unstable and rock slides can easily start. Fortunately no one was hurt in the many slips that occurred. Rounding the north point our perspective changed as we entered the catchment of the eastern creek, GR 335 098. Again we entered a green world that was in marked contrast to the dry cliffs. Underfoot was deep leaf litter while all around ferns flourished and pagodas flanked the cliff tops. The diversity of visual experiences on this walk is exceptional.

There are two creeks entering this system from the eastern side. The topo maps shows large areas of rock while the aerial photographs show a lot of dissected terrain. Country we love. The plan was to climb up the first side creek, explore as much as we could and then make for the cliff edge for lunch. After lunch our plan was to descend the second creek as we made our way back towards the Temples of Doom. .

The clamber up up the first side creek was a bit of a challenge and the faithful rope came out to provide assistance at one spot, GR 334 095. There were many places where mutual assistance was gratefully given and received. Great walls were walked under, including one wall that had an amazing natural window near the top. This window was only visible from a point deep within a canyon where the brilliant blue sky showcased it in all its glory.

Finding the best view and best place for lunch took some time. Each climbed pagoda seemed better than the one before! The first one I recorded was at GR 335 097. It was good and had a great view but the best was to come when after climbing up and down a number of pagodas we came to the cliff edge at GR 337 098. This point is 133m relative height above the talus slope below and has the most commanding position over the top end of the Wolgan Valley.

We could not see the Wolgan Falls, however we could see the parallel, pagoda crested ridges that define the sinuous course of the Wolgan River before the falls. We were

also directly opposite the cliffs on the north side of the valley where only weeks ago we had walked after exploring the north west ravines. A better spot for lunch would be hard to find. It was 1249, the sun was shining, there was no wind and with good appetite we ate and relaxed.

There was still exploring do to so twenty three minutes later we were on the move again, heading towards the second creek and a way down into the creek we had just left before lunch. Walking the top part of the catchment was easy and a separate microclimate area. It is a perpetually wet place with lots of decaying vegetable matter and great fungi populations including the rarely seen yellow *Scleroderma cepa*, and a very heavily frilled form of *Hygocybe leucogloea*.

This amazing place with its narrow valley floor and high parallel, moss covered walls led to a non negotiable drop and view into our planned creek visit. Nothing for it but to back track and test another arm of the same creek. At 1344 we stood on an inter creek watershed, GR 335 093 before descending into another green world. This gully led to the cliff edge at GR 334 092 where we gazed into a mass of green ferns and fallen timber. This section of the eastern creek had no magic at all. It was just scrappy and most uninviting.

We were now less than 400m from the vehicles and decided that we would not spoil the good memories and so headed up the ridge and back to the start point. We exited the area at 1410. Total distance walked 7.8km, total ascents 400m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0853	Park on Blackfellows Hand Trail	333 088
0905	Exploring the Temples of Doom, 20 minutes	332 091
0937	Descent point	331 091
0944	Walking cliff edge	332 091
0955	Morning tea on pagoda, 10 minutes	331 094
1014	Slot descent into creek	330 096
1021	The Sacristy	330 095
1036	The Catacombs	329 097
1039	Exploring caves on western side	328 097
1049	Exploring base of cliffs, high ledge	329 098
1100	End of high ledge and return point	330 100
1112	Descend to lower ledge and cliff line	328 097
1140	At northern most point of headland	332 101
1158	In gully of eastern creek	335 098
1220	Rope assisted ascent	334 095
1228	Exploring ravines and high walls	335 096
1240	Top of pagoda	335 097
1249	Lunch on cliff edge at 133m + view. 23 minutes.	337 098
1344	Crest between two ravines on side creek	335 093
1349	Above eastern creek	334 092
1408	On Blackfellows Hand Trail	355 087
1410	Back at vehicles	333 088

6.3 Last Crusade Point and Holy Grail Ravine

Maps etc	Department of Lands Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, WGS 84.
Walk description and route	Park vehicles on the Blackfellows Hand Trail at GR 328 090. Walk north east into the long dry ravine, then come down it, turn left (West) and walk along the base of the cliffs. Explore the ravine at GR 324 100 and keep going until we reach a break in the cliffs at GR 319 102 where we will climb up the ravine heading south and then track across country towards the cars.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	Scrambling and significant exposure. About 7km.

Date walked 4th October 2013.

The Weather

A perfect spring day, not a cloud in the sky, low humidity, occasional light breeze, temperature range from 9 to 19 degrees.

Background Notes

Between Wolgan Falls and Wolgan Gap on the southern side cliffs of the Wolgan River, seven (7) ravines have cut through the massive sandstone cliffs of the Newnes Plateau in their headlong descent to the Wolgan River. Spot height indicators on the topographic map show the cliffs to range from 104 to 133m in height above the steep talus slopes below. Vertiginous ledges near the tops of these cliffs coupled with complex pagoda fields and deep mysterious canyons provide adventurous explorers with opportunities to enjoy special experiences. This geomorphologic wonderland has resulted in multiple microenvironments and a rich biodiversity.

It is important to understand that this unique terrain in 2013 is still unprotected. Active underground coal mining leases threaten its integrity. It is a State Forest and can be logged at any time. These notes and accompanying photographs record what can be seen and found today. Future generations may not be so lucky.

Track Notes

The vehicles were parked at GR 327 090 on a stub road originally developed for forestry purposes but now a playground for motorbike riders. The briefing session indicated that we may have a short walk, however when exploratory walking both time and distance are poor indicators. Terrain complexity and diversity, discovery and adrenalin are each difficult to measure indicators that are far more important to explorers.

At 0908, GR 327 094, we left the track and turned east into open, dry sclerophyll forest made drier by the lack of normal rainfall and higher than normal temperatures. Leaves and twigs cracked under our weight. Vacuum cleaners to the world, the ants were conspicuous by their absence. The bush has gone into lock down against a very adverse season. A few minutes on we crossed a motorbike track with all its attendant issues of erosion, environmental degradation, hydrocarbon pollution and breeding cycle destroying noise. It was a depressing start.

The situation did improve markedly in the next 50m as we came across an amazing sight, an area rich with mauve Waxlip Orchids, *Glossodia major*. It was enough to lift the spirits. In contrast there were compact yellow effloresces of *Lomandra filiformis* ssp. *filiformis*. Spring was still happening despite the harsh and generally unfavourable conditions.

Another two hundred metres further on we stood above the first of many stupendous pagoda fringed ravines. As it was our intention to explore these ravines we first mounted a high pagoda to gain an overview. It was simply glorious. Bulbous curved shapes worthy of Botticelli nudes, elegant plates of ironstone, filigreed finials of Gothic grandeur, fenestrated windows, and water sculptured forms of every conceivable configuration filled our vision. We had arrived in our playground and were ready to get close and intimate.

Our descent into the ravine was via a tight, almost vertical slot that shallowed into a series of descending basins requiring controlled slides. It was all magic and best of all it was pristine. No axe or chainsaw has defiled this ravine. On a previous walk 4th June 2013, we had visited this ravine, entering it much further north where we had explored and described features such as The Sacristy and The Catacombs. Where we were now was in a long, confined slot that I have called Temple Creek.

By 0953 we had entered The Sacristy, GR 330 095, and then followed the creek line into that complex of fallen rocks and myriad tunnels called The Catacombs. At 1000 we emerged from this underworld and chose a flat sloping moss covered rock for morning tea, GR 329 097. The tree canopy, tens of metres above us was formed by inter arching limbs of great Brown Barrel Gums, *Eucalyptus fastigata*.

In such a delightful spot it would have been easy to just relax. Not for us, we had exploring to do. Packs shouldered we crossed the ravine floor to investigate a discontinuous ground level overhang on the western side. There was no evidence of artwork or occupation although the overhang floor was level and the back wall dry.

We had hopes that the ledge continuation for the northern end of the overhang would provide a way of route across the cliff face to the west. This was not to be so at 1023, GR 329 099 we were forced to retrace our steps back into the mouth area of the ravine, Temple Creek, drop down about 30m and use an animal pad at the base of the next lower cliff line. There was frequent evidence of animal scats, particularly of goats, very old, and possible of wild dogs, quite recent.

We progressed westward quite well for about 200m to GR 327 099. The cliffs were near vertical with very few observed ledges that may have provided a more challenging way of route. At 1036 we were again forced to drop down to cross a high

unstable area, the site of a recent landslip. Once around this unstable area we were again able to climb back up to the top of the talus slope and walk close against the base of the cliff line.

At 1058, GR 325 100, we encountered a compulsory tight slot descent of about 4m vertical displacement. A struggling *Ficus rubiginosa* provided a protective living cage as we made our way down. The next major ravine west at approximately GR 324 099 proved impossible to negotiate up from the cliff base. As we proved later it is a dry waterfall.

We now moved into an area of significant exposure that would persist for about 200m. When we looked up we could see a great display of Rock Orchids, *Dendrobium speciosum*. These tough survivors, in full flower were in great condition as they were impossible for any predators to reach. We had now reached a high section of the cliff face where a pad had evolved on a soft shale band. The way forward was by adrenalin only. There was little to walk on, a drop in excess of 80m vertically below and stunning views across the Wolgan Valley to Mounts McLean, Jamison and Davidson. It was and is a very special journey.

The most challenging point, the Last Crusade Point³, is where the ledge in the cliff apparently ends. It was now 1143 and we were right at the very point where the cliff takes a right angle turn into the next ravine. There was always the possibility that we may not be able to get around it and have to retrace our steps. Even though there were other walkers ahead, once they disappeared from view, you were alone. It is a dry mouth moment until you round the corner and the drop below suddenly reduces from suicidal to manageable. A quick clamber up about 6m and then there is an open rock platform where you can relax the stomach muscles, put down the pack, grab a drink and gaze over the Wolgan Valley, look across to Firecat Walls⁴ and quietly congratulate yourself on your achievement. It was now 1158, GR 320 102, far too early to consider lunch, but what a place to be. We indulged our egos for a short while and posed for pictures.

Once inside the confines of the Last Crusade Ravine⁵ we moved along the base of the eastern cliffs in a state of mild euphoria. A large overhang cave was explored at GR 320 100. Again, whilst it had all the necessary attributes for an occupation cave there was no evidence to suggest it had been occupied. No stencil images were located either.

The next 100m were extra special as we discovered a major example of 'block gliding' caused by rheological deformation⁶, Carey, 1953, in this case the slow creep of underlying mudstone. At GR 320 099 we explored a series of major alleyways caused by block movement of large sandstone blocks of many hundreds of tonnes carving from the cliff walls and gliding at fairly shallow angles towards the ravine centre.

³ Last Crusade Point named by Yuri Bolotin, consistent with the nomenclature of the area

⁴ Firecat Walls is the western most end of Sunnyside Ridge. Named by rock climbers who have been climbing from this point from at least 2006. Overlooks the upper escarpment of the Wolgan Valley. Cullen Bullen Topo Map, 328 121.

⁵ Named by Yuri Bolotin, consistent with the nomenclature of the area

⁶ Rheology is the study of the flow of matter, primarily in the liquid state, but also as 'soft solids' or solids under conditions in which they respond with plastic flow rather than deforming elastically in response to an applied force.

Nearby we climbed a great pagoda formation, GR 322 097, which included an elevated, almost circular depression with outlier pedestal pagodas. The way to it was by walking a very narrow ironstone ledge about 10m above the ravine floor. As a location it is very special and Yuri named it the Crusade Rocks. It was so good we decided to have lunch and simultaneously enjoy this unique erosion form.

During lunch we spied a man made structure, an alignment of stones so typically used to delineate mining lease boundaries. This was at GR 0232088 6309795.

Confirmation of this use was in the form of a square arrangement of rocks that would have supported a 3"x 3" wooden stake. Only part of the base of the stake remains in the squared hole.⁷

After lunch we headed south east climbing a series of high pagodas, GR 321 097. The views were panoramic north over the Wolgan Valley and enabled us to pick up significant high points such as Mount Marsden and Tayan Pic. During lunch a decision was made to try and visit from the top the ravine we had been unable to climb up into from below the cliff line. Our walking took us to GR 322 096 and also to a high point at GR 324 095. From here we were able to view Johns Rock⁸.

Our interest was in descending into the ravine, which I have called the Holy Grail Ravine. At 1353 we descended into the ravine after crossing a series of rock shelves. Holy Grail Ravine is extraordinary, and our entry even more so as it was through a tight narrow and relatively deep, short, dry canyon. The canyon ends in a 'rectangular room' some 10m x 40m surrounded on all sides by soaring cliffs. Centrally disposed in the room is a clump of 12 Brown Barrel Gums, *Eucalyptus fastigata*, some 40m high that are as close to perfection as you could find. They are simply stunning. That is not all. Arranged as wall candelabras, are dozens of groups of Rock Orchids, *Dendrobium speciosum*, in full flower, and at the time of visit, appeared powered by the sun giving the area a special glowing significance. I have called this locality at GR 325 099, The Covenant. I do not think that I have visited a place so special before. There is more. Due north of The Covenant, the ravine constricts again, and supports a pool of crystal clear water. The complex array of footprints confirms many animals come here to drink.

A check with the topographic map shows that this pool is almost vertically above the point, GR 325 099, where we could not climb up. We had now visited this ravine from the top down and via an unforgettable experience. Immediately beyond the pool Brian climbed up to the cliff top while the rest of us lesser mortals walked up a much easier route, a gentle ramp, exiting at the eastern end of The Covenant. We all met up at 1411, GR 326 097, and then proceeded south. The old forestry road was encountered at 1420, GR 327 096, and the vehicles at 1430. Total distance 8.7km, total ascents 462m.

⁷ This was surveyed on the 29th October 1924, a Mineral Lease of 640ac (ML 37) was applied for by W Williams on the 11th July 1924 for coal and shale. The plan records the north eastern boundary marker we found as, High Isolated Pinnacles of rock. Ref: Plan of Portion ML 37. Parish of Cox, County of Cook. M18135.

⁸ Johns Rock is accessed via Wolgan Road and Blackfellows Hands Trail. It is located about 700m east north east of Blackfellows Hands Rock and has views to the north over the Wolgan Valley. Named after John Eric Noble (1924-1995), it is a special place visited by the Woody Pear Walking Group. It is here that the ashes of John Noble were scattered, July 1995. Ref: Olive Noble's track notes and interview, 27th August 2010. Cullen Bullen Topo Map, GR 323 094.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0900	Park vehicles on old road	327 090
0908	Leave old road and head east	327 094
0915	Cross bike track and find orchids	328 094
0929	On high viewing pagoda	330 094
0941	In long slot, Temple Creek	331 093
0953	The Sacristy	330 095
0954	Enter The Catacombs	330 095
1000	Exit The Catacombs + morning tea, 12 minutes	329 097
1023	Cliff walking and retrace	329 099
1036	Cliff walking and retrace	327 099
1049	Below cliffs	326 100
1058	Descend slot	325 100
1108	No go entry into Holy Grail Ravine, 104m cliffs	324 099
1133	Negotiating unstable area	322 101
1143	Negotiating ledge	321 102
1158	At Last Crusade Point (on top)	320 102
1211	Overhang in Last Crusade Ravine	320 100
1231	Gliding blocks	322 097
1243	Crusade Rocks and lunch, 23 minutes	322 097
1245	Mining lease marker	321 098
1316	High pagoda	321 097
1328	High pagoda and view	322 096
1332	View of Johns Rock	324 095
1353	In Holy Grail Ravine	325 097
1355	The Covenant	325 099
1358	Pool and possibly permanent water	325 099
1411	Group re assembles	326 097
1420	Intersect with old road	327 096
1430	At vehicles	327 090

6.4 **Indiana Gorge and Indiana Slot**

Maps etc	Department of Lands Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, WGS 84.
Walk description and route	Drive to GR 332 088 on Blackfellows Hand Trail. Walk north through the magnificent Temples of Doom, and then continue exploring the pagodas on the east side of the ridge, heading north. Arrive at the 122m high cliffs above Wolgan Valley – great views all around and then walk to Lost Arc Point, a knife edge cliff with a view to end all views. Next, work our way around the headland and finally descend into a deep, pagoda filled gully at about GR 333 098. Cross the gully and continue east under the 133m high cliffs and into the recently discovered Indiana Gorge. Check out the amazing Indiana Slot and the rest of this stunning area. Exit the Gorge at the south end and make our way back to the cars.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	Don't miss this iconic walk! I am doing a rare repeat of this adventure, as it is, in my opinion, one of the very best walks we have done this year. Scrambling and exposure. About 8km.

Date walked 19th August 2013.

The Weather

The morning started bright and clear, with strong wind gusts, by 0930, 7/8th of the sky had filled with fast moving clouds. These later became quite dense and a light shower fell at 1130, this then cleared but the cloud filled sky and strong winds persisted until we left the area. The temperature ranged from 4 to 10 degrees.

Background Notes

As a result of a detailed study of aerial photographs, Yuri Bolotin determined that a major slot through the pagodas existed right on the edge of the cliff line to the east of Indiana Gorge, GR 341 096. Subsequently and accompanied by two skilled rock climbers, Yuri visited the area and proved that the observed slot not only existed, but also that it was negotiable by fit and agile bushwalkers. It is one of the most amazing natural phenomena of the Newnes Plateau and deserves the protection afforded by national park status.

Apart from the test visit and the party visiting today. It is unlikely that any other bushwalkers or rock climbers have visited this remarkable location.

This area is outside the protection of any national park. Angus Place Colliery has already undermined much of this area resulting major surface fractures in the pagodas of the Temples of Doom. Whilst this damage is unsightly and irreversible, it pales to

insignificance when compared to the unseen damage of captured surface water and long term structural changes to the ecological regime. Already observed in Lambs Creek and Kangaroo Creek are large trees dying and collapsing as the sub surface water sources disappear.

Track Notes

The walk started on the Blackfellows Hand Trail where the vehicles were parked at GR 334 088, 1120m. Walking was under way at 0855 after a briefing session. Within 100m we were exploring the wonders of the Temples of Doom⁹ pagodas. These pagodas rank as some of the finest examples of almost vegetation free 'smooth' pagodas, opposed to 'platy' pagodas, and have the added advantage of being readily accessible. They are extremely photogenic and when combined with the backdrop profile of the crest of the Wolgan Capertee Divide, comprise some of the Newnes Plateau's most spectacular scenery.

On previous visits into this area, we have tended to head directly to the dramatic cliff edge with 122m drop and ignore the succession of pagodas on the eastern margin of the access ravine¹⁰ that drops down into the Wolgan River. This time we made a deliberate effort to explore each and every pagoda crest and the associated ridges. Several things immediately caught my eye. The most obvious is a structural change in the pagodas as they morph into the platy variety and become more upright. A secondary and notable change is the presence of a species of *Acacia*, *Acacia elongata* together with rich almost lavender pink, densely flowering *Zieria murphyi*. These specimens were recorded at GR 333 095.

The ridge extends for some distance north with the pagodas becoming taller and the slots between them more complex, several having internal 'T' junctions. It is a terrain so crammed with detail that to explore it fully would require more time than we could allocate.

A very attractive Skink, *Acritoscincus duperreyi*, was found under a small rock. It seemed quite happy to be photographed, GR 332 096. At 1000 we chose a sunny pagoda protected from the wind to have morning tea, also located at GR 332 096. In the immediate area residual ironstone formations reached a fine degree of evolution. Formations that could be interpreted as chairs, windows, peep holes, winged buttresses and numerous mythical creatures were in abundance. The photographers had a busy time. A slot adjoining the morning tea site was investigated. While it was attractive and provided a route to the ravine floor below, it did not merit a change in our plans.

On our way to the northern cliff edge, we climbed several pagodas. As we moved further north the ravine we were in widened and the views east and north east became more spectacular. We could also see several slots on the eastern side of the ravine that could provide opportunity for a more detailed examination of the area. It is indeed an

⁹ The Temples of Doom located on the northern side and 3km from the Wolgan Road and Blackfellows Hands Trail intersection. The Temples of Doom are spectacular smooth, rocky pagodas. Named after the 1984 adventure film *Indiana Jones and the Temple of Doom*, directed by Steven Spielberg. Possibly named by Wilf Hilder, c1991. Ref: Olive Noble's track notes from Woody Pear Walking Group, 1991. Cullen Bullen Topo Map, 332 089.

¹⁰ Now The Lost Arc Ravine.

area rich in possibilities. At GR 332 099 a scorpion, *Urodacus novahollandiae*, was sighted.

At 1038, we stood on the edge of the imposing cliff line at GR 331 100. The extended view is circumscribed by Wolgan Gap Trig in the north west and the recessed notch where the Wolgan Falls are hidden from view in the east. The southern escarpment of the western extension of Sunnyside Ridge occupies the centre field of vision. Just visible are the tops of Mount McLean, Mount Davidson and Mount Jamison on the Wolgan Capertee Divide, and kilometres away to the north the conical top of Tayan Pic. 122m below our position the talus slope stretches to the dark green ribbon of vegetation that conceals the Wolgan River.

The immediate cliff edge area is devoid of vegetation creating a striking landscape for great photos. As we moved east along the cliff edge following a succession of re entrant blocks ready to carve off and plunge into the valley, great vertical curtains of sandstone were revealed. We took pictures of each other as tiny specs perched on the edge with great voids below. This cliff area is a dramatic place. To add colour and perspective several compact bushes of golden Wattle, *Acacia elongata* were included. Fortunately the fast moving clouds and the wind co operated providing temporary patches of clear blue sky as well. This locality at GR 333 100 Yuri has called Lost Ark Point.

To add variety, we followed the cliff edge in a south easterly direction picking up details of the 133m high cliff line some 150m further east and on the other side of a ravine which we had to cross. As the cliff we were on turned more to the south, it became less solid, breaking into a series of tall, conjoined pagodas and then as a rugged pagoda series before merging into a side tributary of the ravine. This is a special place. It is even more special in that the side ravine is a negotiable ramp to the main ravine. (I have named the main ravine, Lost Ark Ravine. It commences as a small stream at GR 334 089 and breaches the cliffs above the Wolgan River at GR 335 098).

At 1108 we stood at the top of the side ravine. It has a micro climate dominated by ferns, mosses and deep, rich humus soils. Brown Barrel, *Eucalyptus fastigata*, gums grow here, several specimens of *Guioa*, *Guioa semiglauc* were observed with flowers about to open. More specimens of this semi rainforest species were later observed in Indiana Gorge.

By 1130 we had crossed Lost Ark Ravine and made our way to the exposed cliff corner where a negotiable discontinuous ledge extends for some 600m east to Indiana Gorge. This ledge, formed generally from a decaying shale band within the Triassic sandstones, is frequently interrupted by fallen boulders and sections that have eroded to a point where the edge of the ledge and the top of the talus slope are synonymous, there is little to support your feet. Negotiating these sections is demanding. Also, this ledge climbs steadily towards the mouth of Indiana Gorge.

Taking the mind to more pleasant things, there are numerous specimens of brilliant purple flowering Rusty Pod, *Hovea longifolia* growing in the very toughest of conditions. The ledge also is home to a whole range of small creatures ranging from

Ant Lions, *Myrmeleontidae*, to Paper Wasps, *Vespidae*. We saw a vast but now abandoned wasp colony, hanging like stalactites within a small overhang.

At 1203, GR 340 096, and at 958m we reached the corner of the cliff line and the entry point into Indiana Gorge. The entry point is noteworthy, as it requires some skilful navigation around a tree on a very small ledge followed by a short pack pushing crawl as you leave the desiccated outer cliffs and enter the green world of Indiana Gorge. Once past this noteworthy spot some rock hopping and clambering is required to enter the level precinct area where huge Brown Barrel gums, *Eucalyptus fastigata*, are underlain with the Branching Grass Flag, *Libertia paniculata*. This locality is one of the largest areas of this species I have seen.

After adjusting to a spacious, level green and shaded area, we settled down for a short lunch, GR 341 095. At 1240 it was time to leave the packs, check the cameras and embark on a very special adventure, a visit to the Indiana Slot. This slot is positioned at 90 degrees to the cliff line and has so many features that unless you have actually been to it and in it you would have difficulty believing that it actually exists. Firstly it is approached by a clamber ledging up to a ledge that looks hypnotically down into the Wolgan Valley. Best to keep your eyes on the cliff face and not the void below.

Then you see it, a small hole in the cliff face that you must squeeze through. Once through and on the other side you stand up in a narrow defile maybe 4m long. Way above there is a thin strip of sky. Ahead there is apparently a blank wall of rock. When you reach the end wall, it reveals itself as a 'T' junction with the narrowest of negotiable clefts. To the north the cleft is filled with a tumble of broken rock. Shafts of sunlight poke through from half a dozen rough apertures.

It is the south arm of the cleft that takes your breath away. It is barely 40cm wide; it is nearly 8m high and an amazing 40m long. The initial impact is this is a movie set. This is not real. Then you start moving along this cleft that at the half way point is choked with fallen rocks. These rocks are somewhat inconveniently placed and a real scramble is entailed in climbing up and over them. The issue is a space at the base where foot and hand holds are nominal to non existent. Gymnastics wizard Brian solved the problem by chimneying up inside the cleft and 'walking' over our heads.

With some members acting as step ladders and others as hauliers we all made it up and through to the other side. It needs to be noted that once the bottom climb is executed the rest of the journey through the cleft is remarkably easy. A short set tape installed by an agile member of the party would have served the same purpose but not with fun that we all had helping each other.

Looking back down the cleft is amazing, however photographs do not do it justice. We entered the cleft at 1243, GR 341 096 and exited it at 1305, GR 341 095. The pagodas around the top of Indiana Slot are also very good but after the euphoria of the slot all else looked a little passé. To descend from the slot adventure you need to head south for about 30m, avoiding the first ravine that ends in an unacceptable drop. Even so there are a couple of places where assistance and or leaps of faith are required.

We returned to collect our packs and then began walking south in Indiana Gorge. The gorge is a rare place in a state forest in that it has not been logged. The huge Brown

Barrel Gums in here grow, mature and die in an uninterrupted cycle. We visited one such tree, GR 341 0904. It had been immolated about 30 years ago but was still growing. The internal cavity left by the fire was so big that 10 of us were able to get inside. This is a big tree.

At 1321 we visited a cave that had been hollowed out by chemical erosion. It measured about 20m across the drip line, 15m from front to back and about 8m high. There were no signs of occupancy or art. At 1336 we visited another strange phenomenon, a funnel like break in the eastern side of Indiana Gorge that opens out into a level, secret valley. This valley would be over 200m wide and yet the funnel access is less than 3m wide. An adjoining, secondary 'funnel' caused by a rock collapse was investigated by two members of the party using headlight torches and crawling on their hands and knees. They went exploring for more than twenty metres before turning back. Inside the funnel valley area there are overhangs on both sides. A search for art yielded some graffiti initials 'JM' but no date. Given the style of writing the letters it is estimated about 70 years old.

We now headed west across the ravine floor, still amazed that the stand of Brown Barrel Gums was intact. At 1356 we ascended a sloping rock face that increased our elevation to 1050m, GR 339 093. Using the compass we set off in a south westerly direction back to the vehicles. An old forestry access road at 1405, GR 338 091, 1100m, was encountered as well as a lot of evidence of small trees being cut for pit props. Ten minutes later we arrived back at the vehicles where a small celebration with cakes and drinks was held to mark Kaye Birch's birthday and also an amazing walk. Total distance walked, 7.75km, total ascents 657m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0850	Park vehicles on Blackfellows Hand Trail	334 088
0855	Start walk after briefing	334 088
0901	Temples of Doom	333 089
0917	Temples of Doom	332 091
0930	Temples of Doom + Acacias	332 094
0940	In pagodas	333 093
0959	Skink	332 096
1000	Morning tea and slot excursion, 20 minutes	332 096
1030	Pagodas	332 099
1034	Scorpion	332 100
1038	Cliff edge	331 100
1049	Lost ArK Point	333 100
1101	Views into Lost ArK Ravine	333 099
1108	Descending into Lost ArK Ravine	334 099
1122	In Lost ArK Ravine	333 098
1134	On ledge under 133m cliffs + Hovea	335 098
1143	Paper wasps	337 096
1203	Corner of cliff at entry of Indiana Gorge, 958m	340 096
1214	Indiana Gorge	341 096
1217	Lunch, 23 minutes	341 095
1240	Climbing to Indiana Slot	341 095

1243	Enter Indiana Slot	341 096
1305	Exit Indiana Slot	341 095
1320	Descent to lunch site	341 095
1321	Exploring cave	341 095
1334	10 in a tree	341 094
1336	The funnel valley + graffiti	341 094
1356	Climb out 1050m	339 093
1405	Old road	338 091
1415	At vehicles	334 088

6.5 The Spanish Steps to the Wolgan Falls

Maps etc	Department of Lands: Cullen Bullen, 8931 -3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Leave vehicle at the locked gate on Fire Trail No. 5 off the Blackfellows Hand Trail, GR 350 091. Walk down the fire trail to the Wolgan River below the Spanish Steps. Proceed downstream until liloing becomes possible. Don wet suits and inflate lilos. Follow the river through a spectacular canyon with 30m high cliffs. Possibly stop for morning tea at GR 351 101 where it should be possible to beach the lilos. Here we may do some local exploring before resuming the journey to the top of the falls GR 349 101. An attempt will be made to exit the canyon at GR 350 103 and ascend the ridge back to the cars. Depending on how early this is completed we may relocate the cars at GR 333 088 and head north to explore a north south canyon with cliffs reputedly more than 100m high where they face the Wolgan River. For this exercise a 30m tape will be carried, as there are many 20m contours to be negotiated.
Gear issues	PLB, volleys and leg protection recommended, 2 litres of water (the Wolgan River is contaminated and undrinkable), camera, 30m tape. Change of gear for afterwards recommended.
Comments	This is very much exploratory country. Wet, exciting and a bit different.

Date walked 9th January 2008.

The Weather

A fine mainly cloudless sky matched with high humidity and warm temperatures; virtually no wind; 15 to 27 degrees

Background Notes

The Spanish Steps... the connotations... romantic Rome ... the Trevi Fountain nearby... also nearby the house shared by Keats and Shelley, poets to the world... How different are the inappropriately titled 'Spanish Steps' on Fire Trail No. 5 leading down to the Wolgan River!

Steps they are, but that is where all similarities cease. These steps are a succession of sandstone benches, fairly regularly spaced creating the impression of a flight of stairs. Given the number of empty alcoholic drink containers around the area, I can only guess they were named after a heavy drinking session when someone's flight of fancy was euphoric with many molecules of alcohol.

The immediate area is sterile. Ugly, monstrous steel barriers have been erected to allow only key holder access by 4WD vehicles; the ground is bare, the flies are of

gargantuan proportions, (2cm +) and sought our body salts with religious fervour. Why did we come here? I had promised that we would. The site is typical of the desecration that is being done by a minority in some of our most beautiful pagoda country.

Track Notes

Before visiting the Spanish Steps the group visited a commanding pagoda with views up and down the Wolgan River Valley. Everywhere pagodas pop up through the trees, exposed cliffs increase downstream foreshadowing the spectacular sights to come. Descending the pagoda requires negotiating another 4WD created scar. Down in the valley the scene improved, here the Wolgan River is a neat, clear running stream. We crossed and recrossed it several times before finding a recently emplaced mountain bike track that leads north along a spur between the eastern most loop of the five 'Wolgan Loops' which mark the last section of the Wolgan River before it plunges over the Wolgan Falls.

At approximately GR 354 102, at the northern end of a loop a large, basin like structure has formed. It is impressive with 15 –25 m cliffs all round and filled with bracken. First impression is of another Wollemi Wilderness 'crater.' The seduction of following the bike track soon ends. The track is headed up through the cliffs to join Sunnyside Ridge Road.

A quick about turn, a check on the direction of flow of the Wolgan and we entered a beautiful section where the river has cut deep into the sandstone. The cliffs tower 30m+ on both sides and the southern end of the second loop is just magnificent. An animal pad / human track threads its way through tree ferns; a tributary creek from the west at GR 352 098 adds further to the enchantment. We found a magnificent sulphur yellow slime mould, *Fuligo septica* in its sporangium- producing phase. It made a stunning photo.

We moved on another 100 metres or so when a challenging block up loomed ahead. Time for morning tea. A generous 15 minutes was spent just enjoying this place with its diversity of life. We had been noticing all along the way the stumps of former forest giants cut down to serve the hardwood timber needs of Sydney 50-60 years ago. How did the timber getters remove the massive logs? We would discover the answer later in the day.

The block up was negotiated without difficulty. There are some interesting jumps leaps and drops but all in a bushwalkers routine. The cliffs receded and the valley temporarily opened out as we rounded the third loop. Here it also becomes scrubby and scratchy with lots of fallen material to traverse. As the Wolgan snakes into the fourth loop the volume of water increased, the quality dropped and the rocks started to show signs of algal growth. We could not find the entry point but we know that mine water is pumped into the Wolgan River somewhere near this point. It is supposed to be treated and be pH neutral but that is the approved theory. The practice is that the Wolgan River from this point on is contaminated and forever degraded.

Pushing through the King Ferns, *Todea barbara*, again there was the sound of rushing water. The cliffs returned as we entered a tight constriction and then we had a sight I

had been hoping for for some time – wall to wall water and the chance to put on the wet suit, inflate the lilos and do the wet thing. Not so fast! We studied the water. It was murky, dark and it had a sulphurous smell. We dumped our packs on a sand bank and went in search of the source of contamination, pushing back up stream. No luck - the entry point is well hidden.

We returned to the sand bank, decided to change and go forward despite all the negatives. It was quite a process but finally we launched ourselves into the water. For 50m it was good floating between the canyon walls, then we rounded a bend and the water had almost gone! All there is are a few pools and a heap of scrubby rubbish. We were with all our gear on for a wet experience and no water!

Feeling that there must be water a bit further on the gear was dragged for another 250m. We found a pool at the bend, GR 348 103. Melissa and I entered it. It was horrible and we sank up to our thighs in mud and mush. I had hoped for an open stretch of water behind a large rock. It was a blind end with even more rubbish. We pulled out and followed the others through more unpleasant scrub. We were heading now towards the final loop.

Suddenly we were in a big block up. The rocks are huge, the drops between them are one way, down. Some ancient very unstable logs provided a way forward. After a substantial looking side branch broke off the walking log following a kick by Graeme I decided that the safety issues were more important than the end of the journey. Gingerly, Steve followed Graeme. They went some distance only to find another big drop leading to the final pool, and then the falls 150m further on. Graeme was keen to go but I counselled no. It was not worth the risk.

We pulled back and retraced our steps and climbed to a ridge at GR 349 102. Here we changed and put out our wet gear to dry in the sun and have lunch. I mused on the outcomes of the concept of liloing down the Wolgan River to the Wolgan Falls. Not every exploratory walk has the ending you want.

Lunch over and gear repacked we climbed up a closely stepped pagoda. We were rewarded with stunning views of the last and most dramatic of all the loops. The cliffs, pagodas and the deep canyons between them provide unique photos and special experiences. On top there was a cool breeze. I climbed to the top of the highest pagoda and enjoyed it all. The others followed after taking numerous photos.

As we were about to descend I looked down and there were the unmistakeable twin tracks of a road. In a flash the whole scenario of the *modus operandi* of forestry operations in the valley was clear. This would have been a route where the logs were hauled out from the lower section of the valley. We found a cairn. It marked another relatively easy descent point down into the valley. We pushed along. I felt uplifted from the pagoda experience and the views.

Suddenly, ahead and without warning a large bird¹¹ took to the air from the ground. There was a huge flapping of wings as the startled creature made a get away. Seconds later we come across a broken eggshell and next to it a tiny fledgling – all brown and

¹¹ From researching various bird books I think it is a White throated Nightjar (*Caprimulgus mystacalis*)

fluffy. Possibly out of the egg only a few hours, it 'cheeped' plaintively. We quickly took a photo and left ever mindful that we must vacate the area if the mother was to return and nurture the chick. This accidental discovery was an emotional one; we had been privileged to stumble across a critical moment in the birth of a new baby bird.

We reached the junction with the fire trail at 1430. Whilst it was too late and too hot to do the planned second walk we drove to the possible starting point and climbed a pagoda or two to do an assessment. It would be a walk for autumn and a very full day.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0850	At locked gate on Fire Trail No. 5	350 092
0900	On a pagoda to view the Wolgan Valley upper reaches	353 096
0920	The Spanish Steps	355 098
0930	On a mountain bike trail	355 099
0933	In the Wolgan River	353 102
1007	In the Wolgan River	351 098
1015	Morning tea (15 minutes)	353 102
1045	Change for liloing	348 104
1250	Frustrating trip down almost dry river	
1310	Lunch (30 minutes)	349 102
1400	On top of a big pagoda	350 100
1410	Cairn and the baby bird incident	349 098
1430	At locked gate on Fire Trail No. 5	350 092

6.6 The Wolgan Falls

Maps etc	Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Park vehicle at GR 350 092, Fire Trail No. 5 off the Blackfellows Hand Trail. The walk will involve visiting a number of pagodas and ridges. The upper and lower falls will be visited. The entire walk is under 4km but will take just over 6 hours. One creek crossing where wet feet are a possibility. Expect some clambering and exploring amazing ridges. 200m+&- max.
Gear issues	PLB, GPS, Maps and compass, appropriate head and footwear and leg protection recommended, 1 litre water, camera. A 30m tape will be carried by the leader. Warm gear for afterwards recommended.
Comments	This is a very pretty area and well worth the effort.

Date walked 8th August 2007.

The Weather

A rather windy day with strong gusts from time to time. The sky was cloudless. Out of the wind it was quite pleasant. As the day wore on the temperature fell and we were glad of the protection afforded by the vehicle at the end of the walk.

Background Notes

The setting for this walk is both spectacular and disappointing. The spectacular elements are all provided by nature. The disappointing element is the degradation of the surrounding area access roads by unfettered off road 4WD abuse.

Dealing with the unfettered off road 4WD abuse situation first. On Fire Trail No. 5, which joins Sunnyside Ridge Road to the Blackfellows Hand Trail via the Spanish Steps there are 'locked' gates at key points on the respective north – south and south – north entry points. These 'locked' gates are of gargantuan proportions and have been presumably 'upgraded' by 4 Wheel Drive NSW, if the advice on the signs is to be believed. They also claim to be operating under a deed of arrangement with State Forests. The despoliation of the area is excessive and the amount of scattered litter along the length of the trail is unnecessary and unsightly. The matter will be taken up with 4 Wheel Drive NSW.

There is another disappointing matter that is far more serious that needs to be raised as it is potentially putting lives at risk. That is the shortcomings of the current topographic map (Cullen Bullen, 8931 – 3N as available on LPI Raster DVD) of the area. Firstly a number of significant roads and tracks are not shown. If an injured walker, or even a 4 WD person, had to be evacuated, police rescue and or ambulance could not rely on the map. How it is possible to not show a 30m+ waterfall on the Wolgan River is also a little short of unbelievable.

Now to the good things. This is one of the best packages of a walking/viewing experience that an off track bushwalker can find in the south west Wollemi Wilderness. Note taker Steve is not known for effusive journalism. When he writes in his briefing notes, "one of the best overall views I have ever seen in my life!" you know it is special. He is right. It is.

Track Notes

Let us start at the beginning. The vehicle was parked at the locked gate on Fire Trail No. 5, (Blackfellows Hand Trail entry), GR 350 092. The position is elevated just enough to show the rim of the cliffs and give a sense of anticipation. The 4WD track heads almost due north before it forks at GR 351 094. The western fork, (not shown on the map, is the exit track for the walk). The right fork swings to the east before descending steeply down into the Wolgan River.

Before the descent there is a fine pagoda that was climbed to survey the area. It is multi-spired. The highest spire gives a commanding view, GR 353 097, but is not high enough to reveal the sinuous convolutions of the Wolgan River. Immediately below on the south side is a drop of 25m down to the fire trail and river. After a photo session in a bracing wind we descended the pagoda and negotiated the scarified ground that is the 4WD track. There were fresh tracks in positions that were mind blowing. The vehicles concerned must be on steroids.

Down in the valley floor the Wolgan River flows clear over white sand. The truncated stumps of former forest giants are everywhere. Later in a deep, remote chasm we saw some similar trees. They are huge eucalypts with waist high diameters in excess of 1m.

At the many crossing points in the following 350m of trail several truckloads of fill have been brought in. Very interesting fill it is. It is olivine basalt with large aggregations of chartreuse coloured olivine crystals. Time for photos and sample collecting! Olivine is very dense and even a small specimen is quite a weight. The best one was left as it weighed an estimated 15kgs! Not something to throw in the pack. I am not sure how the fill was taken there or where the closest deposit is but it would be interesting to find out.

We moved on. At GR 355 098 the trail makes a tight hairpin bend before heading uphill and south. In front of us lay the "Spanish Steps". The steps comprise a succession of sandstone layers or shelves that have been exposed by erosion and further modified by 4WD activities.

Soon after the 'steps' is another gate complex on the trail that is over the top in construction. We elected to follow the trail to the junction and walk about 2.3km of Sunnyside Ridge Road rather than do the scratchy scrub bash that a group from the Upper Blue Mountains Bushwalking Club had followed. It took about the same time and we arrived in much better shape.

About 200m past the northern turnoff for Fire Trail No. 8 there is an unmarked trail (a forestry track) that follows the crest of a ridge from GR 353 112, firstly west and then

south. At GR 348 104, decided to have morning tea in the sun and out of the wind. What followed next was 45 minutes of breathtaking views mixed with disbelief.

It was maybe another 200m before the narrow ridge we were on shed its tree cover and revealed a complex view of cliffs, pagodas, deeps, drops and gorges which cannot be compared to anything else. Each pagoda on this knife like ridge leads to another; each has views of 360 degrees. There are huge drops of more than 70m, sinuous incised canyons, mini pagodas within compound slots, feasts of viewing beyond satiation.

Hanging over the edge of a drop it is just possible to view the top of the Wolgan Falls a good 70m below. To the far west some 4km away are the cliffs of the Blue Mountains Range. We stood in awe. There is just so much that the human brain can absorb at one time. I took maybe 60 pictures from this ridge. Each is unique and not one manages to capture the rapture. Definitely a place to come back to GR 348 101.

Standing on top it looks impossible to get down - but it is. We pushed north. And crossed an unnamed creek, went up and over a small ridge and then descended into a tight parallel sided dry canyon with huge trees that have so far defied all efforts by forestry to extract. They alone are worth a visit. The canyon is shown with walls of 39m to the west and 29m to the east. It does not really matter. It is just a great place to be. There is a rough, very rough sort of way of route that leads down and down to the Wolgan River.

From the junction point with the river, it is a short but bouldery and steep uphill scramble to the base of the falls. They are quite a sight. Standing over 30m high and almost as wide there are 3 or 4 majors streams of water pouring over the lip and then bouncing and splashing over rock shelves into a pool below. There are a number of aspects of these falls that do not compute.

Firstly the volume of water does not relate to the volume of water we crossed 1.5km river length upstream. Secondly the water looks contaminated. Is there a coal mine tail water pump out somewhere? Thirdly there are a lot of unpleasant looking algal type growths on the waterfall face and in the pool below. Evidence of pollution? It certainly would not be inviting to swim in and drinking it would be a last resort. Later in the car Steve and I studied the maps and could see no possible surface source of the extra water. The question needs to be asked – is there something significant not shown on the map or is it a natural phenomenon that requires investigation. I now want to walk along the river from Fire Trail No. 5 crossing to the lip of the falls.

The rocks behind the falls are a textbook exposure of the coal measures. To the south of the main falls the sequence of rocks, coal seams and strata is so easy to read and see. Not so good is the massive overhang tens of metres above that looks ready to drop at any time. Recent falls of rock are evidence that another event is not far away.

Lunch boxes away it was time to climb out. Immediately to the south of the falls there is a ridge that rises very steeply over soft unstable shales. We gained 50m in almost the same distance. A narrow ledge then leads across a ravine before narrowing even further when it takes a sharp bend from west to south. The drop below is awesome.

This is a point to watch that your pack does not catch on anything. Keeping your balance is critical.

This ledge provides stunning views, (I managed two shots), and a test for those who don't like exposure. Once around the point the ledge broadens to about a metre. Gee that's wide! Then a series of steep ramps took us up, first east then northeast and then to a platform with stunning views back across the gorge to the ridge where we had enjoyed those transfixing views.

Photo opportunities yet again. Then it was time to do some slot crawling. An amazing way of route exists through a narrow slot. You crawl up a rock inside it, turn yourself inside out and then climb back up over where you have just been and emerge on top of a pagoda. This is a walk with everything. Again an expanded view of the compound valleys, cliffs, slots, pagodas and more presented itself. How could you resist? We succumbed time and time again as different aspects presented. Another 200m of rock hopping and we picked up the unmarked track that led to the vehicle.

On the way out a detour was made to Bald Trig 1176m. The view was stunning and very clear. The now biting wind had us back in the vehicle in less than two minutes. The startling thing from this vantage point is the now huge expansive of the Clarence Colliery and the nearby sand extraction quarry.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0840	Parked Vehicle	350 092
0855	On pagoda	353 097
0905	The Spanish Steps	355 098
1015	Track turnoff Sunnyside Ridge Road	353 112
1025	Morning tea	348 104
1040	The ridge and above the falls	348 101
1105	Trees in canyon	345 106
1210	Crossed the Wolgan River	347 102
1225	Lunch at base of falls	348 100
1330	On cliff top	347 099
1350	Parked vehicle	350 092

6.7 Ravines north west of the Wolgan Falls

Maps etc	Department of Lands: Cullen Bullen, 8931 -3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Park cars at approximately GR 343 117 on Sunnyside Ridge Road, then walk west and descend into an incised ravine between high pagodas. Expect to scramble and may be do a rope assisted descent. Exiting the ravine, circle under the cliffs eastwards and make for another ravine at approximately GR 339 109. Enter this ravine and climb up through amazing formations then return to approximately GR 340 109 where a break in the cliffs should allow us to ascend. We will then thread our way through pagodas and other formations to maybe visit a third ravine, and link with unmarked Fire Trail No. 10 ¹² , and hence back to the cars. Approximately 5km, 150m+&- several times.
Gear issues	PLB, GPS, maps and compass, 1 litre of water, appropriate head and foot wear. The leade will arry a 30m tape. Change of gear for afterwards.
Comments	Bring the camera. This is spectacular country. Date walked 30 th April 2008.

The Weather

A cool prelude to a crisp, dry autumn day. Scattered cloud on the western horizon but it did not affect our walk. Temperature range 4 to 16 degrees.

Background Notes

It was indeed fortunate that Roger Clarke came on the walk. If he had not come with his high clearance 4WD we may be still attempting to get to the starting point! In short, Sunnyside Ridge Road has deteriorated significantly and is currently un-driveable for 2WD vehicles and a very dubious proposition for soft 4WD's. Even in the high clearance 4WD it took the best part of an hour to travel from Clarence to the walk takeoff point for Fire Trail No. 10.

Track Notes

At 0840 we left the vehicle at GR 343 117 and set off almost due west across reasonably open forested gentle ridges and gullies. The main understorey vegetation comprised several species of Banksia and Leptospermum. Each plant was dedicated to impeding our progress. At 0903 we had tracked to GR 338 117, a bit further south than originally planned. By heading north west and following a contour we arrived at

¹² There are a few short fire trails west of Fire Trail No. 8 that are unnumbered and not signposted. It seems logical to allocate numbers to these trails on the basis of their occurrence for ease of locating position.

the key point for the 'real' walk to begin, the head waters of the main source of the ravine/ creek/ canyon that I hoped would take us all the way through the cliff line.

A check of the GPS put us at GR 337 119. Nature, as if to confirm the starting point, immediately revealed several pagodas and soon we were in a canyon. After a few short twists and turns there was a drop that required some careful negotiation on a slippery log followed by a short leap of faith. We all made it.

The canyon was superb. There were sections where the creek bed appeared to be paved with small stones, sections where huge gums had grown undisturbed for centuries. We assessed a fallen one to have a diameter in excess of 2m and a length that would have exceeded 50m. These are forest giants, and fortunately, inaccessible for State Forests to exploit. In other parts of the canyon cliffs and pagodas surrounded us on all sides.

The way of descent continued for over 800m, all negotiable and all pristine, what a canyon! At 0950 the trees became further apart and sunlight filled the widening ravine. We were approaching the end of the canyon. At the end of it the cliffs opened out on both sides revealing views of the equally dramatic cliffs on the south side of the valley. It was quite sobering to look at the slots on the south side that we had already explored.

Out of the ravine there was a subtle change in the vegetation as more light enabled different species to establish. The big trees disappeared and the mosses and lichens were not so lush. After crossing near the ravine mouth to the east we found a good spot for morning tea (1015), GR 335 110, (the first re-entrant valley).

After 15 minutes of relaxation it was time to shoulder the packs once more and negotiate the base of the cliffs. The topographic map shows relative heights of up to 97m. The cliffs looked every bit of it and also unstable. There was evidence of many recent rock falls. At 1045 we rounded the southern most point and had our first glimpse up the second big ravine. It looked inviting, very inviting. We entered. The further we progressed along the base of the western wall the better the ravine became.

A large overhang/cave demanded investigation. It was dry with a sloping floor. Above it was another 70m or so of spectacular cliff. To our immediate left was a long defile and ramp. It looked as though it would provide access to the top if we needed it. I was focussed on exploring more of the main ravine. Dave reminded me that my plan did include exploring a reverse ramp that could lead to a great vantage point on the eastern side. After a quick look around we decided to cross the ravine floor behind two huge house size boulders. The watercourse around these was another gem.

The ramp route forecasted from the map and aerial photo was superb. As we climbed there were side ramps and slots and drops as well as negotiable pagodas. What a great land we live in! We kept climbing and at 1110 stood on a fabulous vantage point, (a pagoda – what else!). Below, and to the west and south west were views and views and views. Packs were dropped and the camera came out as we captured special moments. This was the stuff that makes an exploratory walk worthwhile. Not many bushwalkers have been to this point.

Walking around the edge of the cliff line better views and panoramas unfolded. The ultimate vantage spot was at GR 339 106. Here all the ingredients of a perfect lunch site came together except it was rather early, just 1140, no matter, everyone wanted to spend time in the sun with a perfect view. After all the morning had started off rather cool at 4 degrees.

After 25 minutes we stirred and returned to the business of exploring. Ramps were climbed, pagodas and slots as well. There is so much crammed into this small area. We found another set of pagodas at GR 342 106 and again another set at GR 344 107. This site also is the western edge of the 3rd slot that I wanted to explore. The cliff line was initially rather daunting, but working northwards we finally found a way of route down through some challenging slots, the shorter members of the party using the taller ones with long legs as ladders. This section was followed by some sustained bum slides until the ravine floor was reached. Wow! This was great.

This particular ravine Roger and I had explored on a walk in 2007 when we had visited the base of the Wolgan Falls entering from the north side and exiting on the south. We now concentrated on working our way downstream in the narrowing ravine. A tight slot and waterfall at GR 345 109 required some clambering then it was easy going.

Unbelievably, we had now completed all of the assignment as envisaged, and in better time than expected. We headed downstream for a short distance but there was little of real interest. At GR 345 110, (1257), we headed up the ridge to the west to link with Fire Trail number 10. The topographic map shows the fire trail incorrectly as Geoff's GPS bread crumb plot revealed. The old road builders knew a thing or two, they always kept to the crest of the ridges.

We were back at the vehicle at 1325. As it was early we decided to drive to the end of Sunnyside Ridge road and view the Wolgan River and valley. The road was so badly cut up and eroded that the last 300m could not be driven, it had to be walked.

From the viewing point we spotted a ready mix concrete truck grinding its way down the Wolgan Road to the Emirates Resort development. More interestingly Roger told of a walk he had done along the cliff line opposite – Designated on the topographic map as the Blue Mountains Range escarpment. Another opportunity to further explore. Yes, there is at least one more walk in this country.

Table of Times Locations and Grid References

Time	Location	Grid Reference
0840	Park vehicles	343 117
0903	On ridge	337 118
0915	Drop into canyon	
0950	End of canyon	333 113
1015	Morning tea under cliff (15 mins)	335 110
1045	Rounded point	338 109
1055	In the second ravine	
1110	Lookout over the Wolgan Valley	339 108

1140	Second lookout and lunch (resume 1205)	339 106
1225	On ridge with pagodas	342 106
1250	In third ravine	344 107
1257	Waterfall in third ravine	345 109
1315	Joined Fire Trail No. 10	343 111
1325	Return to vehicle	343 117

6.8 Ravines and cliffs around Firecat Walls

Maps etc.	Department of Lands topographic map, Cullen Bullen 1: 25,000, 8931 –3N, Second Edition. GPS setting WGS 84.
Walk description and route	Park cars at approximately GR 343 118 on Sunnyside Ridge Road walk west and descend into an incised ravine between high pagodas. Expect to scramble and maybe do a rope assisted descent. After exiting the ravine circle under the cliffs eastwards and make for another ravine at approximately GR 339 109. Enter this ravine and climb up through amazing formations then return to approximately GR 340 109 where a break in the cliffs should allow us to ascend. We will then thread our way through pagodas and other formations (& maybe visit a third ravine) and link with unmarked fire trail Number 10, and hence back to the cars. Approximately 5km, 150m+&- several times.
Gear issues	Map, compass, GPS, 1 litre of water, appropriate head and foot wear, PLB. A 30m tape will be carried by the leader. Change of gear for afterwards.
Comments	Exposure. Bring the camera. This is spectacular country. This walk is being repeated for photographic purposes.

Date walked 10th May 2013.

The Weather

A perfect autumn day, not a cloud in the sky, a gentle breeze from time to time, some smoke haze from hazard reduction burns, humidity very low, temperature range 10 to 18 degrees.

Background Notes

The far south west corner of the Newnes Plateau is rarely visited apart from the western end of Sunnyside Ridge Road, dubbed by rock climbers as Sahara Point¹³. As bushwalkers our area of interest today was the sequence of ravines and high cliffs that form a south facing edge of the Newnes Plateau and conceal the Wolgan Falls. I last visited this area 30th April 2008, and on that occasion we enjoyed a quite different experience. Although the time of the year was autumn, it was a much wetter season than today.

While the previous walk included the western most ravine and an exploration of several basal cliff ledges, the walk today explored the second ravine and the drama of walking along the edge of the 110m high cliff line, that titillates as each more easterly

¹³ Sahara Point, western most end of Sunnyside Ridge Road. Named by rock climbers who have been climbing from this point from at least 2006. Overlooks the upper escarpment of the Wolgan Valley. Cullen Bullen Topo Map, 334 124.

headland successively reveals the more intimate parts of the narrowing Wolgan Valley, culminating in a sighting of the Wolgan Falls.

Track Notes

This is not a walk for those concerned by exposure, fear of heights or significant scrambling challenges. The vehicles were parked at GR 343 117 on Sunnyside Ridge Road at the junction with Fire Trail No. 10.¹⁴ After walking the fire trail for about 100m, and noting the rotting carcass of an old forestry vehicle, we turned due west, and dropped down into the floor of a shallow tributary creek. It was here I forgot that it should have been the secondary tributary creek, not that in the overall scheme of the walk it really mattered.

As we progressed downstream we noted the dominance of *Banksia spinulosa* as an understorey species. The creek bed in the ravine was dry, and as we descended we noted that most of the mosses and other rock covering epiphytes were extremely distressed. Although the months of March to May are normally the best times to observe fungi there have been relatively few sightings in 2013. The few seen on this walk were located deep down in heavily shaded areas where residual moisture could still be found.

After about 300m of gentle descent we came across a group of pagodas. This was not my recollection. A quick consultation with the GPS and the trace of the previous walk confirmed that we had descended into a different ravine. No worries, we would explore this 'new' terrain and enjoy it. The pagodas were great to climb. We explored a slot in between two of them and were stopped by a 3m drop in a watercourse with nowhere to anchor the tape. Then it was a climb to the very top of the southern most one to look down and see what alternative options were available.

The views into the ravine area, my preferred option, revealed at least 30m of descent needed to be negotiated to reach the creek bed. After taking a lot of pictures we headed south seeking ways to get back to into the creek. It was not difficult and successive ramps, drops and slots all worked and by 0921, GR 341 113, this goal was reached. The base of the pagodas resolved into a large undercut succeeded by some very large boulders. Walking the creek bed involved a lot of clambering and scrambling, including a slide down that would have been a lot hairier if it had been wet or even slightly damp.

As we pushed south the ravine widened and glimpses of the cliffs on the south side of the Wolgan River could be seen through the trees. Another consultation with the map and it was decided not to repeat the undercliff walk as done previously, which would have involved back tracking, but to work our way over to the eastern side of the ravine we were in and see how far we could explore the benched ledge at the base of cliff line.

¹⁴ Fire trails along Sunnyside Ridge Road are not shown as numbered on the Cullen Bullen Map after No. 8. Fire Trail No. 9 ends at Cape Pinnacle; Fire Trail No. 10 starts at GR 343 117 on Sunnyside Ridge Road and ends at approximately GR 343 107. Fire Trail No. 11 starts at GR 339 120 and ends at GR 338 118.

The geology of this natural bench was studied closely. The shale component was very friable and tended to collapse when the slightest pressure was applied. Walking on it was a challenge as there was no certainty that your feet would stay where they were placed. This was not so bad while the bench was over a metre wide and the drop below remained relatively short. It was when the ledge narrowed to less than 50cm, the slope approached 35 degrees and the drop exceeded 30m that proceeding further was abandoned. We did note that some of the shale lenses contained fossils that appeared to be Permian grasses. We probably got as far as GR 340 108 before retracing our steps and returning to less demanding walking.

The soaring cliffs above invited exploration, so we went into climbing mode, and at 1030, GR 340 108 we emerged from a slot that led onto a rock platform with great views west towards the cliffs above the road access to the Wolgan Valley from Wolgan Gap. We had morning tea here in the sun while listening to the constant hum of truck movements along the Wolgan Road. We figured that work had finally begun on the \$4 million contract to seal the Wolgan Road from the base of the hill to the *Wolgan Valley Resort*. Unrelated to this activity, billows of blue smoke started to blow into lower valley and upstream towards us.

Having acquired a taste for life on the cliff edge, we followed it closely, enjoying the unfolding views upstream of the massive cliffs opposite as we edged further south. The valley floor was now about 200m below our position. There were many great viewing spots, including a classic one where you can stand on a rock severed from the cliff. It is a real jaw dropper. This is at GR 340 107, 1013m. It was now 1105, the sun was shining and it was delightfully warm.

We played around these wonder spots for a while, however to proceed further we needed to descend about 30m, cross a shallow ravine and then climb up the other side and again push southwards. Soon we were on top of yet another amazing high isolated spot, GR 340 105, 1124. As we moved forward the cliff line started to trend east and the whole scene of the Wolgan Valley changed; the valley narrowed significantly; the cliffs became higher, the topo map notes a relative height of 110m, meanwhile below the cliffs the talus slope became steeper and we could hear the Wolgan River.

From 1146 to 1206, GR 341 101 to GR 343 101, we just enjoyed a cliff edge walk like no other. The rock faces are angular and shear. If you are game to look over the edge and straight down, the drop is awesome. The block nature of the rock allows your camera to capture amazing images. We took many.

At 1206, GR 343 101, as stated above, the Wolgan Falls is in full view. The falls themselves are nothing particularly remarkable; what are remarkable are the great parallel, sinuous ravines that the Wolgan River traverses above the falls. Not only are these looped ravines tightly compressed, they are also in extremely deep gorges and flanked by the most stunning collection of pagodas.

Our position at GR 343 101 was an excellent place to take photographs, and it was so good that it made the prospect of lunch anywhere else second choice. It was just a

delight to bask in the sun amongst the Pagoda Daisies, *Leucochrysum graminifolium*, while watching the spectacle of Wolgan Falls¹⁵ and the surrounding pagodas. With lunch completed we headed initially west, and then north up the spine of the ridge, which carries Fire Trail No. 10. The ravine to the east of the ridge is shown on the topo map as having significant cliffs of 39m on the western side and 29m on the eastern side. The ravine is also shown as being quite narrow, less than 100m wide. Was it worth visiting? At 1247, GR 342 105, we set a course due east, and using natural watercourses and ramps we breached the cliffs at GR 344 104 and easily made it down to the ravine floor.

The ravine was dry as the one we had explored earlier, and although the cliffs were majestic, there was not that feeling of grandeur that I had anticipated. After about 250m, of heading upstream through indifferent scrub, we headed up a series of ramps on the western side and with little difficulty negotiated all the rock faces to the top, GR 344 108. Minutes later we picked up the alignment of the old Fire Trail No. 10, GR 343 109.

At GR 343 111, there is a strange log. The tree concerned has been felled using a chainsaw, however the log also appears to have been used by axeman training for a competition. There are at least 6 'stations' on this log where a very sharp bladed axe was used. None of the cuts has gone right through so perhaps it was a test for speed and timing or perhaps it was just someone who was filling in time. The location is a good 800m walk in along the road, although it may have been a drive to locality when the cutting was done.

The vehicles were reached at 1340. Total distance as measured by Marion's GPS print out was 6.2km, total ascents 342m.

Because we were so close to the end of Sunnyside Ridge Road we decided to drive to the end and visit Sahara Point. The views were stunning. The fire that caused smoke to fill the western part of the Wolgan Valley was traced to clearing operations on *Wolgah*, a property in the Wolgan Valley.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0845	Junction Sunnyside Ridge Road and Fire Trail No. 10	343 117
0848	Start walking	343 117
0850	Leave Fire Trail No. 10	343 116
0900	Climbing pagodas	341 114
0914	Still climbing pagodas	341 113
0921	Slide down ravine	341 113
0939	Overhang in creek	340 111

¹⁵ Wolgan Falls marks the western end of the tight winding canyons of the Wolgan River on the Newnes Plateau as the waterfall flows over the cliff line into what is the start of the Wolgan Valley. Cullen Bullen Topo Map, 347,101. Best view of falls is seen from 346 103. Wolgan Falls is accessed via Blackfellows Hand Trail and Fire Trail No. 5 from the western side or from near the road junction of Sunnyside Ridge Road and Fire Trail No. 8 on the northern side. These falls are not officially recognised and do not appear on the topographic maps

0950	Lyrebird nest, recently vacated	340 110
1001	Walking ledge below cliffs	339 107
1030	On top of cliffs + morning tea, 12 minutes	340 108
1052	On cliff edge	340 107
1057	Lookout position on cliff edge (1006m)	340 107
1105	Amazing high point (1013m)	340 106
1116	Cross ravine and climb to another high point	340 106
1124	Another high point	340 105
1146	Following the cliff edge rim	341 101
1206	View Wolgan Falls from cliff edge + lunch 19 minutes	343 101
1247	On ridge + head east	342 105
1256	Lip of ravine + descent	344 104
1309	Exit ravine	344 108
1317	On old Fire Trail No. 10	343 109
1325	Log with axe work	343 111
1340	At vehicles	343 117

6.9 Sahara Point to Cape Pinnacle

Maps, etc.	Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park the vehicles at Sahara Point GR 334 124. Commence walking north east around the cliff edge following the cliff line as closely as possible. We will have to travel up Rockflower Creek for some distance before we can again regain the cliff edge. Depending on time we will explore all the ins and outs of the cliff line to Cape Pinnacle. The return journey will be on an old fire trail, unnumbered but by calculation Fire Trail No. 9.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	Part Exploratory. Stunning views of the Wolgan Valley. Some Scrambling and exposure.

Date walked 28th March 2014.

The Weather

It was a day of total cloud cover. In the morning this was supplemented with numerous wreaths of low swirling mist creating spectacular views as first one mountain and then another were crowned, then obscured and then released from their damp finery. At about 1100 the mist transitioned into light rain. This gradually increased until our exit walk when mist and constant falling rain coexisted. The temperature ranged from a pleasant 14 to 16 degrees. Humidity was very high most of the walk.

Background Notes

This walk is a spectacular one with stunning views into the Wolgan Valley. Donkey Mountain and Mount Wolgan are centre stage when you stand at the end of Cape Pinnacle and scan the view to the north. The cliff edge is punctuated with amazing vertical walls and small slots that are ever so tempting but all end in unscalable drops. Because the drive to the end of Sunnyside Ridge is long and rough, visiting requires a determined effort. Also the walk to the point at 3 kilometres is considerably longer than most of the other fingers that project into the Wolgan Valley. I last visited Cape Pinnacle in May 2007.

Track Notes

When we meet at Clarence it was decided in view of the weather conditions to do the walk in reverse. This would entail heading directly to Cape Pinnacle and then work our way back towards Sahara Point. At 0856 after completing a vehicle shuffle between Sahara Point and the start of Fire Trail No. 9, we set out walking on the trail

along a north trending ridge. This was fine for the first 800m or so until the defined trail just disappeared, swallowed up by the bush.

We then headed north west, on a give and take track, stopping at GR 345 125. Here a group of pagodas were so inviting that we had to climb up and check out the view. The top of one such pagoda was the site of an amazing mystery, a cross made of rolls of chicken wire held down on the top by a mix of cut tree limbs and pieces of rock. The cross was about 3.5m overall. Over time the zinc coating of the wire mesh has leached, killing all surface lichen and moss so the cross was quite noticeable. There were no signs of instrumentation or other devices. Any thoughts as to what it may have been used for would be welcome.

The view west through the mist was over Rockflower Creek, although we did not recognise it at the time, an oversight that was to cause us to do a much longer and more interesting walk than originally planned. Picking up a section of track that was not quite so overgrown we followed this for a while walking a little more towards the north east than we should have. Inexplicably when we spied cliffs through the mist we decided we were on the western side of Rockflower Creek and determined to find our way down into it and up the other side. This was at GR 347 132.

What a remarkable spot! The cliffs opposite were huge and dramatic, there were amazing slots and when the mist lifted temporarily, ethereal views of Donkey Mountain. To get across we headed south testing after every pagoda outcrop for a possible descent point. Some of the possible options suddenly ended with drops of more than 30m. Everywhere the encrusted rocks and cliffs were alive with colour of rejuvenated mosses and lichens; fungi of many species were abundant; underfoot the ground was so replete with water that the leaf litter squelched as we moved; walking on slippery rocks was the other option.

We kept pressing south and at GR 347 129 a complex slot descent looked possible. About half way down there was a glorious water carved slippery dip that was just too uncertain to attempt – we could not see what the last few metres involved. Instead of trying it we photographed it instead. A few metres further down was a walk down ramp, boring but safe.

Coating all the rocks and vast boulders in the bottom of this amazing valley the epiphytes were a joy. However, our pressing need was to find a way up the other side and so put us on the narrow peninsula and the walk to Cape Pinnacle.

A great succession of ramps and a few interesting climbs through stunning pagodas, delivered us on to the top of a ridge and also to one of those ubiquitous bike tracks, GR 348 128. It was now 1021 and time for morning tea. Not sure what made us do it but we decided to look at the map - always a good idea. The study results were devastating. We had not crossed Rockflower Creek at all, we had actually descended Bushrangers Creek! This is the next creek system to the east. While we had had a great time and seen some wonderful sights we had to make our way back almost to the beginning of the walk and start again.

And so it was at 1045, GR 346 124, we set out again for Cape Pinnacle. To make up for lost time the compass was consulted frequently, encouragingly at 1120 we were

correctly at GR 347 139 with only about 800m to go to Cape Pinnacle. It is about here on the very narrow finger of the cape, some 200m wide, that the vegetation changes from sclerophyll forest to open heath with native cypress. On a dry day this open country would be easy to move through. Today it was wet and every branch touched shed water. It became debatable whether to put wet weather gear on or not. Either way you ended up wet, Either from rain soaked bushes or your own perspiration.

As we progressed further north the density of the mist seemed to increase and it also seemed to hover a lot lower, at times settling at ground level. About 150m from the actual end point there is a great viewing platform on the eastern side where photos are a must. The collection taken today was so full of natural special effects that we were enchanted. One part of me said it was a shame we could not see the whole of the Wolgan Valley, the other part of me said, Wow! This is a unique opportunity to capture images that are extraordinary.

Arrival at Cape Pinnacle was marked by a crossing of the boundary between heavy mist and light rain. We now had both. As we clambered to the high points and explored all the ledges, the 300m drop below seemed not to exist, it was just an opaque blanket of white; some photos were mere silhouettes, others had an intensity of colour that only diffused light can give. It was all magic. In all we spent some ten minutes here above 980m. It was just after midday and too soon to think about lunch so we spent time doing what we originally intended, walking close to the western cliff edge to capture images of the nearly 2 kilometres continuous cliff line.

By now the rain had the upper hand over the mist so finding a dry cave for lunch was a priority. At GR 344 144 we found the perfect spot. This is where a narrow canyon discharges over the cliff edge. Differential erosion has caused the formation of two opposing benched side caves near the top of the cliffs. These caves were relatively dry and just perfect for our needs. A thin, string like ephemeral waterfall from above separated the two caves. Lunch was quick and at 1244, wearing rain gear we returned to exploring the cliff line.

It was a wonderland. Very close to the lunch spot a major cleft has worn through the top 100m of cliff line cutting back a deep canyon complete with side canyons. The erosion residuals surmounting the surrounding pagodas are extensively fluted and against a white background presented as sculptural art. Moving right to the cliff edge we looked vertically down into the valley and realised what we were standing on was undercut. Big cracks in the cliff edge suggested that where we were standing was not a good idea.

The next 500m of walking the cliff edge was spectacular in the extreme. Every non perennial waterfall was in full spate. Dozens were counted. The very best was one discharged about 60m down the cliff face and spurted out 10m horizontally before gravity took over. It then bounced off three more points creating a four tier waterfall that can only be seen when it is really raining. The other very positive factor for photography was the intensity of colour in the rocks. The intense pinks and luminous orange colours could never be captured on a dry sunny day.

At 1317 and thoroughly damp to wet, we decided it was time to make our way back, so we left the cliff edge to avoid the eastern multi branched ravine system of

Rockflower Creek and headed for the ridge crest and the track network. Back from the edge, fungi were throwing up their fruiting bodies, the combination of still very warm soil and water stimulating them into life. Several species were photographed, the most noteworthy being a *Cordeiceps hawkesii*. This highly specialised fungus parasitises insects usually in their larval stage. Often the exoskeleton of the caterpillar pupae can be found attached to the base of the fungus.

The vehicle at the end of Fire Trail No. 9 was reached at 1400 and the other vehicle retrieved from Sahara Point was back by 1412. Total distance walked 12km, total ascents 480m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0845	Track head No. 9 Fire Trail	347 118
0856	Car shuffle and briefing and leave	347 118
0905	Track junction	348 124
0915	Pagoda climb and strange installation	345 125
0925	Pagodas alongside track	344 126
0941	Western edge of Bushrangers Creek	347 132
0945	View Donkey Mountain	347 130
0955	Slot descent into Bushrangers Creek	347 129
1001	Double slot ascent to ridge east of Bushrangers Creek	347 128
1021	Morning tea, 10 minutes on ridge top + bike track	348 128
1040	Head south to restart walk	348 125
1045	On track	346 124
1053	Pushing north	344 127
1102	On ridge	345 132
1120	On cliff edge	347 139
1148	At Cape Pinnacle 14 minutes	345 146
1218	On eastern cliff edge	344 144
1227	Twin cave and lunch, 17 minutes	344 140
1256	Above the fluted canyon + view 4 tier waterfall	345 139
1317	View special fungi	344 134
1400	At vehicle, Fire Trail No. 9 track head	347 118
1420	Reverse car shuffle and leave area	347 118

6.10

Rockflower Ridge and Rockflower Creek

Maps etc	Department of Lands Topographic Map 1:25000 Cullen Bullen, 8931 – 3N, second edition; GPS setting WGS 84.
Walk description and route	Park the cars at GR 345 118 on Sunnyside Ridge Road. Walk north west towards Rockflower Creek at GR 342 122. Investigate this gully creek and its tributaries. This is the pagoda country so progress will be slow. When the cliff line is reached at GR 341 132, turn west and follow the cliff line staying on top of it, to the end of Sunnyside Ridge Road. Pagodas and views galore, scrambling likely. About 7km. Exploratory.
Gear issues	PLB, GPS, map and compass, appropriate head and foot wear, 1 litre of water, electrolytes, camera and preparedness to have a good day out regardless. The leadr will carry a tape. Change of gear.
Comments	This walk may have challenging sections. Expect rope/tape assisted climbs and possible exposure. This walk is a further addition to the suite of walks around the northern periphery cliffs of the Newnes Plateau.

Date walked 21st September 2011

The Weather

Quiet a warm spring day with a chilli start, some wind from time to time, very warm in the sun on the exposed cliff line at midday. Temperature ranged from 11 to 19 degrees.

Background Notes

It was 7th May 2007 when I last walked in this area with Roger Clarke and Brian Corlis. Re reading my track notes, I sense we were rather preoccupied with proving a way of route from the terminus of Sunnyside Ridge Road, Sahara Point, to Cape Pinnacle rather than exploring the fine detail of the pagodas and cliff lines. Since that journey my priorities have changed somewhat and my interest in the fine details of the geomorphology of terrain has grown. Examining my photos from that journey shows that many key points were visited but so much was missed. In this country a distance of as little as 20m can hide a major feature of interest. One comment from the track notes is relevant. It is also useful to note that on the current walk we were walking in the opposite direction.

"This ravine country is a maze of pagodas and canyons. Progress was slow with each possible option needing to be tested to see if "it went." It was a lot of fun and some of the views are just awesome. There was not time to explore the canyon section all the way to the cliff edge however there would be at least 1km of very deep narrow fern filled defile and side defiles to explore. These tree ferns were a quantum contrast to the dry scratchy brush on top."

The 1km canyon ravine referred to rises immediately north of Sunnyside Ridge Road at GR 344 118 and flows generally north to the cliff edge at GR 341 132. The bulk of the morning was spent exploring the complex ridges and canyons on the eastern side of this currently dry watercourse.

Track Notes

Vehicles were parked at GR 347 118 at 0845 where an unnumbered fire trail (it should be No. 9 on my calculation) leaves Sunnyside Ridge Road and heads north, via a short dogleg to the west towards the end of Cape Pinnacle. A large group, we commenced walking at 0850 along the fire trail. At 0901, GR 346 124, we left the fire trail and headed west into the upper reaches of Rockflower Creek, encountering the first pagoda some three minutes later.

Side tracked by an interesting rocky ridge, we headed too far east and rejoined the fire trail. This error was quickly corrected and in short time we were enjoying the sculptural wonders of platy pagodas with their phantasmagorical aberrations, GR 343 125. Here it is appropriate to quote from the track notes¹⁶ written by Yuri following his earlier walk into this area, 5th September 2011,

"One such formation, high above us, at GR 34139 12652, looked like a tall, freestanding flower. It was particularly irresistible. We decided to climb up and have a closer look at it. However, the tall pagoda wall in front of us was impossible to scale. It was as though the Keeper of the Rock Garden on top of the pagodas wanted to test our determination before letting us in. We had to follow the wall around for a considerable distance, a few hundred meters, until a suitable way up appeared.

Along the way, several large cut tree stumps were noted – the remainders of the previous logging in this area (we were still in the State Forest, some 500m south of the border of the Gardens of Stone National Park). The dry watercourse we chose to use on our way up quickly led us to the top. We have passed the persistence test and were now entering the pagoda paradise, 0947, GR 34314 12744, 1024m.

I must confess to being very partial to the experience of walking in the pagoda country, so my impressions have a fair degree of healthy bias in them, but I think no one can be left unmoved by the experience that followed. We were on top of a broad pagoda ridge that went initially east to west and then within a few hundred meters continued northwest as far as our eyes could see. We followed it, climbing up here, coming down there, sidling and jumping to find our way through, but staying at a high level all the time. As we progressed, we found all kinds of incredible rock formations coming into our view. Not many of them were more than a meter tall, but they were exquisite in form and reminded me of beautiful weirdly shaped flowers one may encounter while walking through an enchanted garden. It is for this reason that I named this place Rockflower Ridge".

¹⁶ Track Notes, Rockflower Ridge, Yuri Bolotin 10th September 2011.

A large free standing pagoda was selected as our morning tea stop at 1005, GR 341 127. After a break of 17 minutes the desire to explore drove us onwards. A very enjoyable series of visually stimulating pagodas, slots and ravines filled our field of vision as we pushed north hugging the ravine edge where ever possible. My camera had a thorough workout, however I could not match Peter who reported already having taken over 300 images. There are so many extraordinary sights that the only way to really keep them catalogued in the mind is by having a comprehensive collection.

Thirty minutes later and probably 200m further north we dropped down into serious pagoda terrain. Here I quote from Yuri's track notes once more,

We were now entering the heart of the rock garden (and the Gardens of Stone National Park), where the aerial photos showed enormous pagodas amongst a labyrinth of slots and passageways. This was now in front and underneath us and we decided to plunge right down!

At 1042, GR 34131 12947, 988m, we located a suitable slot and went steeply down to the valley floor. Soon we were looking at the pagodas from the bottom up! These enormous walls were towering all around us as we were making our way through a ravine floor covered with luxuriant ferns. The ravine went east to west for a little while, when an attractive, narrow, V-shaped side passage going north presented. The study of the map later on confirmed that this was in fact the main gorge, however the entrance to it looked much smaller than the surrounding valley.

Hodaka went in first, making way in tall ferns. The walls narrowed and became even taller. We entered a small, exquisite mini-canyon that I called Pagoda Passage, GR 34063 12942, 977m, 1046. The journey through Pagoda Passage took us into a grand, beautifully proportioned space formed by 30m sandstone cliffs surrounding it on all sides. The sunlight was illuminating the stones making them glow. We stopped there for a short while, feeling humbled and just happy to be in this wonderful chamber room of the palace created by nature.

Moving on, we came to a point that looked like the Passage was about to stop, however that was not yet the case – one of the narrow branches continued under the overhangs and through more ferns. The creek we were following started to show some water in it. We also noticed a small trickle cascading off the high walls covered by deep green lichen. Through the trees in front of us we saw a huge open space emerging – the Wolgan Valley. Looking at our trip map later on, Pagoda Passage¹⁷ was only about 250m in distance – not long but very beautiful.

It was at this juncture the walk was varied significantly on the walk of 5th September 2011. A small hanging, perfectly 'U' shaped, narrow sided gully to the north east was climbed to take us back up onto the plateau edge. Once up we then traversed an open ridge for about 150m before descending into a short, shallow ravine that discharged over the cliff line into the Wolgan Valley.

¹⁷ Pagoda Passage is rather generic. Renamed as Rockflower Creek Passage

Always in search of adequate words to describe the glories of geomorphology I was hard pressed to find the right ones for what followed. After a short walk through a stand of leggy, non-descript *Leptospermum* wood with an understorey of *Gahnia* (sword grass) we mounted the first platy steps of a towering pagoda on the north side of the ravine that continued out into the open and then, suddenly below and unimpeded there was the whole expanse of the Wolgan Valley.

We were literally perched on the edge with nothing but airspace beneath for a very long way. Fortunately there was no wind and we could clamber around and really enjoy a real live, maxi theatre experience as at The Edge Cinema in Katoomba. No cameras needed, and just as is the case in the maxi theatre there is no way you can take in the view with a single glance. It was a singular experience and one of the most special natural adrenalin shots ever.

How to follow this? Easy. Return to the *Leptospermum* wood, cross over the dry creek and climb out onto the rock promontory on the south side. An awesome, ochre coloured wall is the backdrop. Out on the very edge it is possible to capture unbelievable photos through a narrow cleft that shows these rocks on the edge are held together by not much. Brian and Yvonne posed for pictures that no amount of danger money could ever compensate.

What was to be next? Threading our way back to the end of Rockflower Creek Passage, Steve noticed an amazing 'rock chair' and drew my attention to it. I just had to go and sit on it for a photo. Almost as amazing as Michaels Chair, above the Governor at Carne Creek, it was a sensational perch. I am looking forward to the images of my apparent suspension over the Wolgan Valley.

By 1220 we were back at the north end of Rockflower Creek Passage and ready for the next amazing experience, the famous Keyhole Slot¹⁸. Again I defer to Yuri's track notes.

"We turned north west and decided to go around the cliffs for a while. Soon, I heard Brian calling out to me, 'Look at this!' I turned my head and saw him sitting on a high rock above me, peering at something behind us in the cliff line. A slot! A grand slot leading deep into the stone walls, but hopefully also climbing up above, onto the tops. Would it go through? There was only one way to find out! We took our backpacks off and went into it. GR 34045 13221, 986m, 1107.

The journey took us some 50m through the depths of the walls, under a big chock stone, to a 'T'-junction. The left branch narrowed even further and plunged steeply back into Rock Flower Passage, becoming the cascade¹⁹ we saw from the other side. The right branch went steeply up. Dave went climbing up it and through some dense tree debris. A few moments of suspense, and then a call, 'It goes!'

¹⁸ Yuri and his crew on 5th September created this name to rub in the fact that I was not on the walk. The word Keyhole is an acronym of 'Keats, Eat Your, Heart, Out, Looking, Envious'.

¹⁹ There was no cascade for us. The area was absolutely bone dry.

We passed the packs up one by one and then clambered through a narrow hole out into a shallow gully and the sunlight. What an experience! I called this slot Keyhole Slot.

The gully took us up and on top of the last part of the pagoda ridge we followed all morning (Rockflower Ridge), GR 33896 13084, 1041m, 1124. From here, we turned north and soon we were on the edge of the Wolgan Valley taking in the amazing view in front of us. GR 33978 13244, 1020m, 1137."

All this excitement stimulated the appetite. Time to look for the ultimate lunch spot. An excellent spot was found at 1245, GR 340 135. Not only did it provide a magic skyline panorama of the western Wolgan Valley, but also a view directly into the Keyhole Slot recently negotiated. We also had perfect views of our earlier expedition to the pagodas where we perched on the cliff edge. Half an hour eating and relaxing in the sun, digesting both lunch and the spectrum of our experiences made many of us just a tad weary.

The trek along the cliff edge towards the terminus of the Sunnyside Ridge Road in full sun was taking its toll. The group stopped at GR 335 128 and took in the view south where simultaneously it is possible to view Wolgan Gap, the present road descent together with the alignment of the former access, the Donkey Steps.

While the group was content to stop, Yuri and Peter went for an exploratory adventure following a ledge below the cliffs. They traveled some 300m before returning with the news that it was a 90% certainty that the ledge would go all the way²⁰. The prospect of having to retrace in the event that it was not a through passage was enough to deter the group from attempting it. Instead a course was set to skirt around the north east side of a deep incised ravine trending north west to south east, connect with a broad ridge and walk out onto the Sunnyside Ridge Road. This connecting point was reached at 1433, GR 339 120. The vehicles were reached at 1445.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0845	Park vehicles	347 118
0850	Start walking	347 118
0901	Leave fire trail	346 124
0904	Pagoda	344 125
0926	Back on fire trail	345 126
0948	On pagoda ridge	341 126
1005	Morning tea, 17 minutes	341 127
1054	Above Rockflower Creek Passage	341 129
1117	Start of Rockflower Creek Passage	341 128
1129	Exit Rockflower Creek Passage	341 132
1210	On pagoda perched on cliff edge	343 134
1220	Entry to Keyhole Slot	341 132

²⁰ Looking at my pictures from 7th May 2007, it does.

1230	Exit Keyhole Slot	341 132
1245	Lunch on cliff edge, 30 minutes	340 135
1355	Cliff edge view of south west Wolgan Valley	335 128
1433	Intersect with Sunnyside Ridge Road	339 120
1445	Return to vehicles	347 118

6.11 Sunnyside Canyon cliffs and Bushrangers Creek

Maps etc	Department of Lands Topographic Map 1:25000, Cullen Bullen 8931 – 3 N second Edition. GPS setting WGS 84.
Walk description and route	No abseiling but wet feet and more possible. Leave vehicles at the end of Fire Trail No. 8 off Sunnyside Ridge Road. We will first walk into and through part of Sunnyside Canyon close to its exit near the cliffs above Wolgan Valley. We will then climb out on the western side of the canyon, follow the pagoda studded cliff line around and into the unnamed ravine at GR 351 137. Explore the ravine going south as far as possible, exiting at around GR 347 128 then reconnecting with the vehicles. This country is wild and exciting, about 8km.
Gear issues	PLB, GPS, appropriate head and foot wear, tape or rope (leader only), 1 litre of water, electrolytes, camera and preparedness to have a good day out regardless. Warm gear, change of gear.
Comments	This is wild challenging country.

Date walked 27th June 2011.

The Weather

A perfect winter day, Clear sky, no wind with a temperature range 4 – 12 degrees. Walking conditions – ideal.

Background Notes

Driving along Fire Trail No. 8 from Sunnyside Ridge, it was disconcerting to say the least to come across a drilling rig and support facilities (GR 355 116). Yuri reported he had been on the fire trail a few days ago and all this equipment had arrived since then.

Even though it was 0830 there was no one about so we stopped and had a good look around. A dam has been excavated and a 21,125 litre fuel tank has been transported in. The drilling rig towers some 20m into the sky. The 'spudding in' process appeared to not have yet commenced. Stacks of drill rods and a large portable engine were also on site. There are no accommodation or office style buildings and no vehicles were to be seen. We took photographs²¹.

We would make a guess that this installation is designed to prove the thickness and depth of coal seams below. As the crow flies the drilling site is about 7km to the centre of the Angus Place Colliery. More likely this is to do with proving reserves for

²¹ Keith Muir of the Colong Foundation for Wilderness advises "Not seen the rig, but Springvale Colliery got approval to do additional longwalls east of Sunnyside Ridge... Appreciate the heads up. Ask everyone to keep a good watch out for new damage along swamps and streams..."

the new coal mining operation near Birds Rock that will reportedly foul Carne Creek. When will we ever learn to respect our water supplies and the environment?

We drove on and parked at the locked gate on Fire Trail No. 8 at GR 358 129 where an aerial photo of the terrain was used to show the possible walk route including many options that were both probable and improbable. Given the nature of the terrain a topographic map at a scale of 1:25,000 is inadequate, where we end up walking will be driven by successive decisions.

Track Notes

At 0902 we set off in a northerly direction on the continuation of the fire trail to approximately GR 358 135. At this point we headed west towards the exit point for Sunnyside Canyon. From the cliff top the views north over the Wolgan Valley were magnificent with all the high points of the Wolgan - Capertee Divide perfectly silhouetted. Donkey Mountain looked just fantastic.

After giving the cameras a good workout we headed for the traditional exit slot for Sunnyside Canyon and entered the canyon this way. As always the beauty of this canyon is captivating. While the rest of the crew were descending I worked hard to get good photos but the contrast was too much so most are either dark or washed out.

As the exit /entry point is back about 100m from the drop off point we headed north along the ledge before dropping down into the big rock tumble that precedes the final discharge of the creek into the Wolgan Valley below. This is spectacular country and very photogenic. Yuri was keen to see whether it was possible to drop down below the discharge point and then circle under the cliffs. In short the answer is no unless you were carrying a very long rope and full abseiling gear.

We then threaded our way back up through the rock tumble noting the clean white sand that filled the level sections as a succession of small, disconnected platforms. Walking the creek bed between the towering cliffs is a magical experience. There was one section where the light was just perfect for superb photos with the rocks taking on a warm honey coloured glow.

The famous hemispherical cave in the lower reaches was visited. Pacing it out, it has a diameter of about 24m, a height of about 15m including a domed ceiling. Droppings on the floor show evidence of an active roost for bats. This is a great spot and again it was picture time. A much larger similar cave is located further upstream. Our exit was via a tributary creek flowing in from the west at GR 353 134. This was followed up to the cliffs above. As canyons go this is a very user friendly one with so much to offer.

The next objective was to see whether it was possible to descend the cliffs on the western side of the canyon mouth using a small, dissected valley that adjoins the canyon and separated from it by a great collection of pagodas. To reach the valley and assess our chances of getting into it, a very tempting high crowned pagoda lies just to the north east. This had to be our first destination and also a good spot to have morning tea.

Climbing to the top of the pagoda is a revelation. Just below and stretching out some 20m is a huge, perfect triangular pyramid shaped wedge of platy pagoda rock that juts out over the talus slopes in the Wolgan Valley some 100m vertically below. It is separated from the main cliff by a narrow cleft. It is an awesome sight.

Brian, being without fear of heights spanned the cleft and then walked out along the less than 50 cm wide crest to the ultimate high point. After posing for pictures on our cameras, he then walked back to get his own to take pictures of the cliff from the end point looking back. I have named this spot Foxs Wedge, GR 235364 6313702. We enjoyed a total of 13 minutes at Foxs Wedge.

After morning tea it was time to start searching for ways down into the valley. One spot looked promising but the exposure even if we set two successive ropes was unacceptable. We kept moving around the rim of the valley seeking other options. A ramp initailly looked good but ended in a 15m drop.

Leaving the valley rim we crossed a narrow ridge and discovered a spiralling ramp down that looked possible. Brian went ahead and proved that it was doable. Looking down from the top there appeared to be a drop of about 2m before the bottom. Brian assured us that there were a few footholds and he would be there to provide support... I was next to make the descent. It did require a bit of stretching and quite a bit of focus. Once down I was able to photograph the descent of others, GR 351 135.

Down below the first cliff line we circled to the north and then east as we still wanted to visit the valley we had been unable to descend directly into. Below the cliffs the way was easy although there is a secondary drop below the ledge we were on. This shows up on aerial photographs but not the topographic map. As we rounded the nose of the point there was a simple ramp that would have made the descent so easy! Further on there were two more that were equally easy. We had a lot of fun and proved that we can do some of the more challenging descents.

Soon we were heading south west into this small valley. We noted that from this location it would be possible to go all the way down into the Wolgan Valley. Having proved that access to this little valley was possible we headed west again and up onto the ridge top.

Next was a visit to another spectacular promontory at GR 351 137. This spot was our first glimpse into the long narrow ravine (almost 900m long) that separates Cape Pinnacle from the plateau east. Included in this view was a parting in the cliff line that is so pronounced the slot it forms is visible on a high resolution, aerial photograph.

A ravine descent already explored was then followed down below the cliffs once more. I was thinking a 3D plot of our route would be very similar to a roller coaster ride at Luna Park! Then we were back on top again, this time to have a close look from the top at the parallel sided slot. It is a beauty. The walls are as if cut with a knife and the two halves have been moved apart about 2.5m. Since the separation nature has painted the walls with varying shades of orange and red brown. With the light just right this is worthy of anything one might see in Central Australia. Just special.

At 1212 we were again down below the cliffs and a few minutes later at the bottom of the parallel sided slot. Unfortunately a 2-3m drop at the very base prevents the slot being a walk down. Also because of this a 'bottom up' photo is also not possible.

We were now down in the long narrow slot ravine that is full of ferns. Our way of progress was now south and upstream, in this ever narrowing ravine. All the time we were scanning the eastern cliffs for possible slots that may give access back up to the plateau. Many were tested, however all had sections that prevented a successful ascent. At one point Brian was able to climb onto a shelf and walk for about 50 m before it ran out. It was notable for being so bright and free of any moss or lichen and backed by very high sheer cliffs.

Elsewhere in this ravine all rocks were encrusted with epiphytes and orchids. The ravine contains many magnificent trees, some of very large dimensions. Also in the upper reaches are several cut stumps and evidence of an access road for the removal of logs. Appropriately these stumps are in the Newnes State Forest area, not the Gardens of Stone National Park.

At 1320 a climbable slot was located and we made our way back up onto the dissected plateau, GR 348 127. We now headed north in search of a good spot to have lunch. This progress was made very much easier by the finding of a trail bike track, GR 350 130. This track infringes on the national park. The track continues north a further 300m to GR 350 133 where a 'bike track junction' occurs. There was a lot of evidence in the form of tyre tracks showing that it had been used very recently, possibly as recent as yesterday.

At GR 350 133 we perched on a fantastic 'rock island' overlooking the long slot ravine we had so recently walked along. This was the right spot for a late lunch. Crossing to the spot we walked over a deep slot no more than 50mm wide. It was not until after lunch when we started a detailed examination of the area that we gained some appreciation of what an incredible spot we had chosen. Viewed from the south east corner looking north west the slot is at least 30 m deep and again is a parallel sided one. At right angles to this slot another of equal scale creates a 'rock island'.

Viewed from the south west corner the situation is even more bizarre, the 'rock island' is undercut by erosion. It would not take much movement for the whole 'rock island' of several hundred thousand tonnes to crash into the ravine. Did we take pictures? Yes, we took many as this site and further sites within a 50m distance to the south along the cliff edge proved to be a wonderland of sculptures, slots and more slots. It was so good we spent nearly half an hour enjoying it all.

Being winter time and with daylight fading very early in the valleys and forests we set out initially on a yet another bike track and then on a compass bearing cross country to the vehicles. Arrived at 1511.

Table of Times, Locations and Grid References²²

²² Note all these locations are very close together. Grid references are to the nearest 100m. Many times features are vertically above or below each other. The lack of full strength signals, the convolutions of the topography and variable accuracy of the GPS unit makes all figures 'best estimates'.

Time	Location	Grid Reference
0830	Drilling rig	355 116
0850	Park vehicles	358 129
0855	Start walking	358 129
0908	Leave fire trail No. 8	358 135
0921	Eastern cliff edge above Sunnyside Canyon	354 137
0932	In Sunnyside Canyon slot	354 136
0941	Mouth of Sunnyside Canyon above the Wolgan Valley	354 137
1001	Hemispherical cave	354 135
1012	Top of western slot ravine exit	353 134
1036	Foxs Wedge and morning tea (13 mins)	235364 6312702
1055	2 rope descent (abandoned)	n.a.
1107	Ravine descent with 15m drop (abandoned)	n.a.
1114	Slot descent	351 135
1138	Circling under cliffs east and then south	352 137
1142	On point	351 137
1200	On cliffs	351 136
1206	Above parallel sided slot	351 136
1212	Top of rock descent	351 135
1218	Bottom of big slot	n.a.
1244	In the long ravine	349 135
1257	In the long ravine	348 129
1320	Climb out point	348 126
1325	Bike track	348 127
1331	Bike track junction	350 132
1337	Lunch (30 mins)	350 133
1437	Exploring slots and more slots and photography	349 132
1454	Bike track	352 130
1511	At vehicles	358 129

6.12 Sunnyside Canyon and Ravines

Maps etc	Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	<p>Leave the vehicle at the locked gate at the end of Fire Trail No. 8 off Sunnyside Ridge Road. Walk slightly north of west to intersect with an unnamed creek, descending a pagoda or two. Then walk downstream. At approximately GR 353 135 climb a dead tree/pagoda and walk to the end of a pagoda peninsula. Spend time studying the incredible views of great cave hollows and the canyon below. Retrace steps to the bottom of the dead tree and start the canyon walk. At the end ascend a concealed chimney behind a waterfall and then explore the rugged tops before returning to the vehicle.</p> <p>Drive back to the junction of Fire Trail No 8 and Sunnyside Ridge Road and then about 200m further west. Walk to the west to pick up a ravine at approximately GR 351 112 and descend this. Skirt around the nose of a tight, cliff lined peninsula at GR 346 104 and then head up to the top of this ravine exploring formations as we go. Retrace steps to start exploring a series of small ravines to the east ending up on a narrow pagoda sequence that overlooks the Wolgan Falls. With a spectacular 80m drop to the top of the fall and then the 30m of the falls themselves. The return walk will take us through some wild terrain as we head generally north to pick up the road. In all for the day about 600m of +&- (but in small bits) about 8km.</p>
Gear issues	PLB, GPS, maps and compass, 4 litres of water (as 2 lots), shoes with very good grip, electrolytes, maps, compass. Block out, sunglasses and broad brimmed hat. A spirit of adventure is required. Change of clothes advisable
Comments	This is a double barrelled walk with some extraordinary sights. Bring the camera.

Date walked 1st January 2009.

The Weather

A brilliant New Year's Day, fine and sunny with light winds; there was some high cloud from time to time. Temperature remarkably mild 18 to 26 degrees.

Background Notes

What a way to see the New Year in! 8 other members of The Bush Club believed it was a good option as well. Everyone was early at Clarence, and after combining into two vehicles we set off on the dusty road to the Bungleboori Camping Ground and then the Blackfellows Hand Trail to the west. The road conditions deteriorated after

we joined the Sunnyside Ridge Road where the potholes have deepened and the mud holes seem to have just got bigger and messier. Forget any idea of keeping your vehicle clean.

The total time of the journey to the end of Fire Trail No. 8 from Clarence was just under the hour. After a briefing session, and ensuing everyone had enough water we headed west through the dry forest, cracking dead branches as we went. There were a few bright purple *Thysanotus*, or fringe lilies, to brighten an otherwise dun coloured and dry landscape.

Here I insert an extract from walk report from 19th November 2008, when a visit was made to Sunnyside Canyon under very different and wet circumstances²³. It is 90% appropriate.

Peter Medbury of The Bush Club 'discovered' this canyon for us current crop of adventurers by a study of aerial photo images and then exploring it on the ground.

Took a GPS reading at 1411- GR 355 127 on a very insignificant looking, unnamed little creek. It was so narrow at this point you could stand with a foot on each bank. This is how the Sunnyside Canyon starts.

Once in the creek, it was merely a matter of following it downstream. The first indication of something special is a line of pagodas – big pagodas. They sit like huge silent Daleks. We pushed on down a few more metres and, all of a sudden there is the beginning of the canyon.

Geoff pulled us back from charging in headlong with a request that we follow him up a slippery climb to the top of pagoda and then for a short 50m - walk north. Here the 'wow' factor cuts in. About 15m below is the gaping maw of a huge hemispherical cave. It is flanked by complex pagodas and minarets, and unbelievably several more caves of the same breathtaking quality.

Geoff suggested that I move down to a lower ledge where the photocomposition will be even better. I am there like a shot with the rest of the group hot on my heels. We stood transfixed for a while just taking it all in. Turning around to descend and regain the canyon entry my eyes are focussed on what looks like several stone pterodactyls.

They are not of course, however the erosion residuals of convoluted ironstone are remarkably like those ancient bat -birds.

What a feast for the eyes! We return to the canyon entry marked by a large multi-stemmed Ironbark. A short 5m or so entry and then we entered the tortuous labyrinth. It is one of the finest dry upper level canyons you will come across in the Gardens of Stone National Park. The sequence of beautiful sights is so rich, the contortions and convolutions so varied it defies total systematic description. There are dry sandy

²³ The party on that occasion was Geoff Fox (leading) Michael Keats, Steve Murray, Paul Fredrickson and Kevin Yeats

beaches, lush ferneries, sculpted bastions, great rock tumbles, and several gorgeous deep pools that have to be carefully circumvented unless you want a deep cold immersion.

The hemispherical caves are worthy of time to just sit in and contemplate the majesty of the place. Earlier Geoff told me that he had taken over 200 pictures in the canyon. I know he is a keen photographer but that did seem a bit over the top. In the short time I spent I had taken more than 100. Yes it is truly beautiful

Emerging from an S bend squeeze there is a rather disconcerting sight – a huge blackberry bush. It requires urgent attention with an appropriate herbicide or the way forward to the mouth of the canyon will be blocked. We just made it through with minor scratches.

Beyond, the canyon opens up a little and becomes deeper. An elevated shelf runs high above the creek for about 30m from this point all the way to the drop off point into the Wolgan Valley. The visual sensations persist in getting better and better. My frustration knew no bounds when my camera could no longer capture either the vertical or horizontal extent of what my eyes could see.

At the mouth the vision was extensive with the cliff rim that separates the Wolgan and Capertee Valleys forming the horizon. To the east, and just visible, was the western tail of Donkey Mountain.

The exit from this Shangri la is not obvious. Back about 60m from the mouth there is a small waterfall with a delightful crystal clear pool surrounded by ferns. Geoff said, "This is it." The waterfall is very wet, slippery and there are no obvious places to put hands or feet and no evidence that anyone has been up...

Hidden and tucked away to the left hand side is a narrow parallel –sided, angled slot. A large stone is used to clamber up the first metre. Like the waterfall it is more than a bit slippery and there are not any really good grips. I appreciated a good shove to coincide with my 'leg up'. This is not an exit for people with short legs. The rest of the ascent is just like the rest of the canyon experience – different and, oh, so special.

Back on the plateau area we walked out to the edge of the cliffs to gain a view of the canyon from above.

Track Notes

Well, today we were back. The second experience still has that "Wow" factor. In addition, near the entrance to the canyon a huge *Leptospermum* was so massed with flowers that it looked like a white tree. Just a bit of added magic.

The group stayed and stayed in the wonderland. We actually spent 2 ½ hours, savouring each and every feature. A high level sand bank in a cave had to be tested for camping. It was pronounced so comfortable by one member who exclaimed, "I will just stay here and sleep."

Well, sleep was not on. The exploration continued. At the mouth of the canyon we pushed the boundaries, searching for ways to negotiate the big tumble of blocks for better views, and, perhaps even a way down. We had a lot of fun, however the drops are impossibly large. After a brief drink stop we decided to explore the canyon floor near the mouth as opposed to the high rock shelf. There was a very special feeling in this tight defile as we crunched the pristine white sand, recently groomed by nature with the last heavy rains.

Time to make the ascent and leave the delights of this special place. The gap between takeoff from the bottom and the lip of the ascent was a real issue for the vertically challenged and assistance was rendered as required. The walk up the inclined and angled slot has a surreal feeling – almost as though it is too good to be true that such a route exists.

On top we headed north, up and across a collection of pagodas with low and sparse herbage. The views are expansive of the Wolgan Valley with just the tip of the Tayan Pic being visible tens of kilometres to the north. Some of the humps and bumps of the Capertee – Wolgan watershed could be identified – Mount McLean, Mount Jamison, Mount Davidson, Blue Rock Gap, Hughes Defile, Woolpack Rock, and Collette Gap. The tumble of bumps further east has no names until Point March and then it was outside our vision.

Much closer to hand a very fine specimen of Rosenbergs Goanna (*Varanus rosenbergi*) tried desperately not to be noticed. Without a tree in sight it had no choice but pretend it could not be seen. Great photos were captured. After some time for contemplation and reflection it was a short scrub bash back to the vehicles.

Decided to defer lunch and push on to the start of walk two, eat, rehydrate and then takeoff for the Wolgan Ravines. Parked the cars at GR 352 112. Lunch over we set out down the fire trail and picked up the headwaters of a creek heading west.

There are two such creeks very close together at their headwaters and I picked a different one to the last time I explored this area. The result was a walk with much more challenge than originally planned and some excitement I would rather forget. We were contemplating the descent of a 3m drop in the creek when the ground under me just disappeared and part of me with it! Geoff was at hand and acted quickly grabbing my arm to stop me disappearing altogether. It was a tense couple of minutes before I was pulled free.

An examination of the hole showed that had I kept going I would have needed quite a bit more help to be extricated. A bit of blood and a damaged sense of pride was the outcome. We pushed on sighting an interesting orphan rock amid the towering cliffs. This is top country for the walker who likes a challenge.

As the ravine opened out, we emerged on a knoll with great views of the Wolgan Falls that were giving their best performance in years, gushing white water and looking truly spectacular over their 50m drop. After a photo session discovered that below us was a not negotiable drop. We would have to retreat and try another option.

Back about 120m discovered a magnificent staircase slot that led us to the top of the best vantage point for viewing the Wolgan Falls. It is approximately GR 346 103. Not for the faint hearted, it is a tiny little platform that required us to visit in relays, giving a whole new meaning to time - sharing!

This spot is magical. If ever a spot existed for the perfect picture of the Wolgan Falls this is it. We were so lucky with a combination of earlier heavy rains in the catchment and a perfect brilliant day.

Now we had to find a way off this wonderful vantage point. The worst case scenario was a retrace of the way up. Adventurers don't like such things so we explored other options. Examination showed us to be on a completely isolated rock of several hundred square metres and apparently few options to leave. We found another staircase slot that from the bottom looking up you wouldn't give a second glance at. "Wow" again, we had come off a high in every sense of the word.

Our next challenge was to climb the narrow peninsula that separates the last big loop /bend of the Wolgan River before its descent over the falls. I was looking for the spot where previously I had been successful in negotiating these cliffs. As a policy we kept close to the base of the cliffs so that each potential ramp, slot or staircase could be explored. About 120m in (heading north) we found a promising ramp, so up we trooped. Near the top there was a drop of about 2m that separated us from an otherwise easy climb.

A rotten tree lay against a concave sandstone gully offering some promise. Applying a bit of weight showed this to be not a good idea. Scouting around we collectively lugged, hauled and manipulated a large log into position. Testing for weight it seemed good. Several went up and then some packs. I decided that the engineering needed a bit of upgrading and another log was added. The last one up made it before the improvised structure started to break up. Yes, we were having fun.

Next it was time to start negotiating the many pagoda crests along this narrow peninsula of rocks. The views are superb. To the west there is the huge maw of the upper Wolgan Valley; to the south and across the river a collection of well proportioned pagodas; while to the east the incised trench of the Wolgan River, swollen with flood water and barely visible was 80m below.

We sampled pagoda after pagoda pushing further south until we could go no further without ropes GR 348 101. At the end we just sat and I for one reflected on the magic and diversity of the country we had seen and experienced in one day. All this country is at present unprotected. It is State Forest. It urgently needs a conservation status despite the fact that coal mining at depth is permitted and pagoda cracking is taking place. The Colong Committee has made submissions²⁴ to the State Government but I suspect that NSW economic plight will leave this area vulnerable for many years yet.

Table of Times, Locations and Grid References

²⁴ The Gardens of Stone - Park Proposal Stage Two, October 2005. — "A proposal to extend the Gardens of Stone and Blue Mountains National Parks and create a Gardens of Stone Conservation area and a western escarpment State conservation area."

Time	Location	Grid Reference
0900	Locked gate Fire Trail No. 8	358 129
0925	Start of canyon	353 128
1115	End of canyon	354 137
1125	On top after exit	355 138
1145	Back at vehicles	358 129
1200	Repositioned vehicles and lunch	352 112
1221	Commenced walk 2 on an old fire trail	352 112
1224	Left fire trail	344 105
1313	In creek	344 105
1330	Near edge of the cliff line	345 102
1335	Ramp up & first view of Wolgan Falls	345 102
1350	"Wow" view of the Wolgan Falls	346 103
1355	Slot down	
1425	Our "engineered" climb up	348 105
1435	On the pagodas on the peninsula	348 101
1515	Headed back	348 101
1543	Back at vehicles	352 112

6.13 Flat Bottom Creek

Maps etc	Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition. GPS setting WGS 84.
Walk description and route	Park vehicle on Fire Trail No. 8 at the national park boundary, approximately GR 358 129. Walk east to intercept Flat Bottom Creek then follow the creek downstream as far as possible before it falls over the cliff line into the Wolgan Valley. Climb out of the creek/canyon on the western side and walk to Cleft Point at GR 362 149. Return via the fire trail. About 7km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader only).
Comments	Exploratory. Wet feet and more likely, Scrambling and exposure.

Date walked 22nd November 2013.

The Weather

Early morning total cloud cover threatening rain, clearing by mid morning with bright sunshine and rising humidity, from about 1130 thunder clouds gathered and a constant tympani of thunder rolled across the walk area for the remainder of the day. At about 1330 the first drops of rain fell, by 1400 we were in a serious downpour. It was estimated that more than 50mm fell in the next 45 minutes, the ground under our feet awash. The rain stopped briefly while we were changing into dry clothes, then returned with a vengeance. The drive back to Bungleboori was atrocious. Temperature range 15 to 16 degrees.

Background Notes

I first explored this area 18th July 2007 under different circumstances as my track notes documented,

"Ice stalactites hung from the cliff cuttings, drifts of powder snow filled the lower culverts and depressions. Hastily erected black and yellow signs warned of black ice."

In October 2013 large swathes of the Newnes Plateau forest were reduced to blackened stumps and bare ground as a result of the State Mine fire that destroyed more than 70,000 hectares before it was extinguished. Fortunately the area north of Sunnyside Ridge Road and the Gardens of Stone National Park was not affected.

Flat Bottom Creek is one of the major north south natural drainage networks for the Newnes Plateau. For most of its two kilometre length on the plateau it is a sedate watercourse with very little character. About a kilometre from the cliff edge where it tumbles down a 30m drop into the Wolgan Valley, it makes up for all the previous

blandness and becomes an exciting playground of huge boulders, high pagodas, short tunnels and scoured, sculpted pools.

Track Notes

During the briefing, Yuri commented on his study of the aerial photographs that showed we would have a much more exciting and challenging walk if we skipped visiting the upper reaches of Flat Bottom Creek and invested our time exploring the complex terrain near the cliff edge. Accordingly we parked as far north as possible on Fire Trail No. 8, the national park boundary, and walked due east first descending a winged ironstone pagoda, for great photos, then down slippery, rain soaked rocks into Flat Bottom Creek.

The creek bed with its large flags of level sandstone was explored briefly for about 200m to take photos. We then climbed up onto the western edge and followed the base of a rising cliff line that soon developed a series of overhangs that just had to be examined for evidence of art and or habitation. The natural rock colours on the ceiling were stunning, a display of deep reds, pale pinks and black. There were no signs of art or occupation by humans.

At 0957, GR 364 135, the cliff line is interrupted by two vertical slots about 20m apart that could be explored for some distance. Neither provided a way of route but both were interesting. The overhangs continued and another slot at GR 364 136 could be climbed and then led back to the lower level. At a level floored overhang several metres on we decided to have morning tea in the sun. After morning tea the next overhang inspected was different. It included a stalagmite of iron salts that had almost become a column. The development of these iron stalagmites indicates the localised presence of readily soluble iron salts. We also checked to see whether any of this deposited iron had been mined for use as ochre. It had not.

At 1008 we descended from the western bank and crossed over Flat Bottom Creek, GR 364 137, then after about 200m climbed up a slot ramp, GR 366 139, into a pagoda complex that stood apart in the forest. This group of pagodas is so positioned to give great views north across the Wolgan Valley to a profile of the serrated top of Donkey Mountain. There were also glimpses of the western wall of Sunnyside Point and Donkey View Pass. The pagoda group itself had lots of intricate ironstone erosion pieces and the occasional isolated Pagoda Daisy, *Leucochrysum graminifolium*, could be seen. The recent rains had turned most of the usually brilliant yellow flower heads into a soggy pulp.

From this pagoda complex we walked north examining more pagodas and enjoying an expanding view of the Wolgan Valley and the cliffs on either side of the broad valley that Flat Bottom Creek has carved out in the softer rocks below the cliff line. From GR 366 140, on a rocky edge we could look east and down into the short unnamed creek we had used on a recent walk to access the top of the talus slope below the cliff line of Sunnyside Point peninsula, and then walked north to Donkey View Pass and onto spot height 918 that marks the northern most point of all the finger peninsulas that project into the Wolgan Valley between Carne Creek and the Wolgan River. The scar caused by the recent landslide at GR 373 150 that caused us so much angst when trying to cross it was also noted.

The northern cliff edge at GR 365 143, is aligned almost east west, and due to the lack of vegetation provides great opportunities to photograph the eastern wall of Cleft Point peninsula. This near vertical sandstone wall some 700m long and 50m high has weathered to a palette of red orange and fawn colours. I have called this area the Painted Walls. The recent rain enhanced the intensity of the colours. We had held hopes of trying to walk a ledge about 20m down from the top of the wall, that when viewed from Sunnyside Point peninsula seemed possible. Our now much closer position showed that this ledge was more imagination than reality.

In the track notes from the walk done in July 2007 I mentioned the large pool located at the end of Flat Bottom Creek before it plunges over the cliff line. We now wanted to go to that point, and so headed west along the cliff edge. At GR 364 142 some 100m further we ran out of negotiable cliff and were forced to head south in search of a suitable route down through the cliffs. This was found at GR 365 141 and consisted of ramp slot with a right angled bend discharging into a secret valley via a great dry overhang, GR 364 141.

This was the beginning of an amazing adventure through an enclosed vale filled with some of the largest toppled big rocks I have seen. It was as though a giant force had taken several dozen, house size cubes of sandstone and scattered them like dice into this valley. Over time these cubes had softened in outline with some now draped in mosses and lichens, while some developed dry sandy caves and deep pocks with narrow orifices to provide birds and bats with exclusive homes. It is a playground of wonders. Short, secret passageways, narrow slots and stunning sculptures are all there. Taken with the adjoining cave riddled cliffs it is a special place that we could have easily spent another hour exploring. I have called this valley full of treasures the Cyclopean Gallery.

Exiting the Cyclopean Gallery to the west we were still some height above Flat Bottom Creek that was reached at 1134, GR 365 139. Here more wonders awaited starting with a creek bed rock covered in lichen, sporting dark pink fruiting bodies or efflorescence. It was Michelle's eagle eyes that drew this to our attention. After the photos we made our way downstream doing the limbo rock under major fallen trees. At 1140, GR 364 139, an overhang on the eastern side some 5m above the creek was a compulsory deviation. It was spectacular, colourful, about 25m long, 10m deep and over 5m high. Another great photographic stop. On the back wall a pale green, lichen formed a dusting over several curved rock surfaces. A few metres along and in the lip area a decayed wooden log hosted a brilliant sulphur yellow lichen species. It was too much for me. I just had to put the two together for a photo. Others followed re arranging the composition several times.

Exiting the overhang we dropped back down into the creek and at 1205, GR 363 142 and entered the first of a series of short tunnels that became more interesting and exciting the further we went. This was top drawer exploratory walking particularly where the light played and reflected on walls and shallow pools. There were scrambles and slippery logs to negotiate and places that had choices of which way to go. I have named these the Flat Bottom Creek Tunnels. For most of us it was compulsory wet feet on at least one occasion. Brian decided to rearrange a few logs

and keep his feet dry. Exiting the last tunnel was by crawling along a ledge above a very deep pool. No room for mistakes here.

At the end of the ledge crawl out of the Flat Bottom Creek Tunnels there is a short climb up, and just a few metres north to enjoy a different perspective of the 'tip over' point where Flat Bottom Creek plunges into the Wolgan Valley. The other equally short walk from this point is to inspect the chain of rock pools and basins that for some twenty metres mark the final moments of Flat Bottom Creek before the cliff edge. These rock basins are natural works of art equivalent to the best free form sculptures. They are simply magical. They are also so polished that they are lethal if you take a wrong step. We spent a lot of time in this special place.

At 1228 we said goodbye to Flat Bottom Creek and commenced climbing up the western side. This was no easy option and we were forced back down again and again to find surfaces with enough traction to actually climb. It was back south at GR 364 140, and 1233 before we had a breakthrough. A dry side creek provided the necessary traction for us to climb up and at 1242, GR 362 141 we made it into the headwaters of a gully surrounded by an amphitheatre of 20m + stepped pagodas.

Climbing up the first metre onto the pagodas was the hardest, after that it was just a question of going up and up with a choice of foot and hand holds all the way. The top had superb views and seemed like a good spot to watch the storm clouds building up and look north east over to Sunnyside Point, the landslide area before Donkey View Pass, and the prominent rocky outcrop that is spot height 918. It was now 1250 and the rolling thunder was intensifying. During our lunch break here the first drops of rain started and accelerated our eating.

We still were determined to make it to Cleft Point although the chances of us getting there with anything like suitable light conditions to take pictures were dimming by the minute. Rather than spend time exploring more pagodas we decided to make a beeline for Cleft Point and pushed on up to the spinal ridge of Cleft Point peninsula and then hard again through the bush. Almost imperceptibly the rain increased, backing off and then coming again, then backing off once more. Rain jackets came out but were not really necessary as the 700m of distance was covered in 20 minutes. At 1330 we were at Cleft Point, GR 362 149.

Temporarily the rain almost ceased. The lightning and thunder continued unabated. I wrote in my notebook, 'dry thunderstorm'. At 1350 we had completed doing the photography and it was time to get back to the cars. Almost as we turned to head back, the full force of the storm hit. Rain jackets were almost useless. The rain fell with such intensity that the sloping ground we were walking on was 50mm deep in water. The volume of water was so great that dislodged small stones and twigs were carried away. The light and sound show was incessant. At 1410, GR 359 141, we made it to the former end of the old Fire Trail No. 8 before the creation of the boundary of the Gardens of Stone National Park forced its closure back at GR 358 129.

Here, sadist Emanuel unpacked his camera to take pictures of the sodden crew as we started on the final 1.2km back to the vehicles. By now my notebook was in survival mode. Any more exposure to water would have seen me lose all the data from the

walk. We arrived back at the vehicles about 1445 and amazingly the rain stopped as though a tap was turned off. We quickly changed and just managed to say our goodbyes before the heavens opened once more with the heaviest rain of the day. This turned the dirt fire trail into a fast moving series of mud rapids while the sound and light show reached crescendo after crescendo. By the time we reached the Bungleboori Camping Ground the rain had stopped but wild cloud movements with all nature's theatrics continued. Total distance walked 9km, total ascents 460m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0850	Park vehicles at national park boundary	358 129
0855	Complete briefing and start	358 129
0914	Ironstone wing formation	362 130
0921	Flat Bottom Creek	363 130
0933	Exploring in Flat Bottom Creek	364 133
0944	Exploring overhang	364 135
0951	Two slots in western cliff line	364 136
0954	Negotiable slot, + morning tea, 9 minutes	364 136
1008	Ironstone stalagmite in overhang	364 136
1017	Cross Flat Bottom Creek	364 137
1025	Exploring isolated group of high pagodas via ramp slot	366 139
1049	On cliff edge + views of spot height 918	366 140
1100	Cliff edge exploring	369 142
1109	Above Flat Bottom Creek+ the Painted Walls	364 142
1115	Ramp down into Flat Bottom Creek	365 141
1125	The Cyclopean Gallery	364 141
1134	Back in Flat Bottom Creek	365 139
1140	Overhang above Flat Bottom Creek	364 139
1205	Flat Bottom Creek Tunnels	363 142
1214	Chain of pools and cliff waterfall	363 142
1228	Climbing western side of Flat Bottom Creek	363 142
1233	Ramp up	364 140
1242	Up dry creek bed and pagodas	362 141
1250	Lunch on pagodas, 19 minutes	362 142
1330	At Cleft Point	362 149
1410	End of fire trail	359 141
1445	At vehicles	358 129

6.14 Donkey View Pass

Maps etc	Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Park cars at the National park boundary, GR 370 127. Walk down a creek into a canyon at GR 368 140 and after breaching the cliff line circle under the cliffs to the north ascending near spot height 918 then return via the pagoda ridge to the cars on Fire Trail No. 7. About 8km. 150m+&-.
Gear issues	PLB, GPS, map and compass, 2 litres of water, electrolytes, camera. The leader will carry a tape.
Comments	Good agility essential.

Date walked 28th October 2009.

The Weather

A fine day with increasing cloud cover, at times the entire sky was covered; humidity levels were also high. Temperature ranged from a crisp 8 degrees to 22 degrees.

Background Notes

The origins of this walk arose from an exploratory walk 17th July 2009. On that occasion I wrote in my track notes,

"We kept pushing generally south along the cliff edge and wandered out onto an isolated overhanging pagoda to photograph the light play on the cliffs of the next west headland. As well as capturing several great views we had a chance to look at the three further canyon /gullies that are on the 'must do' list. One most certainly is not worth further effort. The other two will require at least a day to fully explore.

The canyon/gully that trends almost due north - south has a long tributary that can be accessed from Fire Trail No. 7. It appears both from the map, and now ground observation to breach the cliffs without any problem. On the next visit I would plan to descend this gully, negotiate under the cliffs and attempt an ascent near spot height 918²⁵ and then return via Fire Trail No. 7."

Track Notes

At 0840 we parked at the vehicular end of Fire Trail No. 7 on the Gardens of Stone National Park boundary, GR 370 127. The drive in had been horrendous with long stretches of viscous mud and little control. The several deep pools required 'off track,

²⁵ Looking at the contours it may be necessary to go north of spot height 918 where they are not so concentrated.

off track' negotiation so arriving at the start of the walk was an experience in itself. Worth mentioning that currently there are three active major construction/drilling sites along Sunnyside Ridge Road – all presumably related to coal mining operations underneath. There has been significant clearing of roadside vegetation and several new roads constructed. The area is an environmental disaster.

In cool, ideal, walking conditions we headed north along the fire trail track towards spot height 1065. Here a termite mound in the shape of a headless donkey was a perfect spot for some creative photography. Marion agreed to be the rider. From this point a bearing was followed north west and we headed down a lightly wooded ridge towards our objective – an unnamed creek that appeared to breach the cliff line in a manner enabling an easy descent.

At 0917 climbed an interesting pagoda, GR 367 136, seeking a visual confirmation of our position. In reaching the top noted an interesting slot that had to be investigated. It was rewarding beyond expectations with the discovery two large hemispherical caverns underneath. In one, a natural wall of dimension stone quality gave the impression of a pair of classic men's urinal stalls. I had two actors pose for a great photo that cannot be published. Exploratory walking is full of surprises.

Returned to the pagoda top and plotted a course forward. Missed a narrow flat saddle and ended up in the lower section of Flat Bottom Creek. Whilst tempting to follow this option it was not the one I really wanted to explore, so a quick 200m traverse east was made and we picked up the drainage for the north south oriented creek that would hopefully take us through the cliff line.

The descent was easy and rapid. Soaring high above on each side were great walls of sandstone. At GR 368 141 a side creek cuts in and joins the open canyon. Geomorphologically this is quite unusual – having the major water flow as a side creek to a much larger canyon. From this point on the canyon floor was filled with lush ferns. No problems for movement just a lot of hidden obstacles to check on all the time. Looking up we enjoyed our first views of Donkey Mountain that lies directly north several kilometres away across the Wolgan River.

By 1015 we had exited the canyon and were at the base of the cliffs. Without needing to prove it, it was quite obvious that the creek could be followed all the way down into the Wolgan Valley with little impediment. To do that it would be necessary to discuss any planned walk with the new landholder, Emirates *Wolgan Valley Resort*. Whilst I was delighted with achieving the first objective, breaching the cliff line, two more challenges lay ahead, one negotiating the base of the cliffs and two finding a way of route out up the cliffs near spot height 918. I thought about all this as we enjoyed morning tea perched on the edge of the talus slope at GR 368 142. It was a real joy to look out over the Wolgan Valley

The cliff base walk turned out to be a very easy exercise. In my time reckoning I allowed 2 hours to negotiate this section. On the day it took just one hour. Sure there were a few spots where the decaying shale was a bit uncertain underfoot but generally it was a very pleasant, and indeed in places a very dramatic walk. Several specimens of a peculiar prostrate *Allocasurina*, possibly a variation of *A. nana* were encountered.

A check with the GPS at 1130 put us at GR 374 151. It was time to start looking for a way up the cliffs.

Up to this point the cliffs were sheer, 150m plus and without the slightest possibility of a way up. I was quite resigned to walking all the way around the northern end of spot height 918 and back into the next valley eastwards to find a way out. At 1130, GR 374 153 there was a sudden break in the cliffs and what looked like a ramp. Re-energized we decided to give it a go. Not only did it go, it was a very fine ramp angled at about 45 degrees and of 'staircase' quality! We were rapt. In five minutes we had climbed 100m - from 800m, the height below the cliffs to 900m, the height above the cliffs. This was the kind of outcome that is rare in these parts.

We spent a bit of time at the top, GR 375 153, marvelling at the ramp, photographing the ramp and generally documenting the success of the exercise. This pass (as indeed it is) needs a name and I propose to call it Donkey View Pass as from the top the most dominant view is that of Donkey Mountain.

Having achieved so much in such a relatively short time we headed north to spot height 918 where the views are absolutely close to perfection. At noon on the knocker we stood at GR 374 157 and then sought out the best spot to enjoy lunch and take literally dozens of photographs.

After 35 minutes it was time to leave and inspect the wonders of the ridge of pagodas that stretch for the next several hundred metres back towards the end of the old fire trail. This area includes some of the finest erosion residuals to be found in the Gardens of Stone National Park. It is a place where every footstep must be carefully placed. We want others to enjoy this special spot as well.

One of the strangest positioned visitors books to be found anywhere is at the end of this fire trail, GR 373 144. It takes some scouting to find it, and when you do find it you ask yourself why it is where it is. It does not have many entries but I am in there on four separate occasions for no other reason that it is so incongruous and remote. Significantly there were no new entries since my last visit 17th July 2009 and prior to that none again except for my visits over the last 3 years.

Yuri expressed a desire to visit the Wolgan Pinnacle. Unfortunately the time requirement of 2 hours return from the track junction would have made it a late finish. We noted the branch track junction at GR 374 135 on our way back to the vehicle, GR 369 125 at 1410.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0840	Gardens of Stone National Park boundary	370 127
0900	Termite ant mound on track	371 133
0917	On pagoda above caves	367 136
0940	In creek	365 138
1004	Creek junction (minor)	368 140
1015	Mouth of the ravine	368 141
1020	Morning tea (15 mins)	368 142

1120	Under the cliff line	374 151
1130	Base of ramp up (Donkey View Pass)	374 153
1135	Top Donkey View Pass	375 153
1200	Lunch at spot height 918 (35 mins)	374 157
1335	Visitors book and end of fire trail	373 144
1354	Junction with track to Wolgan Pinnacle	374 135
1410	Gardens of Stone National Park boundary	370 127

6.15 Sunnyside Gully

Maps etc Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.

Walk description and route An ambitious day. Park vehicles at GR 370 126. Head for a creek and possible canyon complex GR 375 138 and generally trends north from that point. If we finish doing that then there is another creek/canyon complex to the west at about GR 372 141 and yet another further west of that again.

Colleague Bas Slade has advised 'the canyon at 363 141 is the most reliable source of water along this section so I usually include it in weekend walks. There is a marvellous camp cave at 369 138. We might need this if conditions are foul. All exploratory. Distances and climbing data irrelevant!

Gear issues GPS, PLB, maps and compass, appropriate head and foot wear, 2 litres of water and electrolytes. A 20m tape will be carried by the leader. Bring a change of gear.

Comments Good agility essential. Wet feet possible. Could be cold as well. Warm gear.

Date walked 17th July 2009.

The Weather

Clear winter days for walking do not come much better than the day we enjoyed on the day, brilliant sunshine, a cloudless sky, a bracing 4 degrees, no wind and an ambitious walk in some of the most spectacular country in the Gardens of Stone National Park.

Background Notes

Sunnyside Ridge Road is currently being subjected to a lot of very heavy traffic. A drilling and bore casing crew with all their attendant ancillary equipment is working a large site adjacent to the road at approximately GR 380 053. Where the road formation is weak the top few centimetres are a soft slush of mud. Unusually for out here you need to be on the lookout for traffic - big rigs.

Once on Fire Trail No. 7 it was like the good times and the drive through the bush although slow was a joy. Adding to our enjoyment shafts of sunshine played on the golden wattle understorey. I could sense it was to be a super day.

Track Notes

Parked at the Gardens of Stone National Park boundary at 0850, followed by a group discussion based on the map as the central theme and then headed north along the fire trail to a fork in the road, GR 374 135. This is the takeoff track to visit the Wolgan

Pinnacle. After several hundred metres the eucalypt forest gives way to more open country and the native Black Cypress, (*Callitris endlicheri*) is dominant.

Great views to the west of exposed rock faces, pagodas and a serrated skyline foreshadowed the wonders ahead. Someone possibly, a former forestry worker(s) has placed a rough sawn plank across two rocks so he/they could sit and enjoy the view.

Although my plans were for a descent immediately, the irresistible pull of several adjacent pagodas was too much, we all had to go and visit and make that initial morning spiritual contact. The 'wow' factor was made more so by the rays of sunshine playing on the cliffs opposite. We said to each other, how many people are this lucky?

After due reverie and obeisance we resumed, heading down into the canyon. In less than 100m we were standing on the edge of a no go drop of about 5m. It was sudden, narrow and impossible without all the abseiling gear. As it was only one of many options we moved on to inspect a second one. This was more open and for 5m or so looked very promising before it too, plunged over a drop, this time into a pool of dark water that appeared to be about 2m deep, GR 375 142. Noted that it would be great in mid summer.

As there were many more options we kept on testing, moving clockwise around the headwaters probing, looking and taking pictures. The labyrinthine depths of this canyon are almost hypnotic. At last at GR 375 145 entry was possible, via a series of ramps, acceptable doable drops and compelling desire. Soon we were all down and into a rarely visited world.

This was level 1. There was one more level to go before we descended into the canyon depths. At GR 376 146, we breached another cliff line via an easy ramp. Now those huge trees that we had looked down on the crowns of we could stand beside and look up, several tens of metres.

An attractive collection of rocks and a log in the sunshine was the site for a very welcome morning tea break and a chance to spend time appraising this spot, GR 376 147. In a very short distance since leaving the vehicles we had a whole series of varied landforms, vegetation types and great experiences. Looking up at the towering cliffs we were all keen to search for more, so after ten minutes we were under way again.

The way forward was between moss covered boulders up to house size filling the canyon bed. Lots of rock hopping, a bit of sliding and a bit of clambering. The floor drops constantly but in easily doable bits. There was no exposure but a need to be wary of some very slippery bits. At 1103 we reached GR 378 150. This was exceptional progress for this terrain. Emerging views of the Wolgan Valley showed that this canyon would open up into a very steep, but nonetheless doable route to the valley floor.

We made a decision that going down was not necessary, if we were going to do this we needed to either have a car down in the valley and permission to cross private land

or do the trip in reverse. I wanted to see more so, after locating a well worn animal pad we began circling under the cliffs heading east.

At 1119 we reached the most easterly point of the walk, GR 389 151, where the rock shelf we were traversing cuts out. The views were just special. To the west there was the cliff line of the serrated ridge that ends in the isolated spot height, 918. Due north, and framed by two great eucalypts was the *Wolgan Valley Resort* development. We all took pictures. We are almost certain they are a unique collection. No other photographer could be paid enough to come to this spot.

Elevating our eyes we also had a profile spectacle of Donkey Mountain. Geoff, who is besotted with this destination, pointed out the location of his most recent visits to various ledges and high points. It is a very special place and when Geoff has explored and mapped all its detail he will be a guide extraordinaire to show others.

Reflecting on our location and thinking about the Sunnyside Ridge Route option for the Wolgan Valley Railway from Newnes Junction to Newnes, the engineering would have been a challenge but not impossible. Standing where we were also provided a good idea of how the alignment grade would have looked as it circled under the cliffs.

Time to retrace our steps and do some more exploring. Had a quick look up into a side canyon at GR 377 148. It shows on the map as having a continuous cliff line but has a broad ramp and is easily breached. On checking the track notes this descent was traversed in conjunction with visiting the Wolgan Pinnacle on 27th December 2006.

Moved about 150m upstream before heading up a continuous ramp to the west at GR 377 150. Before the ascent there is a large open area about a hectare in size and almost totally enclosed. The climb out is easy. At the top on a pagoda checked out the views east before following a bearing due west to the western edge of the cliffs and a collection of pagodas that here form a 200m long stretch of the cliff top. The western cliffs about 2m away drop sheer for 80m plus. Gorgeous stuff!

Devoid of all vegetation this is a rock sculpture park with thousands of fantastic and impossible forms. At GR 374 150 we settled into some nicely curved stone armchairs for lunch. We each had a view of the utmost beauty into the Wolgan Valley stretching from Cape Horn in the west to the cliffs above Newnes in the east.

After forty minutes of enchantment and both real and celestial food it was time to move south along the pagoda ridge. It is so stark you could be on an alien planet. Fractured pieces of ironstone plate come in all sizes and shapes from fruit slice size to chunks of 3m x 2m x 30mm. At GR 374 146 we found a deep narrow slot. It was so interesting that Berenice requested time out to climb down as far as she could to check it out. She reported it goes down a good 40m on an almost continuous grade but ends abruptly with a vertical cliff line drop of possibly 60m.

We kept pushing generally south along the cliff edge and wandered out onto an isolated overhanging pagoda to photograph the light play on the cliffs of the next west headland. As well as capturing several great views we had a chance to look at the three further canyon /gullies that are on the 'must do' list. One most certainly is not worth further effort. The other two will require at least a day to fully explore.

The canyon/gully that trends almost due north - south has a long tributary that can be accessed from Fire Trail No. 7. It appears both from the map and now from ground observation to breach the cliffs without any problem, not even a tape would be required. On the next visit I would plan to descend this gully, negotiate under the cliffs and attempt an ascent near spot height 918²⁶ and then return via Fire Trail No. 7. It will be a long day and will need daylight saving time to complete.

Somewhat disappointed that what lay ahead of our original plans was too much for achievement in the remaining daylight we headed southeast and came across a lost plinth and NPWS visitors book stand. There had been only two entries since my last visit and one of those was Roger and Sue Caffin who visited weeks after reading the walk report of 27th December 2006. Why this spot has such a facility is uncertain.

The group intersected with Fire Trail No. 7 at 1330, GR 374 145, the Wolgan Pinnacle track junction at 1406, and returned to the vehicles at 1425. It was a most satisfying day out and finished with the tantalising prospect of a really challenging walk in the spring when hopefully a circuit walk down the cliffs and back up again can be completed.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0855	Park vehicles and commence walk	370 126
0912	Track takeoff for Wolgan Pinnacle	374 135
0923	On a pagoda	377 140
0935	Commence descent	
0940	Canyon	375 142
1000	The way down (stage 1)	375 145
1015	The way down (stage 2)	376 146
1020	Morning tea (20 mins)	376 147
1103	In canyon	378 150
1119	Under the cliffs (eastern extremity of walk)	379 151
1144	Exploring side canyon	377 148
1200	Lunch on pagoda (40 mins)	374 150
1300	On the cliff edge	374 148
1305	Slot canyon	374 146
1320	The visitors book	
1330	On a pagoda	374 145
1354	Intersect with Fire Trail No. 7	374 143
1406	Track takeoff for Wolgan Pinnacle	374 135
1425	At vehicles	370 126

²⁶ Looking at the contours it may be necessary to go north of spot height 918 where they are not so concentrated.

6.16 Sunnyside Point and Wolgan Pinnacle

Maps etc	Department of Lands Cullen Bullen topographic map, 8931–3N, 1:25000, second edition, WGS 84.
Walk description and route	From the national park boundary 370 127 head due north to spot height 918, Sunnyside Point, where 270 degree views are obtained of the Wolgan Valley. Follow the top of the cliff line in an easterly direction towards the Wolgan Pinnacle before heading back to the cars. Gain just a glimpse of what makes the Gardens of Stone National Park so special.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps and compass. The leader will carry a tape.
Comments	Mostly off track, exposure. About 8km.

Date walked 9th August 2013.

The Weather

A varied winter day, the morning sky was clear and brilliantly sunny, later this changed with high cloud moving in about 1100, gradually this was followed with lower and more dense cloud accompanied by rising wind; by 1400 conditions were cooling down rapidly; temperature range 4 to 8 degrees.

Background Notes

Sunnyside Ridge. Brian Fox drew attention to desk research gleaned from a study of the topographic maps. Sunnyside Ridge is the real name of the ridge we would be walking on today, usually referred to as Fire Trail No. 7. The Cullen Bullen and Lithgow maps show the ridge starts from a junction point on the Great Dividing Range at GR 379 020 and terminates north west of Wolgan Pinnacle some 16km away at spot height 918. Brian Fox has now named the end point of this ridge as Sunnyside Point. The ridge is also the watershed between Carne Creek and the Wolgan River catchments.

Wolgan Pinnacle Slot. The following notes are extracted from Track Notes of a walk done 27th December 2006.

“Rodney is not hungry so he goes exploring instead. He is gone some time so, lunch away, Bernard and I decide to go and see where he might have gone.

We move slowly northwards taking ever more pictures as the beauty of the place unfolds – the colours – the vertical cliffs that go forever, the clefts and cleavages. I am busy clicking away when a just, only just, out of breath Rodney appears from a cleft. He is alive with excitement. He has been to the bottom of the cliff line and back! We are in disbelief.

How can you descend 40m plus down a vertical cliff? And return? And without a rope? A drink of water later and he is agog to show us. He takes us to a spot where I have taken a picture of the valley and cliffs opposite, framed by the sheer parallel sides of a slot about 1 metre wide. The cut off in the bottom of the picture is where I thought the descent just became vertical.

It was here that Rodney went, and he went down to the next level. A large chock stone caused him to call on some of his rock climbing skills to negotiate it and then he was down to another more gradual paced section, some more minor scrambling, a bit of 'bridging' and then he was at the bottom. He issued an invitation to lead us back down. Bernard quickly said 'No.' I wavered and then declined. Rodney then offered to go back down and up taking the camera to capture all the challenge. In a mere 40 minutes the job was done. The pictures are awesome."

Track Notes

We commenced walking at 0842 from the Gardens of Stone National Park boundary, GR 370 126. Beyond the national park boundary, the former fire trail is now a broad walking track that over time will regenerate and resemble the adjoining forest. At GR 372 133, the track reaches its highest elevation, 1055m. It continues to undulate further north. A decaying barrier marks the junction of the main track with a rough track to Wolgan Pinnacle, GR 375 136.

At 0929 GR 374 141, I caught a glimpse of the spectacular cliff line on the next point west. Yuri also noted a pointed pagoda that appeared to be on the immediate cliff edge. It did not take much talking to decide to vary the walk and visit this spot. So it was at 0929 we mounted a pagoda on the cliff edge at GR 372 142. The views were up there with the best of the Newnes Plateau northern cliff line. The colours were striking and vibrant, and as we looked around, the opportunities for additional walks also became obvious.

While it was noted that we had previously explored below these cliffs, 28th October 2009²⁷, there was no notation in my notes about the amazing undercut we could see below us from the cliff edge pagoda. A revisit is in order with a special effort to explore the deep recess and towering cliffs reviewed from above. At this site we turned over a rock and found a very small Southern Rainbow Skink, *Carlia tetradactyla*. After photos both micro and macro we made our way back to the track, GR 374 143, and pushed on towards the northern end of Sunnyside Ridge.

The former road petered out at GR 374 146. From here on it was a case of picking the best route. Most of the time this meant walking the very western edge of the ridge. The views west and north west were stunning. The rimming cliffs of the Wolgan Valley were capped with familiar high points and passes. Starting from the western end was Cape Horn, then Mount McLean, McLeans Pass, Mount Jamison, Mount Davidson, Blue Rock Gap, Hughes Defile, Woolpack Rock and Woolpack Gap. Almost due north, the serrated top of Donkey Mountain commanded our attention;

²⁷ This walk is documented in the Gardens of Stone National Park and beyond, walk 6.13, in preparation

this view is one of the iconic views in the Gardens of Stone National Park, even though rural properties occupy the Wolgan Valley floor.

Morning tea was taken on a pagoda at GR 375 150 where all the above features as well as road surfacing work crews could be seen on the Wolgan Road. Leaving the site we entered a spring garden of wild flowers that bedeck this northern end of Sunnyside Ridge. Although early in the season, pink *Zieria murphyi*, purple *Hovea longifolia*, pale pink almost white, *Philotheca myopoides* and cerise pink *Boronia ruppia*, turned the ridge into a delightful flower garden. Close inspection of other plants revealed that in coming weeks this whole ridge will be a blaze of colour.

Not out of place and wonderful to note was a small cliff edge rock pool that was hosting bees as they took a break from collecting pollen, GR 375 154²⁸. Still pushing north, the ridge became narrower and narrower. Through the trees we could now view Carne Creek to the east, and to the north east some of the buildings of the Emirates Wolgan Valley Resort.

Finally at 1045 we reached the end of the contiguous ridge, spot height 918, GR 375 157. It is a stunning place to be, and in the brilliant sunshine, totally captivating. A *Boronia ruppia*, in full flower, coupled with lichen covered rocks ensued that photographs were picture perfect. Some of the party not content with the view from Sunnyside Point decided to push even further north to the taller of two isolated pagodas, GR 375 158.

Only leader Brian climbed to the top of this pagoda so that we could take photos proving that it was climbable. While he stood there, two RAAF Hercules Aircraft appeared flying down Carne Creek! Flying a good 100m below us, they made a 90 degree turn before Donkey Mountain, flew west up the Wolgan Valley before crossing at McLeans Pass and dropping into the Capertee Valley. John Fox managed to take photos. With a number of us wearing red hats we are almost certain that the flying crews would have seen us.

At 1109 the two groups reunited and we made our way south exploring the eastern parts of Sunnyside Ridge where possible. The views of local pagoda complexes as well as extensive cliff lines continued to be breathtaking despite the cloud cover increasing. We noted our position at 1132 as GR 375 151. As it was planned to have lunch at Wolgan Pinnacle, on the next ridge east, we kept an eye for possible crossing points of a major cliff lined ravine that separates the two ridges. In the end we commenced walking in a south east direction from about GR 374 148. A whole day could be spent exploring this 800m long ravine, assuming one could find a negotiable entry point. Another item to add to the 'to do' list.

This proved to be a good decision as the way chosen was over extensive rock platforms and open treeless terrain. Where plants had established the soil was so thin that half a metre was their average height. It took less than 8 minutes to negotiate the crossing, and a further 6 minutes to reach the ridge crest at GR 378 142. Even from this point we could look back across to the cliffs in the intervening ravine and

²⁸ Note the access pass, Donkey View to the base of the cliffs on the western side is at GR 375 153.

appreciate what a challenge it would be to explore the area thoroughly. Unfortunately the sun had now gone into hiding so good pictures were not possible.

The topographic map shows a spot height of 1006m at approximately GR 381 144. This is actually a grouping of several delightful pagodas and a major viewing spot into Endorphan Gully and Adrenalin Head, both located to the south east of this position. Much as we would loved to have stayed here a while, we were not going to have a lunch break until the Wolgan Pinnacle. It was an easy walk to the pinnacle at GR 382 148. By the time we arrived the wind had picked up significantly and a couple of us elected to lunch lower down with Carne Creek views rather than the more extensive views available from, the windy heights.

Twenty minutes later we resumed walking north to the Wolgan Pinnacle Slot.²⁹ This slot is negotiable but does have some exposure. It takes you down to the base of the cliff line. We spent some fifteen minutes in this area, as the photography is amazing. The Wolgan Pinnacle as seen from the top of the slot is so big it cannot be fitted in a single screen. Also the colours and fretted rocks are a palette of form and colour that just have to be savoured.

As the cloud cover thickened the light diminished so we decided to walk out. By 1347, GR 377 140, we had reached the main ridge top and found evidence that there may have been a track out this far. Moving south the 'track' became progressively more defined until it was quite obvious. The junction point and site of the former barrier was reached at 1357 and the vehicles at 1415. Total distance walked 11.3km, total ascents 500m.

While walking back we noted that despite our best efforts to keep up, leader Brian was so far ahead he was suddenly out of sight. I know he hates the cold but he had moved very fast indeed so we wondered if all was well. It was not until we rounded the last bend about 50m from the vehicles that we realised what was going on. Brian had raced ahead to organise a surprise.

Set out on a table was a collection of ten (10) chocolate iced cup cakes forming the number 4. There were bottle soft drinks and chocolates! As we shed our packs Brian explained it was a four way celebration. It was to celebrate the Bush Club's 75th year and his walk for the 75 National Parks Project; it was to celebrate that The Gardens of Stone National Park and beyond book 4 was at the printer; that on Monday it was Yuri's birthday and on Tuesday it was my birthday. Brian has taken Bush Club leadership to a whole new level. A special thanks from us all to Brian's wife Elaine for cooking the cakes, they were delicious.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0833	Park vehicles and briefing	370 126
0842	Commence walking	370 126

²⁹ Wolgan Pinnacle Slot is a natural pass on the northern side of Wolgan Pinnacle, giving access down to Carne Creek. Wolgan Pinnacle Slot name suggested by Michael Keats on his Bush Club walk 27th December 2006. Name derived from the over powering Wolgan Pinnacle nearby. Cullen Bullen Topo Map, 382 149.

0907	High pint on the track, 1050m	372 131
0917	Track junction	375 136
0929	View point of cliffs west	374 141
0939	On pagoda on cliff edge	372 142
0942	Back on track	374 143
0949	End of track	374 146
1006	On high point + morning tea, 12 minutes	375 150
1025	Cliff edge and top of Donkey View Pass	375 153
1032	Views and cliff edge pool with bees	375 154
1045	At spot height 918	375 157
1100	Brian Fox on top of northern pagoda + Hercules fly past	375 158
1132	Walking east side of ridge	375 151
1148	Crossing rock platform	375 148
1156	On eastern ridge	375 143
1218	On spot height 1006 + views	381 144
1245	Wolgan Pinnacle + lunch, 20 minutes	382 148
1320	Wolgan Pinnacle Slot	382 149
1347	Ridge top and track head	377 140
1357	Track junction	375 136

6.17 Wolgan Pinnacle and Sunnyside Gully

- Maps etc Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
- Walk description and route Park car on Fire Trail No. 7 (Sunnyside Ridge at National Park boundary, approximately GR 370 126). Walk out along the ridge to spot height 1055 and then to the Wolgan Pinnacle. Return via an exploration of the unnamed canyon between the Wolgan Pinnacle and spot height 918 and exploring this long finger of land. About 6km lots of ups and downs but nothing serious.
- Gear issues PLB, hat, volleys, 1 litre water, camera. A 30m tape. Change of gear recommended
- Comments This country reportedly contains the most spectacular pagodas in the whole of the Wollemi NP. It is fascinating country. Some scrambling and rock 'climbing' may be involved. The map shows cliff lines of the order of 30- 50m. Given the wonders already identified in this general area we could well spend the whole day covering less than 6 kilometres. Be prepared for a variety of challenges and a possible late finish.

This will be the last chance to enjoy the view from the Wolgan Pinnacle before it view is despoiled by the Wolgan Valley Resort. It is possible, although very exposed to descend into the Wolgan Valley from a spot 50m north of the Pinnacle.

Date walked 11th July 2007.

The Weather

A cool to cold drizzly day. Total cloud cover, occasional heavy showers. Temperature range from 7 to 12 degrees.

Background Notes

A break of 48 hours away from the Wolgan Valley is too long, particularly after the mind-bending pilgrimage to Donkey Mountain. We were back, eager bushwalking disciples keen to enrich our knowledge and intimate relationship with this part of the Gardens of Stone National Park.

Track Notes

The starting point, the Newnes State Forest – Gardens of Stone National Park Boundary was reached at 0905 after many kilometres of greasy mud driving from the Clarence Zig Zag. It was a bracing 7 degrees and threatening rain as we loaded our packs – perfect conditions for walking addicts.

The road on the north side of the boundary has been rendered impassable to vehicles as a result of the NPWS dragging logs, rocks and dead branches across the former logging track. It looks unsightly and makes walking quite a feat as each obstacle is negotiated.

Spot height 1055 was quickly reached and passed. There are no real views from this point as the tree cover is dense and the contours widely spaced. At GR 375 136, the former road forks, the more westerly arm leads out to spot height 918 while the eastern arm follows the natural ridge and leads to the Wolgan Pinnacle.

At about GR 378 143 a series of low angled pagodas provides a great viewing spot. To the east there is a set of 100m high cliffs on an unnamed branch of Carne Creek, now known as Endorphin Gully, that form the western edge of the next 'finger' of land, beyond these cliffs are the even more dramatic bastions of Carne Creek. Immediately north, north east is spot height 1006 that hides the Wolgan Pinnacle from view. North, north west is a set of deeply incised canyons whose western edge culminates in the compound pagodas of the narrow finger that leads to spot height 918. Beyond all this is the vast arena of the Wolgan Valley proper. Mega pixels were burned.

400m or so of light bush bashing and pagoda hopping and we assembled on spot height 1006, surrounded by a sea of green forest including the Black Cypress Pine, *Callitris endlicheri*. We could now see the crown of the Wolgan Pinnacle that appeared from this distance as a low rounded rock. Back into the sea of green we made good progress as the forest thinned and lines of sight became clearer.

Just as we approached the Pinnacle light rain started to fall then stopped. Fortunately it was a nice dry climb to the top. The view is like so many in this area, big beyond the eye to scan in one go. IMAX theatre like, there is a need to keep the head moving as you look down 300m, across 3km over Carne Creek, NNE tens of kilometres over the Wolgan River and beyond and then back close in again.

At the extremities of vision it was raining. We were somehow spared and even had faint rays of sunshine. The cameras worked as hard as the jaws during our morning tea break in this privileged place.

Next it was time to explore the top end of the Wolgan Pinnacle Slot, a way of route for the very agile that can be negotiated all the way to the base of the cliffs. Some explored to the top of the first big descent while the rest of us captured the cliffs on film from every possible angle. I recounted Rodney Nelson's descent on 27th December 2006. He went up and down in 40 minutes and then did it again taking my camera so we could appreciate all the challenges involved. We moved on.

The plan was to now explore new territory to the north, following the cliff edge as closely as possible and checking out all the interesting possibilities. We had a great time. Another possible descent slot was examined but it involved even more exposure than the Wolgan Pinnacle Slot.

As we rounded the cliff line to the west more pagodas were encountered. The aim was to descend as soon as we could to get across to the other side and hence out to spot

height 918. Lots of interesting possibilities were explored. A magnificent curved slot just wide enough to squeeze through was negotiated. It led to a further one that would have entailed a dip into water waist deep. We gave it a miss and moved on trying the next option. This one worked and worked well. Great stuff! Suddenly we were in a beautiful enclosed forest.

Next question was there a way out on the other side? Roger raced off looking and found a perfect ramp. The rest of us got distracted by a cave that looked as though it might have possibilities for Aboriginal art, it faced east, was dry, was close to excellent water etc. We went up to have a look. The marks that looked promising from below proved to be nothing more than water stains.

Minutes later we stood on a pagoda and looked back at our way of route. We could identify both the 'no go' and 'go' ways of route. I was impressed that we had been able to negotiate access so close to the point where this hanging canyon discharges through the cliffs into the valley below.

Easy walking took us up onto the ridge top and fabulous views over the Wolgan Valley west. A precarious, almost severed rock provided photo opportunities of spot height 918, Donkey Mountain and beyond to the northern cliffs of the Wolgan Valley. Roger and I could pick out our lunch spot from Monday – an eerie high up on one of the isolated pagodas.

Minutes later we were all perched on a rock at GR 375 155. It was 1230 so we had lunch with a view. Jane made our day producing home made cake. Thanks Jane it was great. 1300 leaving our gear behind, we then crossed the saddle and mounted spot height 918. This is a view! 270 degrees of uninterrupted Arcadian panorama, soon to be changed by the Emirates Wolgan Valley Resort development. Lots of pictures were taken for the history books.

Through the rain on the far north, north east horizon there was a classic sighting of Tayan Pic – just momentarily, before it was again clothed in white cloud. We were just in the right spots at the right times all day. Not once did we get more than a few spots of rain. Sated with views we returned to our packs and began the walk, or clamber along the pagoda ridge to link up with the main track.

On the ridge the pagodas are almost continuous for about 500m, they are all negotiable but require careful foot placement to avoid damage to both them and us. Gently and slowly does it. It was exciting stuff and great for photography too. Several stops were made along the way to photograph the cliffs of the finger to the west and its four hanging canyons. There is another day of exploring to be done in the creek between fire trails 7 and 8 and all the side canyons (6 on the west side and 5 on the right). The old road was reached at 1355, the junction at 1405 and the cars at 1425, a day of exhilarating exploring and adventuring.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0820	Clarence Zig Zag	419 924
0905	Park boundary on Fire Trail No. 7	370 126

0930	Track junction	375 136
0940	Lookout	378 143
1005	Spot height 1006	381 144
1020	Wolgan Pinnacle and morning tea	383 148
1040	Wolgan Pinnacle Slot	382 148
1100	Overlooking junction Wolgan River and Carne Creek	382 150
1130	Out of slot canyon and in enclosed forest	377 148
1210	Out of canyon	376 149
1230	Lunch	375 155
1300	At spot height 918	375 157
1320	Into the pagodas	375 150
1355	Linked up with old track	374 145
1405	Track junction	375 136
1425	Park boundary on Fire Trail No. 7	370 126

6.18 Sunnyside Gully and the ridge east

Maps etc	Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Another ambitious day out. Park vehicles at approximately GR 362 111 on Fire Trail No. 7 and head east down into the canyon complex at approximately GR 371 113. This promises to be an incredible journey for about 2-3km. There are many interesting side canyons to explore as well. All exploratory. Distances and climbing data irrelevant!
Gear issues	PLB, GPS, maps and compass, appropriate head and foot wear, 2 litres of water, electrolytes and preparedness to have a good day out regardless. The leader will carry a tape.
Comments	Good agility essential. Wet feet possible. Could be cold as well. Warm gear to change into at the end of the walk.

Date walked 22nd July 2009.

The Weather

A cool and cloudy day with light wind. Morning drizzle gave way to a mostly fine day. Temperature range 5 to 12 degrees.

Background Notes

Homework pays off. Fortunately this area is covered by one of the more detailed aerial strips available on line so high resolution images can be downloaded. It was very satisfying to be able to zoom right in on the whole gully/canyon and then to be able to 'visit' specific areas where potential challenges would occur. While this is not 100% indicative, it was of enormous help.

Cresting the gap at Kurrajong Heights I was dismayed at the huge, fast- moving weather front heading our way. The treetops were already thrashing in the rising wind. By the time we reached Bell it was raining heavily and the wind was trying to wrestle me for control of the car. This was not good.

On arrival at Clarence the front seemed to have passed, the wind abated and it was now a light drizzle. As we were just five in number we all piled into the Forester and headed for Sunnyside Ridge and Fire Trail No. 7. Surprisingly the road and the weather both improved.

Track Notes

0900, parked the vehicle, just before spot height 1078, GR 362 111 and we were ready to walk. The plan was to descend through 6 well- spaced 20m contours and then follow the creek bed for as far as we could, up to maybe 3-4km. There are lots of

potentially very interesting side canyons to explore as well. The forest and understorey are open and the walking easy.

Once down near the creek bed the forest gave way to an extended swamp crowded with all manner of species of *Leptospermum*, *Grevillia*, *Gahnia* and various sedges. It is best avoided, so we walked in the open forest parallel to it for about 800m. Everywhere there was evidence of former logging operations with cut stumps being conspicuous. At 0932 in a clearing we came across the remnants of a former, and apparently failed marijuana plantation, GR 372 119.

There was an array of three rows of 100mm plastic pipes (25 in all) set into the ground at 50cm intervals with the rows about 1m apart. Nearby alongside the creek were the remains of a plastic garbage bin and a bucket. I picked up a piece of a plastic bag that from the remaining wording would have held fertilizer. Not one plant had survived. Noted also that this spot is outside the National Park.

We pushed on northwards taking a reading at GR 372 121 where the first isolated pagoda appeared. At 0955 climbed a pagoda, GR 373 126 to have a drink stop, (it is also the approximate boundary of the National Park). With the passing of the storm it was now quite sunny and humid.

Pushing downstream the terrain was becoming more and more interesting with a lot of exposed rock shelves and pagodas. At 1010 emerged from the understorey onto a rock platform. Straight ahead a large pagoda appeared to block the way forward. I did a quick check with the map and the aerials. We had arrived at the beginning of the really interesting section of this gully/canyon, GR 375 129. Time for morning tea and a good look around.

The creek at this juncture performs a gentle "S" bend but is deeply incised and drops 15m or more in the course of the "S" loop. We inspected it at various points and determined that this was really into wet suit and abseiling territory, and detailed exploring would be even better in summer. We would do now as much as we could.

After classic photo shots and a 15 minute break set off heading east where the aerials showed a way back into the gully/canyon below the drop, GR 376 131. It worked perfectly despite a bit of 'limbo rock' contortions through a fallen tree. Back in the creek bed we dropped packs and walked back upstream. It is a beautiful tight canyon section with luxuriant King Ferns and crystal clear water. A small waterfall could just be seen. We will be back here in summer.

Collecting our packs we moved on downstream for a short distance into a wonderful world of vast dry caves and overhangs. Absolutely top drawer stuff. A massive fallen rock and chock stone frames the south end and protects a super campsite, soaring cliffs (20m+) give protection from the west. Epiphytes and mosses decorate huge boulders whilst towering trees that defied logging and extraction fill the open areas. Paradise? Close to it anyway.

Perhaps another 100m on, GR 377 132, and on the eastern side of the gully/canyon we entered another massive overhang surrounded with awesome pagodas. In the soft sand are the footprints of wombats, their burrow entries everywhere. Below us the

creek has cut down through more metres of rock, and again ropes and abseiling gear are required to fully explore this canyon section.

We were now moving along a ledge that looked as though it might continue further downstream. After about 20m it cuts out, a great spot for photos of the ever deepening canyon below and the towering cliffs above. Regrettably we had to retrace and climb out once more. A super ramp took us out onto the eastern cliff top at GR 377 131. The views on top are also stunning. We wandered out onto a pagoda formation at GR 378 132 and recorded a bit more of this paradise.

We were keen to get back down again. It was 1206. A ramp opportunity appeared at GR 380 135. Down we went a good 30m. In a very short distance the creek bed had dropped another 50m or so and was way, way below with no more options to get down into the creek bed and back up. An overnight camp would give all the time needed to really explore this area. It is now a very serious canyon indeed.

Electing to stay below the cliffs and sidle was delightful. We found a great narrow, parallel sided vertical slot, maybe 10m high where the walls are so straight they appear cleaved with a giant knife. Amazingly they are only 30cm apart. We pushed on. The humidity was becoming oppressive and the sky cloudless. The cliff line we were following was becoming smaller as our route rose and rose.

It does not show on the topographic map, but seen on the aerial photos there is a great isolated rocky outcrop. We entered via a gaping slot with views down into the Wolgan Valley. I jokingly said that for lunch we needed a spot with "a view, sunshine and shade and no wind." Well, we got it all and more. GR 380 138 is a special, special spot that very few have been privileged to visit. It is close to perfect with superb panoramas of the surrounding cliff. Immediately below where we sat a secondary canyon drops rapidly with some sections so deep that the depth can only be guessed.

To the northwest we could see spot height 1006 that is encountered on the way to the Wolgan Pinnacle, to the north and several kilometres away is a view of the mid section of Donkey Mountain and to the northeast the enticing prospect of more cliffs, and even greater views. While having lunch I studied the map and determined we should make time to go to try and reach the end of the peninsula we were now on and check out the views. There was the small issue of the side, east-west trending canyon to be crossed. Finally at 1300 we resumed walking.

While having lunch a second weather front moved in and clouds began filling the western sky. Yes, more rain was on the way but we decided to press on anyway. At 1309 we were above a possible crossing point for this subsidiary canyon, GR 381 137. I peered down and clambered down some way. Berenice took the camera and went down far enough to photograph the inky black pool in the bottom. We would not be crossing here. Meanwhile Roger walked upstream another 50m and found an easy crossing point.

Geoff and Bernice then went to explore the canyon from the top down while the rest of us piloted a climb up a 'semi-dry' waterfall to the next level of pagodas. It was an exhilarating time. There were still many more pagodas to negotiate before we reached the cliff edge. As we moved north along the open pagoda tops Roger was leading, out

front by about 30m when he gave a shout, "Snake!" He had disturbed the sunbaking activities of a very healthy Red Bellied Black Snake.

The snake about 1.5m in length was not impressed. It flared its head to make itself look bigger and headed towards the rest of us, its speed breathtaking. I could not pan the camera quickly enough to keep up. Fortunately for us all it disappeared under a rock about 5m away. We suspect that somehow we had got between it and its favourite ground hole. Who said snakes hibernate in winter?

At 1343 we reached the end of the point, GR 386 140. To the northwest the impressive cliffs include the Wolgan Pinnacle, that from this perspective appears to lean outwards; due north is Donkey Mountain with the Emirates development on the valley floor, and to the east the cliffs of Carne Creek with such spots as the Screwdriver Pass, The Governor and Michaels Chair.

By now the weather had turned quite cool and rain was threatening. There was ready acceptance of my revised plan to walk back out along Fire Trail No. 6 and, at the point where both trails were closest to each other to walk a bearing direct to the vehicle.

At 1424 we crossed the National Park Boundary, and at 1434 left Fire Trail No. 6, GR 376 117. The walk across was easy except for a rough passage through a swamp where for 50m it was a battle with those entangled *Leptospermum*, *Grevillia*, *Gahnia* and various sedges to say nothing of buried logs and sword grass. I just love those sword grass cuts on fingers that take forever to heal.

Even though it was only 1515 when we reached the vehicle, it was dark and more than just a little bit cool. Two minutes later while we were changing it started to rain. Talk about timing. It was a super day out exploring a fascinating area, and one that merits a prolonged summer visit to thoroughly enjoy the canyon.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0900	Locate vehicle on Fire Trail No. 7	362 111
0913	Enter creek	369 112
0932	Marijuana Plantation	372 119
0940	In creek	372 121
0955	On pagoda	373 126
1010	Morning tea (15 minutes)	375 129
1049	Descent into canyon	376 131
1051	In canyon slot	n.a.
1101	Cave /overhang	n.a.
1112	Great cave overhang	377 132
1120	End of ledge	n.a.
1127	Ramp up	377 131
1157	On pagoda	378 132
1206	Descent ramp	380 135
1225	Great slot, Wolgan Valley view + lunch	380 138
1309	Side E-W canyon	381 137

1312	Waterfall climb	n.a.
1343	At cliff edge	386 142
1348	On Fire Trail No. 6	386 140
1408	On track	385 135
1424	National Park Boundary	380 123
1434	Leave Fire Trail No. 6	377 119
1515	At vehicle	362 111

6.19 Endorphan Gully to Wolgan Pinnacle

Maps etc	Department of Lands Cullen Bullen, 8931–3N, topographic map, 1:25000, second edition, WGS 84.
Walk description and route	Park at the end of Fire Trail No. 7 off Sunnyside Ridge Road and walk on the fire trail to approximately GR 372 133, spot height 1055, then head east into wild pagoda country and stunning views into the Carne Creek drainage. We will attempt to explore the cliffs in detail as far as spot height 1006, GR 381 144 and then on to visit the Wolgan Pinnacle. If it is similar to the cliffs on the Adrenalin Head side we should experience some truly amazing slots and ledges.
Gear issues	GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only). 2 litres of water. Have clothes to change into in the car for afterwards.
Comments	This walk route has been sighted from Adrenalin Head and the south side of Endorphan Gully. It is known to the extent that it is complex and challenging, be prepared for scrambling, exposure and rope work. About 6km. +/- 100m several times is possible.

Date walked 21st May 2013.

The Weather

A day heralding the onset of winter, a windy with 7/8th to total cloud cover at times, temperature range 7 to 13 degrees. Adding in the wind chill factor it felt closer to single digit temperatures particularly in exposed situations on pagodas and cliff edges.

Background Notes

The walk to Adrenalin Head and the Adrenalin Ledge, 6th May 2013 included a visual exposure to Endorphan Gully and the incredible erosion formations, pagodas and cliff lines that were so compelling, a special walk needed to be constructed to explore them.

The catchment area of Endorphan Gully had previously been explored in the upper reaches, walked 28th October 2009, (Gardens of Stone National Park and beyond, Book 6 Walk 6.13, in publication). On that occasion part of the course of the creek in Endorphan Gully had been followed. This walk, today, was all about the cliffs, ravines and rock blades that are such a feature of the western side of Endorphan Gully.

A unique mix of underlying geology and erosion processes has created a gully that presents two very different geomorphologic faces to the observer. The Adrenalin Head, or eastern side is a series of high, exposed vertical sandstone cliffs and slots with softer shale lenses creating walkable ledges of unpredictable length at various levels.

On the other hand the Wolgan Pinnacle, or western side, is a sequence of parallel sandstone blades and ravines that taper on their lower slopes into negotiable rock aprons. The blades are each topped with pagodas of increasing number, complexity and beauty from south to north. A study of the aerial photographs shows a minimum of 20 such 'blades and ravines' stretching from GR 375 128 to GR 383 145.

Track Notes

This incredible place was our playground today. The vehicles were parked at 0840 where a crude barrier of logs marks the end of the drivable road, GR 370 126. There was obvious evidence of trail bike riders ignoring the protocol to keep out of the national park. These unthinking types need to be confined to areas where they can enjoy their 'sport' without wrecking what little pristine country there is left.

In the planning stages I had considered walking the old trail to the first spot height 1055, GR 372 133 before heading east so as to spend more time on the 'good stuff'. A discussion with Yuri, who had been studying the fine detail, suggested that the 'good stuff' actually started much further up the gully. Armed with this information we headed generally east from the vehicles and at 0904, GR 374 129 we had the cameras out early capturing images of pagodas. It only took to 0908 for us to be climbing the first of many wonderful sandstone blades, GR 375 129.

Each sandstone blade is unique and each blade is separated from the next by a ravine that is equally special and unique. Three blades and ravines later, at 0932 we stood high above Endorphin Gully, GR 376 129, where the watercourse has doubled back on itself as a slightly harder band of sandstone has been encountered. Endorphin Gully certainly lives up to its name as the visual and physical stimulus is undeniable.

At 1004, our high points on the very ends of the blades were giving us insight into the real wonders of Endorphin Gully. This gully has to be the basis of yet another walk. The true extent and effulgence only became really apparent when we stopped at GR 378 133 for morning tea. The glowing view below us was one of the best ravines I have ever gazed into.

At least 40m deep and probably more, there are two parallel ledges at different heights, and underneath these ledges there are great hollowed out caverns. Below that again somewhere out of sight there is a watercourse which we could hear but not see. There was a very strong push to change the walk and to go down into this amazing world but given that it was winter and that we had a lot to see on top, the calls were resisted. Have no doubt we will be back, and soon.

During morning tea we looked at a single Eucalypt growing tall from the bottom of the ravine and soaring upwards; its height was estimated at between 40 and 50m. Also tucked away to the south, and impossible to estimate the dimensions, was a vast cavern that we could see only as a dark void. Our eleven minutes stay just seemed to pass in a flash.

Great blades were climbed at GR 378 134, 1045, and again at GR 378 137, 1107. At 1120, GR 378 139, two blades were separated by a ravine that ended at its headwaters as a great 25m high cavern rather than a creek. It looked impossible to cross without

climbing high. Rodney proved it otherwise and in the process demonstrated some amazing tree climbing skills. The rest of us rejoined him on the other side after a more circuitous walk.

Needless to say the views down Endorphan Gully towards Carne Creek just got better and better. At 1158, GR 378 140, the impressive height of the cliffs of Adrenalin Head began to fill the right hand side of our vision. When the sun broke through the clouds the whole cliff face was bathed in golden light. At 1202, GR 380 141, the magic was almost overwhelming. The entire north west face of Adrenalin Head was on show. A 100m high shear face immediately north on the western side of Endorphan Gully signalled the end of the negotiable blades and ravines sequence.

What really got to those of us in the party who had walked Adrenalin Head on 6th May 2013, was looking at the ledge half way down the cliff face that we had walked that day, and just how awesome it would have appeared to an observer where we now stood. This was sensational. Bringing our eyeballs back to the more immediate terrain, we realised we were in a pagoda wonderland.

I counted 10 major pagodas within a radius of 100m. While several of us were keeping our cameras busy, Rodney was exploring the possibilities of finding a route down to the creek bed below. He reported that there was a doable route. This is great news as it means our next walk here can include walking/scrambling down the creek bed and then an ascent to this point, creating a walk of unparalleled beauty, challenge, and all possible within a day.

There is more! At 1234, GR 381 144, we climbed to the top of spot height 1006, that I have named Endorphan Point. It is higher than the Wolgan Pinnacle 350m further north, and has commanding views over the Wolgan Valley including Donkey Mountain, and on the horizon, the conical profile of Tayan Pic. To the east we had views of the long cliff line above Carne Creek. Time now for lunch, enjoying views that too few others have seen.

Lunch over we continued north to Wolgan Pinnacle. This rocky outcrop, 997m, GR 382 148 provides a special viewing platform that includes most of the Wolgan Valley plus the three major finger headlands west culminating in Cape Pinnacle, GR 345 146. Just north of Wolgan Pinnacle is a slot that is a technical climb down to the base of the cliff line. Rodney climbed up and down this slot, Wolgan Pinnacle Slot, twice when we visited this point 27th December 2007. This is documented in a walk The Gardens of Stone National Park and beyond, Book 6. We spent some time enjoying the spectacular panorama views despite the wind and its chilling effects.

Although early, 1325, it was decided to end further exploring and walk back to the vehicles some 2.5km away. Despite temptations to stay low, it is best to climb to the crest of the ridge and keep on the high ground. Once the 1000m contour line has been reached it is then a straightforward walk back, mostly on the former road. The made road was reached at GR 375 137, although a rough pad can be identified much earlier.

The vehicles were reached at 1413. Total distance walked was about 7km and total ascents 427m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0840	Park vehicles	370 126
0850	Start walk	370 126
0904	First pagodas	374 129
0908	First blade climb	375 129
0916	Second blade climb	375 130
0926	Third blade climb	376 130
0932	Blade climb and point above Endorphin Gully	376 129
0958	Another blade climb	377 133
1004	Blade climb and first views into Endorphin Gully caves	378 133
1007	Magic morning tea site on tiny ledge above Endorphin Gully	378 133
1045	Climbing another blade	378 137
1107	Climbing another blade	378 137
1120	Cavernous end to ravine + blade	378 139
1156	Another blade	378 140
1202	Stunning view point + views Adrenalin Head + pagodas	380 141
1234	Spot height 1006, Endorphin Point, lunch 21 minutes	381 144
1306	En route to Wolgan Pinnacle	381 146
1317	Wolgan Pinnacle, 997m	382 148
1336	On ridge	379 144
1353	Intersect with old road	375 137
1413	At vehicles	370 126

6.20 Endorphin Slot and Endorphin Gully

Maps etc	Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park the vehicles at GR 370 128. Walk the fire trail, then the ridge to Endorphin Point (PH 1006). From here, visit Endorphin Slot, then climb down to the big cave seen on a previous visit, and finally and down into the gorge. Explore upstream as far as possible for overhangs/caves. Climb out to the west and return to the vehicles. About 8km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water, GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape and rope (leader).
Comments	Exploratory. Scrambling and exposure. Wet feet and more very likely.

Date walked 24th January 2014.

The Weather

A completely uniform cloud covered sky all day with occasional heavy clouds on the western horizon. On two occasions there was very light drizzle that evaporated almost as quickly as it fell. Temperature range from 16 to 24 degrees. As we were driving out after the walk there was some quite heavy rain but it did not persist.

Background Notes

The complex, interstitial northern perimeter of the Newnes Plateau contains many wonders of nature's handiwork wrought in stone. The walk today revealed a breathtaking selection of geo diversity with examples of water, tectonic, and chemical decomposition exemplified in canyons, slots, cliffs, caverns, pagodas and ravines. The quantum of special sites in a very small area is what makes the Gardens of Stone National Park one of the wonders of Australia, and indeed the world. Endorphin Gully³⁰ is a playground like no other. The Endorphin Slot³¹ within it was discovered and named by Brian Fox. An experience visiting this slot is one never to be forgotten.

Track Notes

To thoroughly enjoy Endorphin Gully fine dry weather is essential. For days the Bureau of Meteorology had been predicting that our chosen day to do this walk would

³⁰ Endorphin Gully is located between Sunnyside Ridge, (Fire Trail No. 7) and Adrenalin Head, (Fire Trail No. 6). It rises on the spine of Sunnyside Ridge at GR 368 101, and flows north to join Carne Creek at GR 392 150. Named by Michael Keats on a Bush Club walk 6th May 2013. Cullen Bullen Topo Map.

³¹ Endorphin Slot is located 1.1km SSW of the Wolgan Pinnacle on the western side of Endorphin Gully. This very narrow slot is just 30 to 40cm wide. Its smooth vertical walls are up to 20m in height and has a length of 30m which includes a right angled bend. Named by Brian Fox on a Bush Club walk 20th June 2013. Cullen Bullen Topo Map, 379 138.

be wet and so a plan B was ready. Even on the day the forecast was still dire and we were resigned to deferring the visit. At Clarence, the last point for a decision it was decided to take the risk and just to it.

At 0855 the caravan of vehicles was parked on Fire Trail No. 7 off Sunnyside Ridge Road at the national park boundary, GR 320 126. After a briefing on the known challenges the group set off walking along the track extension of the Fire Trail. The track turnoff to Sunnyside Point, GR 375 136 was noted at 0920. Beyond this point the old track rapidly deteriorates and once it crosses a cluster of pagodas, GR 377 140, it virtually disappears. This pagoda grouping is high enough for good views north to Donkey Mountain and west to Cleft Point.³²

At GR 377 141 there is one of life's mysteries, a constructed wooden seat with a reasonable but not spectacular view south east over Endorphan Gully towards Adrenalin Head.³³ Beyond this location heading north the terrain is spectacular and the views extra special. At 0937 there is a natural rock formation that looks very like a horse, GR 378 142. Yuri climbed to the top of it and posed as a cowboy cracking a whip. The realism was amazing.

By 0950, we reached Endorphan Point,³⁴ a truly outstanding viewing platform at 1006m on the cliff edge, GR 381 143.

The views east are of the cliffs of Adrenalin Head including the spectacular Endorphan Channel³⁵ descent. Our position allowed us to view the lateral ledges that extend both north and south from the channel about half way down the cliff face. It was a sobering moment to realise that we had already walked these narrow ledges with their attendant exposure.

Descending we headed more or less south climbing a massive blade of rock topped with pagodas, GR 380 142. Positioned on top of this blade gave a closer and even more graphic view of the Endorphan Channel. Our next stop was atop another blade at GR 380 140. It was now 1027 and definitely time for morning tea. After morning tea we headed east and enjoyed absolutely stunning views north of the cliffs under

³² Cleft Point a very deep, narrow cleft, located between Cape Pinnacle and Wolgan Pinnacle. Named by Michael Keats on his Bush Club walk 18th July 2007. Walking access via Fire Trail No. 8 off Sunnyside Ridge Road. Cullen Bullen Topo Map, 362 150.

³³ Adrenalin Head is the prominent headland located at the end of Fire Trail No. 6, south of the Wolgan Pinnacle and between Endorphan Gully and Adrenalin Creek. It is characterised by massive vertical cliffs up to 116m high and partly negotiable benched ledges. The highest point of the headland is at GR 384 137.

³⁴ Endorphan Point is a high viewing location with expansive views over the Wolgan Valley, including Donkey Mountain. So named by Michael Keats on a Bush Club walk 20th June 2013 after the gully below, Endorphan Gully. This point is shown as a spot height of 1006m on the Cullen Bullen Topo Map, 381 141.

³⁵ The Endorphan Channel is 50cm to 1m wide and descends like a staircase through about 30m of vertical height. At about 20m down, a side canyon empties into it by way of a short waterfall with a delightful, shallow pool at its base. This is a gem of complex geomorphology that thankfully lies within the Gardens of Stone National Park. The Endorphan Channel has a landing area where it intersects with the basal cliff ledge.

Endorphin Point with their deep sculptured caves, ironstone ledges and impossible to photograph vertical displacement. This was at GR 380 141.

At 1055 yet another blade was climbed and yet another viewpoint was enjoyed of the wonders of this area, GR 379 139. Walking across a descending apron of sandstone with exposure to the gully below, we arrived at one of the most unusual phenomena of the area, the Endorphin Slot. From the top it appears just as an east west crack in the rock. When you stop and look closely you realise that this is not just an ordinary crack. It is a deep, very deep parallel sided, dead vertical crack of great proportions, possibly caused by a fracture and then horizontal block gliding away from the main cliff line. It is also very narrow and surprisingly it is negotiable.

Dropping our packs and armed with cameras, Brian, who had been here before along with Yuri and Anne, lead us down the sandstone apron to a dog leg adjoining slot that provides access into the main slot. The entry requires some skills in the balance department as the void below has to be stepped over using rather pointed rocks, some mini ledges, leg stretches and a good deal of self control. Beyond this point there is a short level area before hard choices have to be made. Choice 1 is a haul yourself up climb while choice 2 is a tummy crawl with very little clearance followed by a self dragging climb into the slot proper.

The slot is narrow varying from 30 to 40 cm. The floor is uneven and includes two short drops. The experience is unique and demanding. While we all made it into the centre of the slot, Yuri stayed up on top to take pictures before coming to join the party. The slot ends at its western point with a drop off, however there is a small platform where two or three can huddle and tiny embrasure that also holds two if you are prepared to cuddle up.

There are no points within the slot where you can pass, so agreement about what everyone is doing and when is crucial. The Endorphin Slot is a 'bucket list' item for every bushwalker who loves the Gardens of Stone National Park. In an elated state we finally exited the slot at 1131.

Next on our agenda was to descend into Endorphin Gully and see whether we could actually explore its mysterious depths. We knew from walking amongst the pagoda topped blades and peering down into the gully at various points that it was very deep and that there were large caverns and possible hidden canyons and waterfalls.

Heading upstream on the western side a systematic approach was taken to seek the first possible way down. Each blade was checked out to see whether there was a chance that entry was possible. At 1139, GR 378 139 we stood in awe looking down into a vast amphitheatre with drops beyond our capabilities. At 1155 we stuck like limpets to the face of a big pagoda, edging our way around some 20m using the narrowest of footholds and a few 'maybe' handholds. The next headland blade at GR 379 138 provided a view north to the faint vertical line that marked the western end of the Endorphin Slot. From this distance the thought of being able to access it looked an impossibility.

We kept pushing south, checking each potential option. At 1235, GR 378 135, Yuri and Brian reported that we had a break through. An extensive, just walkable in an

upright position sandstone apron which descended about 40m appeared to give us the access we needed. It certainly took us down through the first level of cliffs. The end of the apron descent resolved into a shallow watercourse with a small blind headland of rock blocking further vision. The other side of this headland was one of the largest caverns in the Endorphan Gully. Sadly the floor is a 45 degree slope, however the rest of its architecture is stunning. It has a domed ceiling 30m across, richly coloured with orange red sandstone swirls and ironstone bands. It is a classic example of dry cavernous weathering. A photograph taken by Keith of Yuri shows him dwarfed by the magnitude of the void space.

A near horizontal ledge to the south, GR 378 134 provided just enough seating for the group for lunch. What was next? Brian did a small recce while we finished eating and reported back with good news and bad news. The good news was that the ledge went for about 50m more and the bad news was that it terminated in an impossible drop off. Leaving our packs we all went to view this place and were duly impressed. Returning we picked up our packs and head down towards the bottom of the gully where hopefully we could descend into the creek and then make a progress up it.

Luck was on our side. Endorphan Gully at this point has cut through some soft sandstone bands and has incised itself into a two metre deep channel. We were able to pick a site where there was enough vegetation to cushion our drop into the channel. We would worry about getting out later on. The creek bed at this point was choked with huge dead logs and rafts of debris most of which was unstable. After fighting through this for a short distance the character of the channel changed. Suddenly there were strands of sand and gravel, glorious Soft Tree Ferns, *Dicksonia antarctica* and the two metre high banks became 5m high sculptured canyon walls. The relatively straight channel became a contorted maze, the light level dropped and pools of water appeared.

This place was totally glorious and for nearly 100m we enjoyed the canyon, GR 378 133. This wonder ended with an enclosed 3m waterfall with a 1m deep pool in front of it. The enclosure was the result of a great rock tumble. Could we get out and continue or did we have to return? There were two possible climbs that were within the ability of Brian and Yuri to negotiate. If they could find a suitable anchor point to secure a rope then we could all go to the next level.

A healthy specimen of the Possum Wood Tree, *Quintinia sieberi*, was pressed into service to be an anchor point for the rope. One by one and with varied levels of mutual assistance we made it up to a small platform. From this point we crawled around the back of a tiny overhang and then cross a debris pile before climbing up a steep angled rock on the western side with few traction possibilities. Yuri managed to negotiate the rock and set the tape by using a small but suspect dead tree. Again we all made it up this rock and then beyond to a shallow overhang.

Always keen for more action, we crossed back down into the creek crossing a huge block up using a couple of jammed logs as a pathway. Beyond the crossing there is a large cavern, GR 378 132 on the east side that has its own built in balcony. The views downstream are of more caves and caverns at different levels.

After inspecting the cave we descended into the watercourse once more. At the point of crossing it is a benign little stream that you can cross with one leap in perfect safety. Spotting another cave on the western side of potential interest we clambered up over a few logs and entered an overhang. South and next to this overhang there is a succession of three wonderful, deep unequal embrasures that have voluptuous curves both within each one and also as the connecting walls between them. Great photos were taken of these examples of cavernous weathering with a person in each embrasure. This was at GR 377 132.

Leaving these natural monuments we returned to the watercourse and another area of great boulders blocking the way. Staying in the stream we made about 50m of progress before we were confronted with a swim option if we wished to continue. This was at GR 377 131. We retreated some distance to GR 377 130, consulted the maps, reviewed the contours and the time, 1434, and decided that we would take the easy option and walk along the eastern side of the watercourse on a sequence of rock platforms, and when nearly opposite the position of the vehicles, cross the waterway and climb straight up to the fire trail.

The eastern bank walking was easy and at 1448 the waterway was crossed, GR 374 128, noting that it was a small shallow pool with a dry crossing option. Endorphin Gully sure has many different aspects. The fire trail was reached at 1502, GR 371 129 and the vehicles at 1510. Total distance covered 10km, total ascents 360m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0855	Park vehicles on national park boundary	370 126
0905	Commence walking	370 126
0920	Track junction	375 136
0929	On ridge with views	377 140
0932	The seat	377 141
0937	Yuri rides the horse rock	378 142
0950	Endorphin Point	381 143
1006	On a blade with pagodas + view	380 142
1027	Pagoda view + morning tea, 9 minutes	380 140
1048	Pagoda ledge	380 141
1055	Stunning view	379 139
1101	At Endorphin Slot, 30 minutes	379 139
1139	Above the amphitheatre Cave	378 139
1155	Challenging ledge walk on pagoda	378 139
1202	View back at Endorphin Slot	378 138
1212	Seeking a way down	378 137
1235	Descent apron	378 135
1240	Great overhang and lunch, 22 minutes	378 134
1307	Exploring a ledge and return to GR 378 134	379 133
1313	In canyon	378 134
1327	Exploring the canyon to waterfall	378 133
1330	Rope and tape ascents	378 133
1405	Cavern on east side	378 132
1414	Cross creek + caves with embrasures	377 132

1427	No go deep pool + retrace to GR 377 132	377 131
1434	Climb out on east side	377 131
1439	Walking on rock platform	377 130
1448	Cross Endorphin Gully creek and climb west bank	374 128
1502	On track on ridge	371 129
1510	At vehicles	370 126

6.21 The Infinity Caves and Endorphan Gully

Maps, etc.	Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park the vehicles at GR 370 128. Walk the fire trail, then the ridge to GR 378 142, then turn south, south east and continue to about GR 379 141.5. From here, find a way to descend into Endorphan Gully. Explore upstream for overhangs/caves until the canyon section. Climb out to the west and return to the vehicles. About 8km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	Exploratory. Scrambling and exposure. Wet feet and more very likely.

Date walked 3rd February 2014.

The Weather

A fine clear, dry morning with some light early mist resolving into a brilliant sunny, hot day. Temperature range 14 to 29 degrees. Up to 33 degrees in the sun.

Background Notes

The ravines between the major finger peninsulas of the Newnes Plateau projecting into the Wolgan Valley are blest with some of the finest geomorphology in the entire Gardens of Stone National Park. The ravine we now know as Endorphan Gully is overly endowed. The number of documented walks in and around this particular ravine is indicative of the richness of features.

This walk is about trying to visit a series of five near inaccessible, huge, orbicular overhangs on the western side of Endorphan Gully subtended beneath towering rock blades capped with pagodas.

Track Notes

An early start had the vehicles parked at the national park boundary at 0759 and the group eager to discuss the briefing and get walking. At 0812 we set off quickly covering the old fire trail extension to the forked junction at GR 375 136 by 0827. By 0839, GR 377 141, we were atop the pagoda crest of the ridge where to the west there are stunning views over the Wolgan Valley. The early morning light was crystal clear, a rarity for this time of the year.

At 0845 we reviewed our position, GR 379 143, and then headed south east along a pagoda blade to GR 379 142. The terminus of this pagoda provided a view north east

down Endorphin Gully towards Carne Creek, the vertical cliff face of the western edge of Adrenalin Head framing a classic view.

We now climbed across and out towards the stepped edge of the pagoda. The void below was awesome. Down we went with Yuri and Brian in the lead. Where the rock ended, about 30m down there was a hidden, very narrow tight slot with two small drops made negotiable by dead branches. These creaked and moved during descent. Below this point was a small section of *Leptospermum* forest followed by a narrow log filled ravine about a metre wide and 40m long. At the end of this a level area ended in a drop of non negotiable proportions. Brian and Yuri set a tape, GR 380 140 and Brian even descended about 4m before discovering that there was an undercut below the end of the tape. We retreated conceding that this was not going to work.

By 0931 we were back on top of the pagoda, GR 379 140. We now moved south a few metres to the southern side of the same pagoda blade and at 0939 began testing another slot. Again Brian and Yuri took the lead. As we were strung out along the descent route, Brian came back and said, 'just hang there while we test a couple of key slots.'

This created something quite unusual with Geoff and Dave sitting on the top of the descent, Hodaka perched in the fork of a tree, myself clinging to a non-existent rock ledge about half way down a rock face, while John and Keith were camped at the base. We stayed in this mode for about ten minutes. Believe me it was a long ten minutes with plenty of time to think, enjoy the view and contemplate the meaning of life.

Finally there was a call of a positive breakthrough and we descended. This unique descent required an immense concentration of the mind and discipline of the body. A steep rock apron was followed by some precarious ledge walking that ended in a displacement cave. I do not know how else to describe it. This cave has been formed by a very large suspended sandstone slab splitting horizontally and the lower section dropping leaving a level, perfectly parallel sided space about 1.8 metres high and 4m deep. There was more to it than that. About midway across the floor of the cave it had fractured leaving a gap to be crossed that required good balance and self control. Brian used his amazing agility and strength to provide an essential pivot point.

Across this gap the level area was deeply shaded, and as it was now 1000, chosen as a good place to have morning tea. Location, GR 379 139. Views to the north east were framed as you would experience from a bunker, a confined horizontal view of the world that we expect very few people if any have ever seen.

Morning tea over after fifteen minutes we continued walking along the ledge beyond the cave. The ledge did not persist and ended in a slot. No ordinary slot, rather a slot like the entry into a tomb. It was very narrow and featured a vertical chock stone that you needed to hang onto as you descended. It is probably not a reversible slot. It took a while for us all to negotiate and then resume walking on a lower ledge.

The way forward was now around the base of yet another blade like structure complete with a pagoda topped crest way above us. Rounding the low point we sighted the wall of the first of the great spherical spaces that we had come to see.

While climbing through heavy vegetation to reach the base of the cliffs my watch band was ripped from my arm breaking the connecting link. Fortunately, Hodaka saw it happen and the watch was saved.

By 1020, GR 379 138 we had reached the level floor of the first major overhang. These great overhangs we had seen from above during the walk done 21st May 2013. Now we were down looking up at a truly astonishing example of cavernous weathering³⁶. Young et al, contend that the processes that form these vast caverns are chemical rather than mechanical. Indeed a study of the interior rock surfaces shows no sign of water as an erosion agent at all. Where water activity is observed it is outside the cavern or confined to superficial cavern lip staining, or as observed in one cavern, small weep holes that are surrounded by extended halos of leached and deposited salts.

Immediately adjoining this first cavern with its 20m vaulted ceiling, is another cavern, possibly the second largest of the five huge caverns in the entire sequence. This cavern at GR 378 139 has a chord measurement across the opening of over 40m, a depth from the drip line of 13m and a height of over 25m. The magnitude of these caverns is overpowering. We spent 8 minutes in this space, taking photographs not only of the cavern but also the huge Eucalypts that it protects within its extended podium.

We did not have to cover much distance but rather clamber up and down various ledges that often cut out, and then required back tracking to a lower level one before we reached the next cavern at GR 378 137. This cavern is big by any standard. Perception wise it is the largest of the five caverns. This is in part due to the encircling nature of the terminal arms that merge into the base of the flanking, towering rock blades. The enclosed spherical space is 60m in diameter and about 30m in height and width. If you imagine the space as a hollow sphere it is all there except for a wedge of about 90 degrees. This is another space of awesome magnitude that caused us to just sit in wonder.

At 1123, we left this place and moved south along a ledge that ran out at GR 378 137. Here we were forced to reverse and descend, not once but twice in order to negotiate the very precipitous drops that characterise this place of wonders. At 1145 we climbed a long slope that led to a two storey cavern, GR 378 136. This cavern is really in three parts and was so grand we decided to have lunch and then spend time exploring it in some detail. Between the two storey northern annex and the central cavern there is a climbable blade that was explored by Brian and Yuri. This blade enables surefooted walkers to access the second storey of the annex cave. It also provided a location for memorable photographs of the rest of the party as diminutive Lilliputians' within the vastness of the space. Dimensionally the large central cavern is 60m wide, 30m high and 20m deep.

It was 1235 when we left and very warm. As we had achieved all of our planned objectives we set out walking ledges looking for a known exit point about 200m further south. It came as a real surprise at 1243 to find that at GR 378 135 there is a

³⁶ Young, Robert W, Wray, Robert A L, and Young, Anne R M Sandstone Landforms Cambridge University Press 2009, pp 143 -146

veritable staircase leading up the nose of a blade. From the top looking down this is not obvious and although it is a relatively easy exit up, coming down unless you found the exact spot would be difficult. Including the climb and going to the top of the blade took 7 minutes. It is not a place to consider using if the rocks are wet.

By 1259 we reached the old fire trail at GR 373 134. The vehicles were reached at 1315. Walk length about 5km. Walk ascents about 300m. These figures are subject to revision as both GPS units were giving trouble.

Endnote

This walk is definitely for strong, adventurous, surefooted walkers. It should not be attempted without correct gear, detailed aerial photographs and a total commitment to safety.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0759	National park boundary	370 126
0812	Commence walking	370 126
0827	Sunnyside Point track junction	375 136
0839	Old seat and view point	377 141
0845	Northern most point of the walk	379 142
0853	On pagoda	379 142
0906	Descend pagoda face into ravine	380 141
0916	Thwarted and commence retrace	380 140
0931	Back on top of pagoda	379 140
0939	Commence second descent	379 140
0948	Short hiatus	379 139
1000	Morning tea in cave, 15 minutes	379 139
1020	Slot descent with chock stone	379 138
1023	Circling under cliffs	378 138
1027	In first cavern	378 138
1035	In second cavern, 12 minutes	378 137
1100	Retracing and descending	379 138
1110	In third cavern, 15 minutes	378 137
1123	Ledge walking and retrace x 2, 10 minutes	378 137
1145	Two storey cavern, (fourth)	378 136
1207	Fifth cavern + lunch + exploring 28 minutes	378 136
1243	Exit route up blade, 7 minutes	378 135
1259	On old fire trail	373 134
1315	At vehicles	370 126

6.22 The western side of the Adrenalin Gorges

Maps etc	Department of Lands: Cullen Bullen, 8931-3N, topographic map, 1:25000, second edition, GPS setting WGS 84. Various aerial photographs.
Walk description and route	Park on Sunnyside Ridge Road 376 093 then follow an old track north east, then south east, descend a ridge to a creek at 384 100, very steep, convoluted and wild. Cliffs to 50m. Explore wild terrain and canyons. There is a section of the map from GR 385 126 to GR 388 130 where the cliffs are 116m and the contours are omitted. We will try to explore this. Return via a creek at 383 110 and then upstream under 35m high cliffs to link up with a track at 384 100 and back to the vehicles.
Gear issues	GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and 30m tape, (leader only). This is spring/summer, have clothes to change into in the car for afterwards. 2 litres of water.
Comments	Some rock scrambling and tape work may be involved. Lower body parts may get wet. Expect to be challenged.

Date walked Monday 26th November 2012.

The Weather

A very warm to hot day with total cloud cover most of the time, humidity levels were most unpleasant from 1100 onwards. At Mount Boyce weather station to the south, they peaked at 66% at 1500. Temperature in our section of the Newnes Plateau ranged from 17 to 32 degrees with higher levels of humidity being experienced earlier. All exertion was energy draining. Driving out there were several short, sharp showers of rain.

Track Notes

A major issue for discussion during this walk was about the process or processes that result in the formation of huge hemispherical, or almost completely spherical caverns found in the sandstone cliffs of the Adrenalin Gorges. The following information is extracted from the definitive Australian work by authors Young, Robert W, Wray, Robert A L and Young, Ann R M, Sandstone Landforms, 2009, pp 143 -146.

Cavernous weathering

"...solutional weathering is an important process in landform assemblages shaped by mass failure and stream erosion. Many sandstone landscapes have stepped slopes, where long walls of cliffs alternate with gently sloping benches. On benches that are not completely covered by soil or vegetation, and in stream beds, a fascinating array of small-scale landforms characterise the rocky outcrops... the processes that form these small features vary, but it is our contention that chemical – rather than mechanical - weathering is almost

invariably the dominant agent. On cliff faces, the most common features are pits and caverns. Caverning is also widely known as tafoni, a term derived from a Sicilian word for window, because growth of the cavern into a block may lead to breaching of the block's surface... In some cliffs, large expanses of rock show surface weathering and hollowed out caverns of metric dimensions... Cavernous weathering is probably as characteristic a feature of sandstone as fluting is of limestones, but it is certainly not uniformly or universally developed... Thus rapid (water) flow down joints and through very porous strata appears to promote seepage emergence along bedding planes whereas slower percolation may promote caverning of cliff faces... Howard and Kochel (1988, p. 27) made the perceptive comment that a 'surface protected from surface runoff is a necessary condition for tafoni and alcove development'. Where surface wash crosses an outcrop, there is no cavernous weathering.

It is the movement of water through the rock that initiates and expands caverns. It has long been recognised that active weathering within caverns involves disintegration of the rock, so that loose grains fall from the surface and accumulate on the floor. There is great variety of form, but consistently, the outside of the caverned area is more coherent than the inner surface

Debris may be (but often is not) removed by wind, and - contrary to popular opinion- sand blasting is not the means by which caverned niches are formed (Blackwelder, 1929)... Many caverns have friable plates of rock projecting from the interior walls, especially where weathering has concentrated along cross bedding planes. Many also have small tubes puncturing the rock on the back walls, patches of honeycomb weathering on the interior walls and a relatively hard lip or overhang at their entrances.

Expansion of caverns up into the rock mass led some workers (e.g. Dragovich, 1969; Turkington and Paradise, 2005) to suggest that the microclimate within the cave is an important factor."

A summary of the processes of caverning is given on page 152

"Caverns hollow up into the blocks in which they are initiated, not because of the cavern microclimate, but because of the inter-related high permeability and high rate of weathering in the boulder interior. It is seepage through the rock - not expansion forces in the pores of the rock near the rock surface that is responsible for cavernous weathering. The role of permeability is also indicated by the fact that caverns are preferentially developed in the conglomeratic or pebbly beds in upwards fining sandstone sequences, or above bedding planes in sandstone of more uniform texture. Within caverns, it is indicated by preferential erosion along cross bedding planes. In some cases, erosion of low deep caves may cause collapse of the caverned block... Extension of the cavern occurs by granular disintegration of the active surface after solutional weathering has destroyed interlocking and cementation within the micro-framework of the sandstone."

The Newnes Plateau contains some amazing wonders and the walk today revealed a few more of them to us. I have walked in this general area before, 8th November 2006, but not really been attuned to 'seeing' what I was looking at. Today, seven pairs of eyes critically scanned every feature, and so we saw more than the average walker would see in the bush.

Track Notes

At 0835, we set off down an old unnumbered, forestry access road, located east of Fire Trail No. 6 that has a link road to the east with Birds Rock Trail No. 1. At a 'Y' junction, GR 377 095, we headed NNE down a much harvested ridge for pit props, before swinging more to the east towards a creek network that rises on Birds Rock Trig.

The topographic map shows a contiguous cliff line with a relative height of 35m for over a kilometre. On the ground this is not a bare rock cliff, rather it is a very steep, fully vegetated extreme slope covered in a variety of ferns. Where we breached this cliff line at its southern extremity, it was also a hanging swamp. Disconcertingly and not shown on the map is the rocky cliff line on the opposite bank.

At 0915, GR 384 101, we walked out along a short string of rounded pagodas to obtain a view downstream. What was revealed was a narrow, almost parallel sided ravine with cliffs, according to the topo map of 52m. The convolutions of the cliffs, the creek and fine detail of the area led us in and out of one amazing hemispherical cavern after another.

At one point, we climbed high to see whether a high level cavern had any depth, GR 382 102. It was spectacular, but a bit of a disappointment. Coming down from this we spied across the creek on the eastern side, a very large dark opening. It was now 1000. What we had stumbled across is one of the best and largest examples of cavernous weathering on the Newnes Plateau.

This cavern, at GR 383 105, is of stupendous and near perfect spherical proportions, 30m x 30m x 30m. That is 30 metres wide, 30 metres high and 30 metres deep. The back wall has an outline of a near perfect cupola and a large fallen rock is centrally disposed and elevated. The 'floor' has a rake of about 30 degrees, is sandy and has areas of duri crust, a product of secondary weathering. On Yuri's suggestion, we called this magnificent void the Cathedral Cave.

This was a place to spend some time and to have morning tea. Leaving was hard but there was more to explore and discover and so it was that at 1035 we were climbing high up the cliffs on the western side of the creek to check out another less developed example of cavernous weathering. This was at GR 383 106. If we had not been in the Cathedral Cave, we would have gone into raptures.

Descending, we stayed close to the base of the cliffs as we headed north. We were very much aware that by doing this we had missed viewing some very interesting terrain on the eastern side of the creek, a good excuse to come back. Our cliff line began to run out as another tributary cut in from the west. Just east of the confluence of these two tributaries there was an old bike track, GR 382 109. As this track was

heading north, the direction we wished to go, we followed it for some 300m, when we gained a view of a cliff line that we knew contained some more caves, slots and other interesting features.

Crossing the creek was through a fern filled flood plain with an over canopy of *Leptospermum*, GR 382114. The running creek was less than 60cm wide and easily crossed. As was our usual practice, we headed for the base of the cliffs where the walking is most of the time easier. At 1157, we entered a small, compact, tight cliff surrounded valley that at one of its several sub tributary branches contains a deep, very narrow, shaded slot.

The slot is within cliffs that rise 35m and cast deep shade over a presently dry pool. The view of the sky above is fragmented by several small chock stones that divide the entering light into multiple shafts. It is too narrow to negotiate however; underneath it provides a relatively cool and pleasant respite area within a sandy floored cavern. We left our packs here to venture further north and do more exploring. We would return here for lunch.

At the same level as the cavern, there is a ledge about 2m wide that leads to another much bigger, expanded slot, GR 382 117. My impressions when I visited this slot six years ago are still valid

"Circling the western cliffs of the valley to the north and climbing a few metres we entered a huge and cavernous eroded area. Slot is not quite the right word. A cavern is best description. The mouth was tapered from both the top and bottom giving a rough pinched diamond shape to the aperture. The cavern widens inside and the floor rises rapidly towards the back, some 40m in from the opening.

There is almost a staircase of fallen rocks leading right up to a slot where there is a good amount of light shafting down from above. Again, our efforts to climb out at the top were thwarted, this time by a single rock facing outwards. Looking back down into the cavernous chamber was an experience with that almost stellar opening".

As well as the foregoing notes, it is worth recording that this cavern like opening has easy access level balcony areas on both sides that enable stunning photographs to be taken. To make the experience even better a cool breeze was blowing. This was such a wonderful place to be. Twenty minutes passed by very quickly.

Leaving this naturally air conditioned place was hard, but our packs were elsewhere so we returned to the dry pool at the base of the other slot and settled down in the relative cool to have lunch. During lunch, I noticed an amazing and very creative spider web. The spider had anchored the mainstay of the web onto the cave roof at a single spot, and then spun radiating threads of web to a curved stick. The effect was of a modern lampshade.

At 1240, we relinquished our cool spot and began walking once more. Over lunch, we resolved that as the combined effect of heat and humidity was so oppressive we would

make our way out. There was so much more to see that we will have to schedule another walk, possibly two more in order to fully appreciate the glories of this area.

At 1258, we had ventured through a series of parallel sided sloping slots between very large boulders. These were quite unusual as orchids and epiphytes had selectively covered alternate rock faces. Great photo opportunities.

What happened next, at 1300, was almost unbelievable. We ventured under a huge fallen, hollowed out rock that had created a natural shelter. The roof height was such that we could stand up easily and move around. The floor was dead level, cool and dry and it was protected from the elements. Most amazing of all was a flat stone in the near centre of the cave that was a grinding stone, it was fine grained, smooth and showed the effects of years, if not generations of use. We had found an Aboriginal habitation site of some significance. It was close to water, and near to other features that would have been of ritual or cultural significance.

This walk had now yielded some truly wonderful revelations. After fully recording all the details and taking many photos, we moved on, almost forgetting the heat and humidity. We were euphoric, but there was more.

Sticking close to the base of the cliffs, we followed a very rough animal pad that took us into a long, curved overhang at GR 380 113. It had no particular features except it was very pleasant and terminated in a small stack of rocks and then took an abrupt 90 degree turn into yet another truly amazing and different place, GR 379 112.

Therefore, it was, at 1328, we entered an overhang that was not spherical, but rather blocky in nature. It was over 30m wide, 20m high and 20m deep. The big difference was that the floor of the overhang comprises several very large blocks that had crashed down from the ceiling.

It was soon after this that all our amazing experiences of the day started to catch up with us. When we sat down to have a drink it was hard to get motivated and get going again. Our lethargy was such that we just wanted to get out and enjoy some relief from what were increasingly oppressive conditions.

The tight valley beyond the big overhang rose up gently towards spot height 1058 and seemed a good way to go. Yet, in doing this we stumbled into another experience that made the walk noteworthy.

At 1346, GR 378 14, we were in the middle of an old, run down, but very sophisticated marijuana nursery and watering system. The site had been carefully thought out and six successive water tanks installed in what was the creek bed. Each tank was about a cubic metre in size and lined with black plastic. Two wire and fishnet enclosures, about 2m x 2m x 2m held plastic pots while hundreds of collapsible plastic pots were scattered around the site. Two bundles of bamboo stakes were on hand to support advancing plants. A couple of old plastic milk crates, dated 1996 were also found. The plantation has been derelict for some years.

At 1401, we headed due west up the slope towards Fire Trail No. 6, just wanting to get onto some easy walking for a while. The road is not quite on the ridge top that was

reached at 1410, GR 376 115. After two minutes of bush bashing we linked up with the road, had a big drink and then kept walking.

Just to make our day complete we disturbed a young Lace Monitor, *Varanus varius*. It had chosen poorly a tree to climb. The tree was a dead one and only about 3m high. The photographers had a field day as the Lace Monitor had nowhere to go, with us standing around the tree like the points of a compass, all the monitor could do was stay absolutely still and pretend to enjoy it. This was at about GR 376 112.

At 1422, a bike trail heading due south seemed like a good option to cut off about two kilometres of road walking. We followed this track through the bush for about 700m before it changed direction and headed north. A quick check with the map showed another road was only 150m to the south east. We headed across country and linked up with it at 1448. The vehicles were reached at 1500. For the record, the car temperature in the sun was recorded at 42 degrees. The total walk distance was 9.43km and the total ascents 363m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0835	Vehicles	376 093
0843	'Y' junction of old roads	377 095
0855	Head east	380 097
0857	In harvested forest	382 100
0902	Descend hanging swamp	384 100
0915	End of pagoda string	384 101
0924	Descend cliffs	383 102
0941	In overhang	382 102
1000	The Cathedral Cave + morning tea 15 minutes	383 105
1035	In high cliff overhang	383 106
1054	Below cliff line	383 108
1105	Bike track	382 109
1115	Leave bike track	383 113
1122	Cross creek	382 114
1137	Exploring side gully	380 116
1150	Exploring slot and pool	381 117
1155	Exploring canyon	382 117
1220	Return to slot and pool + Lunch 20 minutes	381 117
1258	Aboriginal occupation site and grinding rock	n.a.
1320	Explore an overhang	380 113
1328	Exploring huge fallen block overhang	379 112
1346	Marijuana plantation	378 114
1401	On ridge top	376 115
1412	On Fire Trail No. 6	376 115
1415	Varanus varius sighting	376 112
1422	Take bike track short cut	375 110
1455	Leave bike track and head south east	376 103
1448	On old stub road	377 102
1500	Vehicles	376 093

6.23 Adrenalin Ledge Traverse

Maps etc	Department of Lands Cullen Bullen, 8931-3N, topographic map, 1:25000, second edition, WGS 84.
Walk description and route	Park at the end of Fire Trail No. 6 off Sunnyside Ridge Road and walk on the fire trail to GR 386 136, then turn north west and drop underneath the cliff line at GR 381 139. Follow the cliff line around in a clockwise direction, through spectacular scenery, to around to GR 382 120, within Adrenalin Creek. Exit up the gully to the cars.
Gear issues	GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only). 2 litres of water. Have clothes to change into in the car for afterwards.
Comments	<p>On a recent walk, we did a part of this traverse starting at the exit point and finishing at GR 389 133 due to lack of time (the purpose of that day was to explore other things). We found the scenery absolutely stunning, and to our surprise, the Adrenalin Ledge kept going. Today, we will be starting from the other side of Adrenalin Head and will try to link with where we ended up before.</p> <p>This is totally exploratory and it may not work. If it does, it will be amazing. If it doesn't, I guarantee we will still have a great day out. Scrambling and exposure. About 8km.</p>

Date walked 6th May 2013.

The Weather

A glorious late autumn day with local areas of frost in the morning developing into a bright sunny day with occasional small patches of cloud, walking conditions were pleasant but very cool to cold in areas of shadow, temperature range from 8 to 12 degrees.

Background Notes

Adrenalin Head³⁷ is the blunt, round ended headland between the mouth of Adrenalin Creek and the mouth of Endorphin Gully³⁸. It is rarely visited and even less explored along the benched ledges below the massive cliffs. The attempt to walk the ledge continuously was thwarted by a quirk of geomorphology, however the sections successfully explored on this walk are spectacular.

³⁷ Adrenalin Head is the prominent headland located south of the Wolgan Pinnacle and between Endorphin Gully and Adrenalin Creek. It is characterised by massive vertical cliffs up to 116m high and partly negotiable benched ledges. The highest point of the headland is at GR 384 137.

³⁸ Endorphin Gully is located between Sunnyside Ridge, (Fire Trail No. 7) and Adrenalin Head, (Fire Trail No. 6). It rises on the spine of Sunnyside Ridge at GR 368 101, and flows north to join Carne Creek at GR 392 150.

The walk plan called for vehicles to be parked at the locked gate on the Gardens of Stone National Park boundary at GR 380 123, then, walk along the old access track to approximately GR 386 136 where we would head off down a ridge to the cliff edge, dropping down to pick up a bench in the cliffs formed by the more rapid erosion of the Mount York Claystone band. The intention was to then follow this band in a clockwise direction as far as possible.

Track Notes

Following a thorough briefing session at 0823, the group set off at a brisk pace reaching the takeoff point from the old road, GR 386 136 at 0842. From this point it was an easy walk through open forest dotted with several species of *Persoonia*, (*P. lanceolata*, *P. levis* and *P. linearis*) in the understorey. At 0857, GR 383 139 we stood on an isolated pagoda which commanded stunning views north down Endorphin Gully and north east to the Wolgan Valley. There was no immediately obvious way of route down through the top cliff line.

Several adjoining pagodas were successively climbed and ways down from them tested. This happened at 0905, GR 382 141, and again at 0917, GR 382 139. At 0928 a bewitching and deep descending slot was located GR 382 139. This slot named the Endorphin Channel is some 60m in length and the controlling fault line trends north west where it's continuation on the north side of Endorphin Gully can be seen as a cleft in the cliffs.

The Endorphin Channel is 50cm to 1m wide and descends like a staircase through about 30m of vertical height. At about 20m down, a side canyon empties into it by way of a short waterfall with a delightful, shallow pool at its base. This is a gem of complex geomorphology that thankfully lies within the Gardens of Stone National Park. The Endorphin Channel has a landing area where it intersects with the basal cliff ledge. From here we could explore northwards along the ledge as far as, GR 381 140 where the ledge terminates in a non negotiable drop. The views and the cave behind the ledge at this point are stunning.

After a retrace to the landing area, and contrary to envisaged plans, we pushed southwards, anti clockwise, along a ledge. This ledge changed character several times as it wended around the cliff constrictions of Endorphin Gully. The comment was made that a further walk to explore the north western cliff line of Endorphin Gully is a must as it is even more convoluted and incised with great features than the southern side.

At 1011 we entered a slot and gully complex, GR 380 137, from the ledge. This slot first broadens into a cavern, and then continues as a canyon before breaking out into a negotiable way of route back to the ridgeline of Adrenalin Head. After a good explore around in this area, we returned to the ledge and pushed further south. Almost on cue, a ramp up was found. This ramp led to an even higher ledge, and an amazing cleaved rock that was too narrow to walk through, although Brian Fox did attempt to scale the outer rock surface for the first few metres.

This was such a delightful spot that morning tea was taken. Over morning tea we reviewed the outcome of the exploration so far. Our revised plan was to cross

Adrenalin Head and drop down onto the known ledge on the western side of Adrenalin Creek and go anti clockwise as far as we could.

Resuming, we followed close by the base of an almost vertical wall that included along the way a great circular recess in the cliffs. This recess is the product of chemical erosion and added a further dimension to the complex geomorphology of the area. Yet another ramp up was negotiated and then we found a narrow walk through slot, that although it could have been avoided, we all went through just because we could, GR 380 135.

By 1039 we were back in the open forest, GR 382 133, and heading for the spinal ridge road, which was reached at 1043, GR 383 132. A short distance along this road to GR 382 130, we took a bearing (150 degrees), and headed for the eastern cliff edge.

By 1056 the cliffs opposite the 'no contour'³⁹ section of Adrenalin Creek were in view and our descent below the cliffs above Adrenalin Creek was under way. Another great slot down led into a secluded valley with its own micro environment. Here, in this hidden valley, the vegetation was dominated by soaring, massive and magnificent Brown Barrel Gums; (*Eucalyptus fastigata*), a mid storey of Rough Tree Ferns; *Cyathea australis*), and an understorey of many fern species. Huge, clefted boulders scattered like giant dice are encrusted with a mix of epiphytes giving the valley the feel of being clothed in a green mantle. A watercourse hugged the base of a long sinuous cliff line. It is a totally captivating place.

The cliff edge lay just beyond this, and rounding a boulder that was green with epiphytic plants on one side, and barely supporting a lichen cover on the other, we descended a rough section of broken rock onto the beginning of the Adrenalin Ledge.⁴⁰ This ledge is one of the many wonders to be experienced in the magical place known as the Gardens of Stone National Park. Walking the ledge is a little like being suspended in space, high above are towering cliffs, below is the very deep, parallel sided canyon that is home to Adrenalin Creek, some 200m beneath. Across the void of space are vertical sandstone cliffs that just glow with reflectd light. It is not difficult to feel detached from reality. The cliff walk is no easy walk. It involves a lot of scrambling, some crawling on hands and knees through tight sections and some incredible ultra large spaces such as beneath the Diagonal Caves⁴¹ where a single curved overhang is over 100m across and where several hundred people could gather.

³⁹ From time to time when the terrain is excessively precipitous and space does not permit, the topographic maps prepared by the NSW Department of Lands show a blank section. In this instance it is for the terrain surrounding Adrenalin Creek from approximately GR 386 127 to GR 388 129. Nearly 200m of difference occur in this short distance. The effect is magnified by the presence of cliffs up to 116m high in the vicinity, giving a feeling of a huge void.

⁴⁰ This name Adrenalin Ledge was coined by Yuri Bolotin during a walk in this area, 8th April 2013. The Adrenalin Ledge is about 1km in length and follows the base of the first cliff line from approximately GR 384 127 to GR 388 135.

⁴¹ The Diagonal Caves, GR 386 126, top and GR 386 128 bottom cave, were named by Yuri Bolotin during a walk in this area, 8th April 2013. The caves are on two distinct levels and slightly offset from each other. It is not possible without some significant risk to climb from the upper to the lower caves. Both caves provide extraordinary opportunities to take exceptional photographs within and also of the surrounding cliffs.

Near the extreme north end of the ledge, views of part of the valley of Carne Creek can be seen and some buildings of the *Wolgan Valley Resort*. The end point of the ledge is similar to that experienced on the ledge above Endorphin Gully. It just ceases to exist. We all lined up to have our photos taken. It was now 1227 and thoughts turned to food. The logical place for such a large group to eat was back at the Diagonal Caves.

By 1300 we were back at the Diagonal Caves. GR 386 128, and each selected their own preferred spot to enjoy a special restaurant with a view. As small puffs of wind happened and clouds covered the sun, the temperature dropped. This would be no place to be in two hours time. By 1325 the lunch break was over and we were all happy to be walking.

Rather than return the way we had entered through the Brown Barrel filled valley, we plotted a different route, heading further south. A great pagoda encrusted ridge just begged to be climbed. It does not show up on the topographic map, but it is dramatic and has a knife edge cliff overlooking a short ravine. From the top, GR 381 127, the view is superb and showcases yet another aspect of the Adrenalin Creek system. Although the way forward looks daunting from the top, it is actually very easy, just thread your way around a succession of pagoda bases to the north, and then the old road is in view, 1405, GR 381 128. The vehicles were reached at 1414

As we had many GPS units operating for the walk, I decided to check with each operator. The following variations are quite large. I am inclined to take the shortest distance and least ascents as being closest to reality.

Operator	Distance	Total ascents
1	9.5 km	474m
2	12.5 km	466m
3	13.7km	465m
4	14.1km	370m
5	8.94km	400m

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0813	Park vehicles	GR 380 123
0823	Finish briefing session	GR 380 123
0842	Leave old walking track to Adrenalin Head	GR 386 136
0857	Pagoda with view over Endorphin Gully	GR 383 139
0905	Pagoda with view over Endorphin Gully	GR 382 141
0917	Pagoda then descent into Endorphin Channel	GR 382 139
0955	Inspect pool in Endorphin Channel and then ledge north	GR 381 138
0959	On ledge above Endorphin Gully	GR 380 140
1011	Slot and ramp	GR 380 137
1012	Secondary ledge + morning tea 14 minutes	GR 380 137
1029	Ramp up	GR 380 136
1033	Cavern on top of slot and more	GR 380 135
1039	Climbing ridge	GR 382 133

1043	Old road	GR 383 132
1047	Leave road	GR 382 130
1056	Commence descent below the cliffs of Adrenalin Creek	GR 383 130
1059	Slot and ramp	GR 383 129
1102	Hidden Valley	GR 383 129
1118	Diagonal Caves - top level	GR 386 126
1125	Descent to Adrenalin Ledge	GR 385 126
1134	Diagonal Caves - lower level + ledge walk	GR 386 128
1227	North end of Adrenalin Ledge	GR 388 135
1300	Lunch in Diagonal Caves – lower 25 minutes	GR 386 128
1325	Climbing	GR 384 127
1355	On top of pagoda overlooking upper Adrenalin Creek	GR 383 127
1405	Intersect with old road	GR 381 128
1414	At vehicles	GR 380 123

6.24 The east side of the Adrenalin Gorge

Maps etc	Department of Lands: Cullen Bullen, 8931–3N, topographic map, 1:25000, second edition, GPS setting WGS 84. Various aerial photographs.
Walk description and route	Park one vehicle at approximately GR 388 105 and another at GR 392 118. Return to GR 388 105, on the Birds Rock Fire Trail No. 1. Head west into wild terrain and explore the eastern cliffs, slots, pagodas, caverns and ravines. Exit to the Birds Rock Fire Trail at the approximate boundary of the Newnes State Forest and the Gardens of Stone National Park.
Gear issues	This is summer and the weather is unpredictable, have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and 30m tape, (leader only).
Comments	Some rock scrambling and tape work will very likely be involved. Lower body parts may get wet. Expect to be challenged.

Date walked 25th February 2013

The Weather

A very warm, humid day even at 1000m, the cloud cover varied from a best of 3/8^{ths} of the sky open to total cover, heavy rain, in excess of 100mm, the previous day and evening had left the ground supersaturated, as the sun rose higher walking conditions were sauna like. Temperature range 19 to 25 degrees. Winds accompanying the rain brought down trees on Sunnyside Ridge Road. A chain saw carried for emergencies was swung into gear saving hours of hand sawing.

Background Notes

If you have access to a copy of the Department of Lands Cullen Bullen, topographic map, 1:25000, second edition, open it up and have a look at the strange, straight line boundary between the Newnes State Forest and the Gardens of Stone National Park. The boundary line has been drawn without thought or consideration of the terrain, but rather to satisfy the vested interests of coal miners.

What is urgently required is the declaration of the whole of Newnes Plateau as part of the Gardens of Stone National Park. The arbitrary truncation of the headwaters of so many very wonderful canyons and hanging swamps is a demonstration of gross negligence and stupidity by unthinking authorities who are shackled to short term economics and not the long term value of tourism and Australian national heritage.

Track Notes

The walk today although short, revealed some truly wonderful formations, bio and geo diversity and a playground of delights that should be experienced by many more Australians. After organising vehicles at each end of the planned walk, a briefing showed that we would cover a little less than two kilometres of map distance in our exploration of the upper reaches of this officially unnamed tributary of Carne Creek which lies outside the Gardens of Stone National Park. We have decided to call this creek Adrenalin Creek. I have called this area, east of Fire Trail No. 6 and the next ridge east, and questionably Fire Trail No. 5, the Adrenalin Gorges of Carne Creek. The name is inspired by a complex terrain so stimulating and so beautiful it really gets the adrenalin flowing.

To set the tone of the walk we headed due west for about 200m and then down into a complex and convoluted creek system at GR 385 106. The descent is crowded with sculptural forms that are not quite pagodas but nonetheless are beautiful precursors to what is in store. The descent was also wet, muddy and slippery. No one was immune to dirty gear before reaching the bottom.

To visit the Cathedral Cave, we needed to push upstream through glorious fern filled terrain for about 300m. It was hard going, however the surroundings are delightful with soaring cliffs to 52m, large specimen Eucalypts to match, and a diversity of rainforest species of variable height. At 0944, I recorded our position as GR 385 107. It was 1010 before we reached the glorious dry haven of the Cathedral Cave at GR 383 105.

This amazing enclosed space, which we have measured accurately with a surveyors tape, is as I recall, almost a perfect hemisphere 35m in diameter. The internal cupola is a gem. This is not a place to be rushed. It has a commanding grandeur that must be savoured, enjoyed and photographed. This area and this incredible natural feature are now under immediate threat by the Centennial Coal Company, which has lodged an exploration licence application 4719. If this application goes ahead, all that will exist in a few years time will be these notes and our pictures.

We spent 25 contemplative minutes in this natural cathedral before resuming our journey. At 1040 we were circling under the northern cliffs of the cathedral space and climbing rapidly as well. Four minutes later Brian spied something quite special, a land snail actively grazing on a slime mould. Everything stopped while this snail was photographed and the situation documented.

The important details are that this snail is a 'species nova'. It has not been previously described. Images sent to the Department of Malacology at the Australian Museum have come back with commentary from Dr Michael Shea, with the following words. "The snail is an as yet undescribed species of *Austrochloritis* (Camaenidae)."

The slime mould is also an uncommon one, *Ceratiomyxa fruticulosa* as advised by Fungi Map Australia, Royal Botanical Gardens, Victoria.

Heading up a ravine from this location, we made for a promontory at GR 384 106, where there were great views down into the very tight, cliff lined upper section of the gorge. The convolutions and complex interstitial spaces created by erosion of the

sandstone have to be experienced to be really appreciated. Always wanting more, we made our way to a high point where a series of pagodas are embellished with iron stone plates and three dimensional ironstone forms. Fretting of the finial pagoda points has created stone windows where stunning views are naturally framed. This country is so rich and yet so unappreciated.

Our progress was slow but very enjoyable as descent was followed by ascent and each new high point brought a different perspective. It was here a dislodged stone revealed an amazing and very frightened Robust Velvet Gecko, *Oedura robusta*, its tumescent, inflated fat tail speaking volumes about the richness of the available food sources.

Next for our delectation was a long slot climb up. As with most confined places today it was wet and included a somewhat suspect section where foot and hand holds were notional and a number of us found it difficult to still believe in friction. Still, we all made it up to the top and then looked down in amazement at where we had come from. This area was still a rich ground for photography, and here we recorded a number of instances of the branched yellow jelly fungus, *Calocera* sp. It is early in the season for observing fungi fruiting bodies⁴² so most examples found are still quite small. Also observed was an example of the brownish red gelatinous fungus, *Tremella fimbriata*.

We continued our northern progress, and at 1146, GR 385 110, looked across the complex of ravines to the west, where we had put in a most productive day in 2012, discovering great examples of different weathering regimes, an Aboriginal occupation site and some truly magnificent overhangs. None of this area is protected and indeed, if the coal mine lease application proceeds, the potential loss of heritage is monumental. The precise identification of the various sites previously was impossible because an intervening ridge blocked the line of sight.

A two hundred metre stretch of Casuarina forest emphasised just how quickly the vegetation can change and also what a diverse range of micro environments can be found in a very short distance in this terrain. The Adrenalin Gorges are crammed full of very special bio and geo diversity. Another spectacular slot climb at GR 385 108 led to a collection of pagodas that terminated in a precarious finial, that in outline mirrored a map of Spain. No intended comparison with Spain's finances but nonetheless very appropriate. This rock, possibly weighing 500kg could almost be rocked on its pedestal. It could crash at any time. Surrounding the area were several shallow pools allowing for creative and reflective photography. It was now 1155, GR 385 113, and time for re hydration and lunch.

During lunch, and over a study of the maps and an assessment of how everyone was travelling, it was quite clear that we would not achieve anything like our planned objective, there was just too much good stuff to see and record. Another walk is required on this eastern side of the Adrenalin Gorges. Also, from the lunch site it was possible to look north about 900m and see the beginning of the constriction where the mapmakers had abandoned the use of contours and let the user/visitor beware. To tackle this section we needed to be fresh.

⁴² In the Greater Blue Mountains National Park area the prime time to observe fungi is autumn, from March until May. This year ground conditions are warm and very moist so there should be an amazing selection to record.

Moving on after lunch our plan was to try and visit two more ravines before exiting. Fifty metres from the lunch site there is a massive, parallel sided slot, an equally massive wedge of parallel sided rock followed by a steep drop off down towards the drainage some 250m away to the west. The slot descent was remarkably easy, delivering us to the base of the top cliff line. We then circled under these cliffs, crossed a shallow creek system that was flowing strongly with water from overfilled aquifers higher up the ridge.

What happened next really should have been no surprise, but it is always a disappointment; we crossed a bike track, GR 383 115. The sober truth is that Forests NSW has no effective control over bike riders, who in turn have no respect for the environment, the degradation and the erosion they cause. Again, the big loser is Australia, and until as a nation we learn to look after our heritage we will continue to trash it and leave later generations to mourn its passing.

We moved on and at 1304, climbed another amazing pagoda with fretted windows, ironstone banding formations and a number of rectangular stone tablets worthy of biblical comparison. This pagoda complex at GR 383 116 is strategically located providing top views in every direction, particularly downstream to the north where those mighty 116m cliffs promise further adventures. Closer, due west, and accessible from Fire Trail No. 6, are more cliffs that are on the agenda to visit as well. Ten minutes were spent here as we lined up pictures from every direction. There was even time to consider those wonders of pagoda vegetation, the golden yellow Pagoda Daisy, *Leucochrysum graminifolium*.

Looking north we could also peer deep down into a gully that featured some significant overhangs. Down we went, crossing a minor stream and then walking a dry overhang for about 50m. Although we looked hard we could find no evidence of human use. Opposite, and over a wild stream we could see a continuation of this overhang, so our agenda changed to include a visit. The stream was a large one and the crossing was over a very large, slippery log. It did have a built in hand hold and a dubious foot hold or two. Moral and physical support got all of us over it and then into an amazing long, dry overhang, possibly 150m in length. Again there was no evidence of it being used as a gallery or even for shelter.

Emerging from this experience we again climbed. This time up a pagoda with a split or fracture through the middle. Dropping our packs we squeezed through it and then climbed to the top. What a superb cliff edge spot, GR 384 118. Again excellent views and delicious temptations of the next ravine, great slots and pagodas, all still outside the protection of the Gardens of Stone National Park. From this high point and sloping back to the east there is a huge, sloping amphitheatre of rock; the super wet surface glistening in the sun. Would we try and visit it? No, again to do this site justice we needed to be fresh with active eyes looking sharp for every important detail and savouring every experience.

We decided it was time to leave, and so we set a course due east. A series of spectacular pagodas needed to be crossed and again we benefited from more views and more variety. On these really dry, rugged, almost soil less places, the Native Cypress, *Callitris muelleri* grows. A potential slot entry for our next visit is lined with

them, like soldiers keeping watch all the way down. The road was reached at 1420, GR 390 117. The group commenced walking back down the road to the start point while Brian and I went to retrieve the placed cars previously placed at the National Park boundary, GR 392 118. The walk finished at 1430. Total distance walked 6.67km, total ascents 117m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0840	Sunnyside Ridge Road- removal of fallen tree	n.a.
0916	Two cars at start	387 106
0925	Two cars in place at finish and return to start	392 118
0930	Start walk	387 106
0934	Ravine edge	385 106
0944	Gully descent	385 107
1010	Cathedral Cave + morning tea, 25 minutes	383 105
1040	Climbing under cliffs	383 105
1044	Land snail, undescribed species of <i>Austrochloritis</i>	384 105
1101	On promontory	384 106
1110	On pagoda point	384 107
1131	Climb up slot	385 108
1135	Climb up another slot to 1004m	385 108
1146	On top of ridge	385 110
1155	The rocking rock, 'like Spain'+ lunch, 35 minutes	385 113
1236	Parallel sided slot descent + parallel wedge rock	384 113
1249	Casuarina forest	384 114
1252	Bike track	384 114
1304	Great pagoda, climbs up and down, 10 minutes	383 116
1327	Ledge	385 116
1338	Long overhang 150m	385 117
1353	Walk through clefted pagoda	384 118
1420	Intersect with old road Fire Trail No. 5?	390 117
1423	National Park boundary	392 118

6.25 Adrenalin Ledge East, Adrenalin Slot and Thom Slot

- Maps etc. Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, GPS WGS 84.
- Walk description and route Park the cars on Birds Rock Trail No. 1 at or near the national park boundary at GR 392 119. Walk NNW and investigate a major ravine at GR 390 126. We will attempt to enter the ravine and proceed under the cliffs north and then around anticlockwise, exiting at a gully at GR 387 123, or later at GR 386 116, if we are having fun in that territory. If there is still time left, we will walk to GR 398 120 and investigate Pleasant View Canyon, before returning to the vehicles. About 6km.
- Gear issues Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
- Comments Exploratory. Scrambling and exposure. Wet feet possible.

Date walked 17th January 2014.

The Weather

A very dry, desiccating day with high evaporation rates, walking was pleasant in shaded areas however our footsteps caused clouds of dust to rise and for spores and fine particles of debris to fill the air. This was very noticeable when we were climbing or disturbing dead vegetation. The starting temperature was 20 degrees and the finishing temperature 32 degrees. The sun temperature in open areas with reflected heat was in excess of 35 degrees.

Background Notes

The 5th January 2007 was my first foray into this area. Seven years have passed since that date. The conditions for walking today were markedly different. Seven years ago the season was benign and I recorded flowing streams and good populations of crayfish and vertebrate fish in the water. Fast forward to 17th January 2014 and the streams were so dry that the sand kicked up dust as you walked. Epiphytes everywhere were now shrivelled and desiccated. Even the huge Brown Barrel Gums, *Eucalyptus fastigata* were shedding excess leaves. The cicadas however loved the conditions and were in full voice.

Track Notes

Driving in along the Birds Rock Fire Trail No. 1 from Sunnyside Ridge Road at approximately GR 390 102, where the fire trail closely follows a shallow creek bed, the vehicle was suddenly engulfed by butterflies. Tens of thousands of individual butterflies moving as though in a frenzy. There was no apparent mating, just a vast interactive tableau of colourful movement. This same phenomenon occurred at several other similar sites during the walk but nowhere else was the quantum so great.

The vehicles were parked at GR 394 121, about 300m inside the Gardens of Stone National Park. This trail, Birds Rock Trail No. 1 is not gated and is driveable to the end at GR 397 132. The briefing session include reference to plans to walk below the cliffs, explore a deep slot that can be identified from aerial photographs and walking on a ledge where the terrain is so steep that the map makers have simply left out the contours because the ravine is so tight and the sides are close to vertical. The walk would be adventurous to say the least.

At 0854 we set off in a north west direction towards a creek line that rapidly developed canyon like qualities and then became populated with pagodas surrounded by cliffs. At 0903 we entered a rock filled ravine, GR 392 123. Two hundred metres on, we came to our first dry waterfall, a 10m drop. We circled this to the west and then walked back upstream to check it out. When in full spate the waterfall would be beautiful. As it was I stood on the dry sand for a photograph.

This great feature was followed by several more of similar dimensions and equally rugged beauty. By 0930, GR 390 126 we were walking in and out of the dry creek bed and noting the rapid rate of descent of the creek bed. Shortly after this point we crossed over to the western bank and used several animal pads to progress along the base of the cliffs. The vegetation at the cliff base was sparse with occasional Grass Trees, (*Xanthorrhoea sp.*) making wonderful sculptural statements. Every metre of progress north was matched by an equal or greater increase in the height of the cliffs above. The cliffs below were also becoming very large.

At 0944 we stopped to take pictures of the view north of Carne Creek and part of The Wolgan Valley. East, looking across the ravine the far cliffs also provided photo opportunities. It was magic country. Looking down we became very conscious of just how rapidly the vertical cliffs below us had increased in height. We were now approaching the nose of the point of this peninsula where the small ravine we had walked now joined that section of Adrenalin Gully where the cliffs were almost totally vertical, and the depth of the ravine in excess of 100m.

At 0940 we stood on the point of the nose, GR 389 129. This was a special place as we could not only look north down into the Carne Creek valley, but also due west to the ledge on Adrenalin Head where in 2012 on a walk we had been stopped because the ledge just ran out. From our current perspective it looked precarious exercise to say the least. No doubt when we were walking/crawling that ledge we had similar thoughts about the ledge we were currently negotiating.

Our next major concern was whether the ledge we were on would terminate as abruptly. Rounding the point was great for two reasons, one, we were now in deep shade cast by the 60m cliff above and two, the ledge appeared to continue uninterrupted for some distance. Offsetting these positives was the incredible drop into Adrenalin Gully. It was so marked that we could not see the bottom. This was adventure walking. At 0950 we stopped at GR 388 128, elevation 900m for morning

tea. From this spot we also had a very good view of the Diagonal Caves,⁴³ together with a much longer section of Adrenalin Ledge.

The heat induced us to enjoy a longer than usual morning tea, twenty minutes. During this break Yuri shared with us his research into a nearby slot that appeared on the evidence to provide an exciting pass between the dissected plateau top and the ledge we were currently on. At 1012, GR 388 128, just a few tens of metres from our morning tea stop we reached the base of the quite narrow slot. Initially it looked as though a 2m high lip at the base would prevent us from exploring this most attractive slot.

After pushing aside some dense ferns, Brian was able to grasp a substantial branch and then swing himself up onto a rock platform. He then undertook a brief recce to assess the prospects of further exploration. He returned with a recommendation that we should give it a try. Marion's trusty rope was deployed, packs were left behind and we all then made it up onto the platform. From this point it was absolutely wonderful as we clambered up a very steep, root and boulder filled dry watercourse. Great, Rough Barked Tree Ferns, *Cyathea australis*, and assorted rainforest trees provided a green passage that went up and up. Just after the half way mark the slot widened out and a long overhang of about 25m, appeared on the southern side. It had a more or less level floor and there was foot print evidence of visits by Lace Monitors, *Varanus varius*, Lyre Birds, *Menura superbus*; several conical depressions indicated the presence of Ant Lion nymphs, *Family Myrmeleontidae*.

Immediately beyond the eastern end of the overhang, the now quite wide slot bifurcated into two opposing ravines, one to the south and one to the north. We chose to follow the northern one that became a very easily negotiable ramp all the way to the top of the cliffs and then even further to a twin topped, cliff edge pagoda. At 1035, GR 388 127 the group assembled on these pagodas for photos. And what photos they are! Looking north the group appears almost suspended in space as the void of Adrenalin Gully and the expanse of the Wolgan Valley heightens the sense of nothing below. Pictures south up the Adrenalin Gully are special too, but nothing like the dramatic view north. Memorable pictures were also taken looking straight down that showed the route of our slot climb, some 60m of vertical displacement.

This slot is special and so it was that we agreed to call it Adrenalin Slot as it faces into, and connects with Adrenalin Gully. It also is a way of route between the plateau top and the walkable ledge below. Naming it as a pass was considered although it is necessary to install a rope in order to be able to gain bottom access.

At 1047 we were all back down, the rope stowed, packs shouldered and we continued our ledge walk on a high.

⁴³ **Diagonal Caves** is located above Adrenalin Creek, were named Yuri Bolotin during a Bush Club walk in this area, 8th April 2013. These caves are on two distinct levels and slightly offset from each other. It is not possible without some significant risk to climb from the upper to the lower caves. Both caves have a single curved overhang which is over 100m. Cullen Bullen Topo Map 386 126 top cave, 386 128 bottom cave.

After a few metres further along the ledge, it broadened out and it was clear that the high cliffs were now behind. It also dawned on us that the ledge that had we had started walking on in the gully to the east was easily negotiable. Given that it is on the eastern side of Adrenalin Gully we decided to call it Adrenalin Ledge East.

We continued walking noting our position at 1055 as GR 387 127 and at 1111 as GR 386 125. It was here that we determined to leave the Adrenalin Gully area and head further east up to the cliff tops. Cresting the top, we were quickly into familiar territory. This was terrain that we had traversed in December 2013 in our quest to walk what we believed was part of the Thom, or Sunnyside survey line⁴⁴, one of three options considered by Henry Deane for the route of the Wolgan Valley Railway.

After climbing to the top of the ridge we walked through a narrow defile into another familiar area, for nearby was a slot with an easy grade internal ramp, GR 387 124. Again we had used this in our walked route in recreating part of the Thom option for the Wolgan Valley Railway. On Brian's suggestion, and to give recognition to Surveyor Thom we allocated the name, Thom Slot to this feature.

It was now quite warm as we headed up a gently rising ridge in a SSE direction to intersect with the Gardens of Stone National Park boundary at GR 390 119. We stopped here for a deep drink and discussion about whether to do more exploring. It was 1151. The decision was to keep exploring and walk the upper section of the creek of Pleasant Canyon, that on aerial photographs showed it to wind its way through an almost continuous ribbon of pagodas and tall cliffs.

The Birds Rock Trail No. 1 was crossed at GR 391 118 and almost immediately the descent into the creek started. The heat was now becoming oppressive and in the sun the temperature it was in the mid thirties. Keeping fluids up was a priority. At 1207, GR 394 117 we dropped into the dry sandy bed of Pleasant Creek. Around us the effects of the prolonged dry were all too evident. Not a drop of moisture was to be seen. Parched and blanched leaves and logs were crossed as we wandered down the ribbon of sand that in a normal summer season would have been a flowing stream.

Rounding a bulky pagoda crusted with shrivelled epiphytes, the creek widened into an open level area. A dry tributary joined it from the western side. Ahead was a vast overhang, completely disproportionate to other landforms nearby. The shadow cast by this 25m high, 30m long, and 4m deep mass enabled a forecourt of tough bracken (*Pteridium esculentum*) to survive and provide habitat. As we walked in, clouds of butterflies rose. These appeared to be similar to the species seen in similar formation on our entry drive.

The overhang was so cool and so unexpected we decided to have lunch. The back of the overhang under normal conditions would be a shallow stream. Today it was a dry

⁴⁴ Deane, Henry The Wolgan Valley Railway – its construction. Australian Railway Historical Society, NSW Division, p. 6 ...Mr Thom was therefore instructed to work up the Sunnyside route under these conditions, while Mr Marshall made renewed efforts with the so called Penrose Creek route. Mr Thom carried out his work in a very capable manner, and obtained a good line; but as it proved to be considerably longer, and to pass through a good deal of private land, over which, under the older Mining Act, right to construct would not have been acquired without obtaining an Act of Parliament, preference was given to the one surveyed by Mr Marshall.

sand strand. Before we resumed walking I inspected a small internal cave. It was brimming with life. Hundreds of flies were buzzing around. The noise was quite audible even above the cicadas. The heat or something related to it must have acted as a trigger or signal for the flies to swarm, perhaps to launch a new queen or to start another colony. I took a very poor photograph of a very large fly that could have been a future queen.

Back in the creek bed the stands of tall trees were a joy. Brown Barrel Gums, *Eucalyptus fastigata*, with their distinctive bark and erect habit contrasted to equally huge other Eucalypt species. One specimen, possibly *Eucalyptus viminalis*, had shed its ribbon like bark progressively over many seasons to a fork giving it the appearance of wearing a huge multi layered skirt over 5m tall.

Over the next 300m the creek is joined by five tributaries, each lined with fascinating rocky pagodas and diverse erosion features. The main creek was also impressive. At GR 397 118 we noted a negotiable slot to the west and less than 100m further downstream we noted and entered a delightful cave, GR 397 119. Almost a perfect hemisphere, it was 10m across the aperture, 5m deep and 3 metre high. We searched it thoroughly for evidence of occupation or art without success. A wombat had made good use of the deep sandy floor and constructed a significant burrow.

Several smaller caves were visited further downstream. All were devoid of any evidence of use. At 1257 we entered a major overhang/cave site, GR 397 120. It is amazing that this choice location was not used by Aboriginal people. Roughly circular in plan and about 40m in diameter the overhang is continuous around three quarters of the circle. At the southern end a waterfall, presently dry, discharges from a lip about 3m up. Smooth, sandy stretches characterise the overhang floor while the central area is carpeted in ferns.

Several, huge *Eucalyptus viminalis* dot the centre stage. We stopped at the base of one of these venerable giants and gazed up at ropes of resin that had discharged from the trunk, possibly caused by a wood borer. Underneath on the ground silk like fine strands of resin glowed as burnished fine copper wire in the sun.

Moving on downstream we found another small cave, GR 398 121. This cave featured an amazing suspended bird nest hanging from the roof. At 1325 we decided that the temperature was just too hot to continue exploring so a nearby tributary creek was used as our exit point. We stopped at GR 396 122 on top of a pagoda. From this point there were extensive views to the north east over Carne Creek and a small section of the Wolgan Valley. Descending the pagoda we then walked up a gentle incline for about 200m to intersect with Birds Rock Trail No.1 at GR 394 122. The vehicles were reached at 1332.

On arrival at the vehicles Hodaka had organised a very pleasant surprise – icy cold ginger beers all round. This was a wonderful way to quench the thirst and cool down. Thanks Hodaka it was great planning and leadership we all enjoyed. Total distance walked 6.24km, total ascents 276m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0850	Park vehicles on Birds Rock Trail No.1	394 121
0854	Briefing completed, start walk	394 121
0903	At ravine	392 123
0914	Above canyon and 10m drop	391 125
0919	Fork junction in creek/ravine	390 126
0944	Below cliffs on narrow ledges	390 128
0946	At the nose of the point + views over Carne Creek	389 129
0950	Morning tea on ledge, 20 minutes	388 128
1015	Climbing Adrenalin Slot + rope assist	388 127
1035	On cliff edge pagoda above Adrenalin Slot	388 128
1047	At base of Adrenalin Slot	388 127
1111	Leave walking cliff ledge and head east up ridge	386 125
1124	Base of the Thom Slot	387 124
1131	Top of Thom Slot	387 124
1144	Walking on ridge	389 129
1151	Ridge top plus views	390 119
1155	Cross Birds Rock Trail No.1	391 118
1202	In Pleasant View Canyon Creek	394 117
1207	Lunch in massive overhang, 28 minutes	394 117
1240	In creek	396 117
1248	Noted slot exit	397 118
1250	Hemispherical cave	397 119
1257	Huge circular overhang	397 120
1311	Cave with bird nest	398 121
1325	On pagoda with view	396 122
1331	Intersect with Birds Rock Trail No.1	394 122
1332	Back at vehicles	394 121

6.26 Zorro Canyon, Rapier Slot, Bullwhip Slot & more

Maps etc	Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park the cars on Birds Rock Trail No. 1 just beyond the national park boundary at GR 394 120, walk along the trail to GR 395 124, then leave the track to investigate a succession of slots in a north west direction. One of them is Zorro Canyon, and we will only go up to the abseil point. Return via the high cliffs (176m) and the pagodas above Pleasant View Canyon and re-connect with the cars. About 6km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	Exploratory. Scrambling and exposure guaranteed, as is spectacular scenery.

Date walked 20th January 2014

The Weather

A fine warm morning with full cloud cover until about 1100, then partly cloudy for the remainder of the day. Humidity high and noticeably unpleasant in confined areas. Some very light intermittent breeze mid afternoon. Temperature range from 16 to 26 degrees.

Background Notes

Few if any other walking groups are as determined as Bush Club members to explore and document the extraordinary diversity of geo and bio diversity of the Gardens of Stone National Park. Whilst every area within the national park has special features, the northern half of the Newnes Plateau is endowed with a density of features that is quite remarkable. The finger like peninsulas, that project into the Wolgan Valley and their associated ravines, between the Wolgan River and Carne Creek are packed with slots, canyons, passes, and intricate pagodas. These track notes are about one of three full day walks within a tiny area on just one of those peninsulas.

Track Notes

An early start and fresh knowledge of exactly where to drive to, (we were here just three days earlier), had the vehicles parked at 0800, the briefing completed so walking started at 0805. I had made a special plea to the photographers to try and capture at least one image of the tens of thousands of butterflies that had swarmed in the area on the previous walk. These creatures move so fast that photos of them on the wing are impossible. Luck was on our side. A fresh dead specimen was found on the track. Thanks to research by Brian we know it is a Common Brown, *Heteronympha merope* a member of the Nymphalidae.

Leaving the track at 0831, GR 395 124 we headed generally north west towards the cliff line above Adrenalin Gully. A check of our position was made at 0839, GR 393 127. Three minutes later we arrived at the top of the first slot, GR 393 128. Each slot has its own identity and geomorphology. Factors that affect the vegetation mix within these slots depend on the width of the slot, its orientation, its depth and the presence or absence of a reliable water supply. Drier slots have the Rough Tree Fern, *Cyathea australis* as the dominant tree fern. Wetter slots have the Soft Tree Fern, *Dicksonia antarctica*. The wetter slots also tend to have different ground cover ferns such as the Strap Water Fern, *Blechnum patersonii*. In very favoured locations, Kangaroo Fern, *Microsorium pustulatum* is found on the trunks of *Dicksonia antarctica*.

Our first slot was a favoured one with the water dependant species thriving despite the adverse conditions on the plateau area above. We had a most enjoyable time descending to approximately GR 393 129 before returning to visit the next slot north. These slots are so close together so with the GR's set for an accuracy of 100m, the readings for the next one are almost the same.

At 0858 we descended the second slot, heading down to approximately GR 394 128 before returning to the top once again. This slot has an exposed secondary rib or spur within on the north east side that is only partially separated from the main wall. Brian climbed this spur and was at the top before the rest of the party. It was now 0907.

We now moved a short distance north east along the cliff edge to the third slot. This slot is very narrow, very deep and very nice. Yuri suggested that given the acceptance of Zorro Canyon as a place name then this one should be called Rapier Slot, the rapier being one of the two weapons of choice wielded by Zorro. We commenced the descent of Rapier Slot at 0915 and reached the base of it at 0928. Where the slot breaks through the cliffs line the sculpture is grand and impressive. The cliffs soar over 50m above, and because the area is a rain shadow the colours of the sandstone are brilliant.

After adjusting the balance organ from the tight confines of the Rapier Slot to the yawning abyss of Adrenalin Gully below some 200m, we set out along a variable width ledge that that could possibly allow us to walk to the exit point of Zorro Canyon and maybe some distance beyond. Research by Yuri indicated that there was perhaps a 5% chance that we would be able to scale the cliffs back up to the plateau before the end of the point. As we made our way north east along the ledge there were expanding views of the western cliff line of Adrenalin Head. Some of these cliff faces were over 100m.

As it was now 0944, GR 394 131, and we had expended quite a bit of energy scrambling up and down slots, thoughts turned to morning tea which we took at the base of the cliffs surrounded by glorious colour and spectacular views. Our position was just south of the point where Zorro Canyon discharges. Brian and Dave went up to the base of the last abseil within it but reported it was nothing special to warrant a visit by the whole group.

0959 we resumed walking on the ledge to the north east. The ledge started to narrow markedly and at GR 395 131 it presented a significant exposed challenge. Brian Fox

went through first and reported that there was still considerable walking ahead. Brian Piper explored an alternate option but it lead to even higher more exposed cliffs. The challenge of moving past this obstacle was a low, narrow ledge that required crawling like a snake while avoiding an outward curving rock with few grip points that dropped about 170m vertical. To make this transit a bit safer a horizontal tape was set at the back of the crawl and then anchored to a tree at each end. We all made the horizontal journey followed by compulsory negotiation of some vertical rocks perched on the cliff edge.

As we progressed our position became increasing tenuous, the ledge developed an outward slope and narrowed. At 1017 we were faced with another tight squeeze with more exposure. Dave who had gone on ahead reported that the ledge appeared to run out altogether after another 100m or so. A straw poll voted for a return and to test other options. We had made it to GR 396 132 which was remarkable given that we are not trained rock climbers.

Going back we knew what to expect and by 1107 we had passed our original descent point and headed up a slot we had partially descended earlier in the morning, GR 393 130. This slot that went all the way, Yuri named it Bullwhip Slot, the bullwhip being Zorro's second weapon of choice. By 1122 we had reached to top end of Bullwhip Slot, GR 394 128. It was also about this time that we noticed the dispersal of the misty/foggy conditions. When the wind blew there was a strong smell of smoke, and it is almost certain that fine smoke particles were a major component of the so called mist and accounted for its persistence.

Heading almost due east we arrived at the top of Zorro Canyon at 1136, GR 396 128. Having been down the canyon as far as the abseil point 3 days earlier, I elected to have a break. Remarkably there was a reward. An Eastern Water Dragon, *Physignathus lesueurii*, appeared and it seems as though it is used to visitors and was remarkably tame. I offered it a grape tomato that it devoured, just as the ones we have in Pymble do. How is it possible an Eastern Water Dragon could survive up on the plateau? The answer lies in a tiny but permanent water source in a small ravine immediately to the north of Zorro Canyon descent point.

At 1205 the group returned and we made our way north east across the top of the plateau to the eastern edge, crossing the Birds Rock Trail No.1 at GR 398 132. The edge of the plateau was reached at 1228, GR 399 132. This location is special. From it there is an uninterrupted view down Carne Creek to Donkey Mountain and the Wolgan River junction. Contributing to making it superb is the 170m plus elevation plus a small section of precarious rock cleaved but not yet completely detached from the main cliff, an elegant *Eucalyptus haemastoma* growing on this rock under impossible conditions and of course views like nothing else. A great spot to have lunch.

All good things come to a close and at 1250 we set out to walk about a kilometre along the cliff edge. We had not gone far, GR 400 132, when another special location was revealed, a slot that is flanked on the northern side by a sheer, perfectly vertical 176m rock face. It is so large that it is impossible to photograph as a whole. Two images joined is the only way to fit it all in.

As we progressed south along the cliff edge there were views of Pyramid Rocks. These are centrally located in Carne Creek valley and above them on the east or Glowworm Tunnel side, there is an obvious spot to descend into Carne Creek and do a climb out on the western side. Although this is technically possible and in all probability not a very demanding walk, there is little incentive to do so as the bush is thick and scratchy and the necessary car shuffle extremely long.

Now, 1324, GR 400 127 it was time to leave the cliff edge and make our way inland around an indented drainage system and then descend into pagoda land and the stunning scenery of Pleasant View Canyon. A good rate of progress was made across the plateau top as we crossed through sections of dry sclerophyll forest alternating with open rock platforms and small areas of a dense tangled prostrate *Leptospermum* species.

In our keenness to descend into Pleasant Canyon we commenced our descent too early and had to clamber back up. We did this several times at GR 398 123, GR 397 122 and again at GR 397 121. This later 'no go' descent point Yuri recognised from our previous walk. This was the waterfall at the back of the 40m diameter cave/overhang. We knew it was a 4m drop so there was no way we were going down there. Just south of this point at GR 397 120 there is an angled apron of bare open rock that is a walk down for most of its 45m descent. A fraction before 1400 we were all assembled in the shade at the bottom and had a deep drink.

A long and very sizeable log provided an aerial walkway across a sea of Common Bracken, *Pteridium esculentum*, discharging us at the southern entry point for the huge three quarter circle overhang. It is a spiritual feeling place and I still wonder why we have not seen any evidence of its use by Aboriginal people. Perhaps the evidence lies under the bracken or perhaps the area was plundered years ago.

We now made our way downstream. I had forgotten just how wonderful this canyon is. There are four major hollowed out caverns, one in particular has a symmetry that is extraordinary with a curtain of five tall Rough Tree Ferns, *Cyathea australis* along the drip line. The back of the cavern is dry and then there is a level *Blechnum* fern covered forecourt leading to the tree ferns. Outside and again almost equally disposed are two huge *Eucalyptus viminalis* that frame a tall stepped pagoda. No architect other than Mother Nature could have devised such a setting. This is at approximately GR 398 121. The GPS unit was struggling to maintain a signal. As we made our way down the canyon, nature turned on a sequence of unrivalled geo diversity. This is a canyon with everything, except water at the moment. There are multiple tight twists and turns; short drops and fabulous pagodas; side canyons lure your attention from the main route. The many large rock faces covered with *Pyrrosia rupestris*, or Felt Fur and a range of orchids were in extremis, being desiccated almost beyond the point of recovery.

About 100m from the end of the canyon, before the creek plunges over the cliffs, there is a side slot on the northern side that appears to provide an alternate route to the viewing point. Whilst it is a dramatic clamber it leads nowhere. We did then walk the last section and enjoyed more rock sculpture and formations, arriving at the drop off at 1441, GR 400 123. There was not much noteworthy here in the floral sense, except for a very fine twin stemmed specimen of the Hyacinth Orchid, *Dipodium punctatum*.

After a quick look around noting the views are nothing like the wonders of Window in the Sky Canyon to the south, we commenced walking back up the dry bed of the canyon. A well graded concave apron that under normal wet conditions would be impossible to climb was used as our ascent and way of exit, GR 398 123. It was now 1453. By 1505 we had reached Birds Rock Trail No. 1 and three minutes later we had completed a most stimulating and interesting walk.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0800	Park vehicles	394 121
0805	Briefing, commence walking	394 121
0810	Sighting of <i>Heteronympha merope</i>	394 122
0831	Leave Birds Rock Trail No.1	395 124
0839	Near western cliff line	393 127
0842	Above slot	393 128
0852	Return from slot descent	393 129
0858	Descend second slot	393 129
0907	Return from second slot	394 128
0915	Descend Rapier Slot	394 129
0928	Base of Rapier Slot	394 130
0937	At base of cliffs	394 130
0944	Morning tea, 10 minutes	394 131
1000	Challenging horizontal crawl	395 131
1017	Exposed crawl	396 131
1026	Furthest point north east on ledge	396 132
1107	Base of Bullwhip Slot	393 130
1122	Back on plateau top	394 128
1136	Top of Zorro Canyon	396 128
1205	Return from visit to Zorro canyon	396 128
1226	End of Birds Rock Trail No. 1	398 132
1228	On eastern cliff edge + lunch, 22 minutes	399 132
1300	Slot head + view over Carne Creek	399 132
1302	View vertical 176 m wall	400 132
1317	View over Pyramid Rocks	400 128
1324	Leave cliff edge	400 127
1337	On pagoda	398 123
1347	No go pagoda descent	397 122
1352	Traversing pagodas	397 121
1359	Descent into Pleasant Canyon	397 120
1405	In circular overhang area	397 122
1412	Swallows Nest in cave	397 121
1415	Caves	398 121
1418	Tree Fern curtained cavern	398 121
1432	More caves and wonders	399 122
1436	Slot tunnel east	399 122
1441	Cliff edge discharge of canyon	400 123
1453	Rock apron climb	398 123
1505	Intersect Birds Rock Trail No.1	396 125

1508 At vehicles

394 121

6.27 Pleasant View Canyon

Maps etc	Department of Lands topographic map, Cullen Bullen, 8931 –3N, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Park cars, at the locked gate at the end of Birds Rock fire trail No. 2, and then head slightly NW down a spur into the unnamed creek and walk downstream as far as possible. Even though a cliff line is shown on the topographic map, the aerial photo is more encouraging. If it goes, and time and conditions permit, we may go all the way to Carne Creek. If it does not go, we will explore the surrounding cliffs. About 5 km max, lots of up and down; 300m+&- if we visit Pyramid Rocks.
Gear issues	PLB, GPS, 2 litres of water, appropriate head and foot wear, maps, compass. 30m tape will be carried by the leader. Change of gear for afterwards.
Comments	This walk was first done and documented on 5 th March 2008. Copies of the track notes available on request. It is an attractive walk with great views of Carne Creek.

Date walked 10th February 2012.

The Weather

Heavy, overcast skies dissolving to light rain from time to time, some sunny breaks, occasional thunder, very wet underfoot, temperature range 17 to 22, lots of wet bushes, creeks and waterfalls in full spate, canyon walking conditions and photographic conditions close to ideal.

Background Notes

I rarely repeat a walk. This derives from a philosophy that there is so much to see and enjoy in this world and our Greater Blue Mountains National Park in particular that I will never live long enough to see it all. Temporarily, and from time to time that has had to change as many of my earlier photos are simply not good enough to illustrate a book and so a return visit is needed.

One of the great aspects of repeat walks in the Gardens of Stone National Park, is that there is ample opportunity to vary a walk to create a new experience, so it was on this walk. In March 2008, nearly eight years of below average rainfall had desiccated the countryside. Vegetation in canyons such as the Felt Fur Canyon was struggling to survive, surface water was minimal and when there was air movement, it was warm and dry.

The contrast to conditions in 2012 was amazing⁴⁵. The Sydney region and the Blue Mountains in particular have just experienced two months of almost continuous rain

⁴⁵ Extract Track Notes 5th March 2008.

coupled with relatively warm conditions. Nature has responded and every growing thing has thrust forth with vigour. Barren, dry stretches of the canyon are now a green wall of King Fern, *Todea barbara* that requires effort to push through. Equally, former barren pagodas are now bedecked with pink flowering *Stylidium grammifolium* and the ubiquitous Felt Fern, *Pyrrosia rupestris* that lends it name to the canyon, is effulgent beyond compare. Semi luminous bryophyte mosses of several species cover protected surfaces in pads and pincushions of green velvet.

Track Notes

The vehicles were parked at a barrier at the end of Birds Rock Trail No. 2 on the Gardens of Stone National Park boundary, GR 401 119 at 0915. It was slow trip out, an hour from Clarence, as the tracks were potholed, and in places covered by sheets of water. Drilling activity to monitor and or prove coal deposits at depth has involved numerous heavy vehicle movements including drill rigs, fuel tankers and drill stem trucks putting huge pressure on basic tracks, not to mention the unsightly clearings and destruction of forest areas and a legacy of irreparable damage.

We each debated whether to put on wet weather gear or not. As leader and up front pushing through wet understorey, I opted to wear it until we reached the start of the canyon, despite being unpleasantly hot.

Our way of route down into the canyon was via a shallow gully. After less than 200m of progress the first pagodas appeared, the gully flowed water, and soon after, we entered the canyon proper. The vegetation changed from relatively open stunted dry

As we approached the creek, vertical cliffs on the western side were a sign of things to come. Our entry to the creek, (GR 397 118), was almost too easy.

The first rock wall sighted on the eastern side was covered with the epiphytic rock felt fern, *Pyrrosia rupestris*, the longer fertile fleshy stems outnumbering the more rounded infertile ones. The creek quickly narrowed, and developed canyon-like qualities. This was certainly not indicated on the topographic map.

As we progressed downstream, the canyon just got better and better- towering walls, tight bends and challenging bits to negotiate. Some of the sculpted walls had soaring but deep, semicircular recesses with flat dry floors. Others had swift flowing water right up to the wall and serried banks of ferns. This was just special, particularly when the surrounding country out of the canyon is dry sclerophyll forest.

At 1000 had morning tea in a section where the canyon widened. While choosing a big log to sit on noted a wide, parallel- sided dry slot off to the north. It had to be explored. It features a large chock stone, and from the highest point inside a view of very rugged terrain on the other side. This was the sort of discovery one hopes for and occasionally finds.

Morning tea consumed, we pushed on negotiating ever more interesting features. Finally, as we rounded a tight bend we could see the cliff edge and glimpses of the Carne Creek Valley. At this point, the creek starts to drop rapidly and big boulder hopping is involved. After losing about 20m in as many forward, climbed up onto a bluff that separates the 'hook' of the creek from the Carne Creek Valley. It was obvious that we could not descend into the valley via the creek and waterfall.

The canyon section is about 800m in length and is easy to negotiate. It contains many interesting features and is worthy of a repeat visit. In terms of difficulty it would rate as easy, although a reasonable level of fitness is required and good body flexibility and balance, particularly around some of the narrow sections. In the absence of a known name I have called it Felt Fern Canyon.

sclerophyll forest to tall forest with a fern understorey. The big trees soared more than 30m and competed with each other for space and light.

After crossing flowing water in the canyon bed, a hollowed out cave complex was spied on the western bank. We went off to investigate. There was a more to it than a simple cave. A flowing waterfall discharged from a tight slot above and the several caves arranged in a large semicircle were deeply undercut with level dry sandy floors, what a great start. This spot was not visited previously. Camera time to attempt to capture wonderful images.

After this diversion, we returned to the main creek or did we? The interlocking pagodas and frequent side creeks conspired to distract us from the main system. Just a few metres downstream from the caves is a huge labyrinth of pagodas and interlocking slots that are quite disorienting and just great to climb and take photos. While the photographers were hard at work Adrian reported that we would not be able to progress down the main stream of the canyon as progress was blocked by a 3.5m waterfall. Later we proved that this was on a side creek.

Given all the options available and Adrian's information we continued climbing pagodas, slots, ramps and linking bits to the west. It was all good. Climbing a pagoda tower with the most complex and exquisite finials, we also discovered that we had an expansive view over the canyon system. From various narrow, high rock shelves, we could see down 25 –30m back into the canyon. We could also see how the main canyon twisted through several hairpin bends, revealed more caves and dramatic creek sections to walk in. We just had to find a way back down to explore this.

From the high points on our pagoda, we could also look into a beautiful ochre coloured, and curved Cinerama like canyon wall. Whilst taking pictures of it from above was all very well, we needed to be down in it for the total experience. A quick look at the watch and I decided we should have morning tea while plotting various descent options.

Restless as ever, Adrian was up and looking before the rest of us finished. Brian soon joined in the search. Threatening rain also acted as a stimulus to be up and doing rather than sit and eat. In less than five minutes, there was a break though; Brian had identified a ramp that went all the way down into the canyon. Once down it was like being in the lolly shop, what pleasure to indulge in first?

From joining the creek, in every direction there was something of interest. Immediately to the left was a large slot with two chock stones. Adjoining it was a 20m cliff with the canyon creek flowing enticingly around it and into another world of mysteries, and upstream were all the wonderful promises that we had viewed from the pagodas above.

It was decided to leave back packs at this point and spend time exploring. Somehow, we fell into two parties. I led a group upstream while Brian led a group downstream. The goal in my mind was to go upstream as far as the waterfall that Adrian said stopped our progress down the canyon. It was a journey though successive wonders of nature. The scenery changed constantly from sandy bottomed open creek, to tight fern filled tunnels with pools of uncertain depth, to the amazing flat floored caves and

overhangs, to the Cinerama size coloured wall. In places vision was confined to the tight parallel walls of the canyon, in others it was of mini pagoda fields and in others clumps of tall trees set in a fern understorey.

It was all magic. In one of the dry floored caves, I sat down to take a good picture of three tree ferns that formed a mullion window onto the creek. A pair of dark, possibly black coloured birds of pigeon size but with very small heads flitted around me. When they stopped, they almost climbed the cavern walls sometimes disappearing into small cavities. It was a total experience to be savoured.

Somehow, an hour passed while we explored. We went upstream all the way to the cave complex seen very early in the walk. The waterfall that Adrian had found proved to be on a side creek. I am so pleased that his information caused a change in our plans for without it we would not have seen half of what we did. We returned to pick up our packs and catch up with the rest of the group. Their experiences were exciting also and included discovery of the point where the canyon creek tumbles down through a collection of house size boulders into the valley of Carne Creek.

Back as one group, we made our way to the end of the canyon. It was so different to 2008 with water gushing over the rocks and every rock face just mantled with lush looking felt fern.

As part of his report, Brian said emphatically that we would not get to Pyramid Rock via the exit point of the canyon but we would have great views. Given this information we then climbed to a high viewing point, a cave above the waterfall and overlooking the Carne Creek Valley. It was photo time again, and again.

While admiring the view, the sky filled with dark grey clouds, and thunder started to roll. It was just on midday so we decided to climb to the top of the cliffs, take more photos and possibly have lunch overlooking the majestic scenery of Carne Creek and Pyramid Rocks.

Positioned on the edge made for great photo compositions. The only disconcerting aspect of the chosen lunch spot was the noise. The noise came from Carne Creek as it literally thundered down the valley. The spate was so wild and so big that even 300m above it the noise was distracting. To attempt to cross it even if we had the time was not a proposition.

Lunch was interrupted by increasingly loud peals of thunder and raindrops that kept getting closer together. At 1230, it was decided to call the rest of the walk off and headed for the vehicles. Normally this would have been a pleasant walk along the cliff edge admiring the views; today it was a brisk walk uphill for several hundred metres through wet and thick scrub.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0915	Park vehicles	401 119
0940	Caves and waterfall	398 120
1013	In canyon	398 122

1025	Morning tea on pagoda 12 min	399 121
1157	Eastern end of canyon	400 123
1205	On cliff top +lunch 25 min	401 123
1240	Vehicles	401 119

Total distance walked, 3.3kms 244m of ascent.

Access to Carne Creek and Pyramid Rocks

For completeness the remainder of the report of the walk done 5th March 2008 is set out below.

At the lip of the canyon, Steve elected to go down a few more metres and soon discovered that the drop(s) would be a challenge even for an abseil. We would now go in search of other options to get down into Carne Creek. As we climbed up to the top of the cliffs the view of Carne Creek Valley unfolded below and to the north. At the cliff edge it was packs off, and, lying face down, on the very edge appreciated just how high up we were and just how far down it is to the bottom. With one hand firmly hanging on to the rocks, I held the camera out with the other to try for that amazingly impossible shot...

Back two body lengths from the cliff edge; stood up and again marvelled at the view what a wonderful place is the Gardens of Stone National Park. At a distance of about 300m noted an isolated knoll to the SE with deeply incised, parallel cleavage slots that just might be negotiable...

At 1120 connected with the end of the old forestry road, (GR 401 118). A few metres to the east we found a ramp that looked promising as a way of route to the valley... it is steep, almost 1 in 1, and requiring continuous foot and hand holds to negotiate. It is not suitable for negotiation with a full pack. Steve went a bit further than I and was able to verify that it did go all the way with no further cliff lines below. We then returned to the top of the cliffs. I was sure from observations taken on walks on the other (eastern) side of Carne Creek that a way down did exist in the vicinity.

Headed for the isolated knoll further east of our current position. This knoll is reached easily by negotiating a narrow saddle through open forest. Here found stupendous views east and north, and the perfect lunch spot. An isolated pagoda, complete with 'walking circle' that juts out (unsupported) provided a great spot for photographs. We could also look back at the somewhat 'hairy' spot visited earlier.

Time for lunch and a good chat while a light wind was souging in the casuarinas- what more could a bushwalkers ask? Well one member decided that a few ZZZ's would not be a bad idea!

The big slot just below our lunch spot was next for investigating. Perhaps 3m wide it is a reasonable clamber down to link up with the same long talus slope previously identified as part of descent number 1. It is still not the most user- friendly for a full pack exercise. Next on our to try list was the main gully between the knoll and the full cliff line. As we approached the top of the gully from the eastern side, we could see a quite distinct track or animal pad.

This was the best news. We followed this track down, and down - way past the points explored on the other two options. This track was good - no handholds were required. A full pack would be no real burden. We now had identified a viable way into Carne Creek Valley from the west (starting point is GR 40254 11880). Immediately opposite on the other side of Carne Creek, and accessible from the Glow Worm Tunnel Road is a broad talus slope that appears to go all the way from the creek bed to the top of the cliffs. An overnight walk with camping on Carne Creek is now feasible. It would also allow opportunity to explore the 'Pyramid Rocks' in the centre of Carne Creek Valley.

6.28 Pyramid Pass to Zorro Pass

Maps, etc.	Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition. Department of Lands. GPS WGS 84.
Walk description and route	Drive to the end of Birds Rock Trail No. 2 at GR 400 115. Walk north east and locate a known but untested pass underneath the cliffs. Follow the base of the cliff line above Carne Creek counterclockwise, investigating slots and canyons from the bottom, all the way to GR 392 130. Exit and walk to Birds Rock Trail No. 1, then south to about GR 388 110, from where it is easier to cross Pleasant View Canyon to Birds rock Trail No. 2 and the cars. Amazing views and scenery. About 9km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	Scrambling, exposure. Date walked 28 th May 2014.

The Weather

A superb, still autumn day with good air clarity. There were miniscule areas of cloud from time to time in an otherwise clear sky. Temperature range from 12 to 18 degrees.

Background Notes

On 5th March 2008 with fellow walkers Stephen Murray and Robert Wood, I explored a series of slots and breaks in the cliff line above Carne Creek on the western side. Below is an extract from the track notes of that walk.

"This was the best news. We followed this track down, and down- way past the points explored on the other two options. This track was good – no handholds were required. A full pack would be no real burden. We now had identified a viable way into Carne Creek valley from the west (starting point is GR 40254 11880). Immediately opposite on the other side of Carne Creek, and accessible from the Glow worm Tunnel Road is a broad talus slope that goes all the way from the creek bed to the top of the cliffs. An overnight walk with camping on Carne Creek is now feasible. It would allow opportunity to explore the Pyramid Rocks in the centre of Carne Creek valley."

Pyramid Rocks are isolated rock formations on the eastern side of Carne Creek 1.5km west, south west of road intersection of Glowworm Tunnel Road and Fire trail No. 6. This is a descriptive name coined by Michael Keats on his Bush Club walk on 5th March 2008. Cullen Bullen Topo Map, GR 411 118. Map 12. The largest of these isolated pyramid shaped rocks is the Great Pyramid. The view from the top is stunning. Two spectacular features within this complex are Cleopatra Needle and Mark Anthony Slot. The GR's are the same as for Pyramid Rocks. All these were named by Michael Keats on a Bush Club walk on 31st January 2014.

Track Notes

The vehicles were parked at 0849, GR 401 119. A briefing session followed. There were two main objectives to be tested on the walk. One that the 'pass' identified 5th March 2008 was a real pass and secondly that we could walk under the cliffs, around the nose of the point and exit via one of the two passes south west of Zorro Canyon. By 0901 the group was standing at the top of the descent, now named Pyramid Pass. It was easy to negotiate and appeared to have regular use by animals. The pass also provides frequent opportunities to stop for photographs of the massive cliff line which is embellished with numerous caves and crevices.

Progress along the base of the cliffs is mostly slow as there are many undulations to negotiate as well as sections where there is a measure of exposure. The outfall of Pleasant View Canyon, GR 401 124, was chosen as a good location for morning tea, 0956. The discharge of water is presently almost non existent, however there is still a nice reflection pool surrounded by tree ferns and mosses under a Coachwood Tree canopy.

This water is the last potable source heading north until Zorro Canyon which is tucked away in the next valley to the south west. At 1053, GR 401 128, a ledge provided a short length of level walking. This did not last and soon we were back pushing ancient Xanthorrhoea's aside to make progress. A shallow cave located above with potential to develop into a walkable ledge was found at GR 401 130, 1108. This proved to be a very short ledge and a retrace and descent to a lower level was required. This area is also shown on the topographic map as having cliffs 176m high, an intimidating thought.

As we moved around the bulge in the cliff line and gained more elevation there were good views to the south east of the Pyramid Rocks complex and also of the Rain Cave -Weather Cave complex near Michelangelo Cave. Whilst any one can stand on the cliff tops and look at these features there is a feeling of connectivity about these sights when viewed from the talus slope top. This is really enhanced by knowing that we have now visited so much of this terrain.

The northern end of this finger of land was reached at 1144. It is a spectacular spot even when viewed from the talus slope. To the west there are the guardian cliffs of Adrenalin Creek, to the north the distinctive profile of Mount Wolgan and Donkey Mountain and to the north east the Carne Creek escarpment. In the foreground is the vivid green pasture land that is now a part of the Emirates Wolgan Valley Resort.

Rounding the point I looked up and noted that there was almost continuous tree cover to the cliff top. I confided in Brian and Yuri that there was almost certainly a way up at this point. If we could climb up through the cliff face right where we were currently and achieve the top this would be highly desirable. At this stage Yuri takes up the narrative,

"Ian and I were ahead of the party and were sidling around the headland and gradually climbing, when we were stopped by 50+m cliffs. This would necessitate coming down 80m+ and finding a way around these cliffs. Before

the group did that, I asked Ian to wait and to hold the group there, whilst I am having a look at a distant notch in the high cliffs I had seen a few minutes ago on my left. I went on my exploration, up and up and it looked like it was going, but I wanted to go all the way before I called it, as the second leg of the 'Z' is hidden from view until you are on it. I finally got up to where the guardian figure is and yelled back to Ian, but it was Brian who answered me; he was making his way up the long ramp of the 'Z'. I yelled to Brian, 'It goes!', so he kept going and finally joined me at the top. We then both shouted down to bring up the rest of the party."

The hoops of joy when they were successful was welcomed by all. A quick drink and the group were off climbing what proved to be a very good, easily reversible pass. The pass is hidden within a concealed dry gully and has no exposure. While it is steep and progress up it is necessarily slow due to loose rocks and debris it is a pass that can be used by any competent walker. The top of the first leg of the pass that trends south west as you are climbing, delivers the walker onto a balcony with a view over Adrenalin Creek that features a delightful small pagoda with a quirky top that can be imagined as a guardian sentinel.

The second leg of the pass is offset to the first and trends south east. This section is fairly short and leads to a level area and then up onto a large, level topped isolated pagoda. This pagoda was climbed and selected as the perfect spot for lunch. The views are just stunning. The base of the climb is at GR 399 134 and the top is at GR 398 134. There was a lot of debate about a name for this pass. It has a natural configuration similar to the letter 'Z' and it is also located 500m from Zorro Canyon. The name Zorro Pass seems appropriate.

One of the many thoughts circulating in my head over lunch was why we had not seen this pass and pagoda on previous visits to this area, which I have been to many times. After lunch we soon found out why. Descending the lunch pagoda we entered an elongated broad, virtually enclosed level separation slot that crosses the headland from east to west. The eastern side of the slot is hemmed in by a wall of 15m high pagodas punctuated by a vertical slot that we just had to go and explore.

What a surprise! This slot less than 50cm wide goes right through the cliffs and down to the top of the talus slope. Peering down from the lip at the top it appears to be negotiable, certainly with a long tape it could be climbed up and down. We settled for taking lots of photographs. Because we were so focussed on navigating the slope all the way around the headland we had missed the base of this slot.

We now turned our attention to finding a way up the southern side of this separation slot and onto the top of the headland. Brian had had similar thoughts well before the rest of us who were so seduced by the vertical slot. The level slot is about 70m in overall length and about 12m wide. Apart from Brian it looked almost impossible to climb. The most likely spot to do so was a tight, water worn but currently dry gully. Setting a tape and using Brian's strength as well as shifting a couple of logs into position at the base it was then a question of climbing the tape and posing for pictures as we scaled the three metre high rock face. Without a tape and someone of Brian's agility and skills we could have been confronted with descending Zorro Pass and proceeding as originally planned. This

would have taken another two hours at least. We now had the answer as to why Zorro Pass was not seen years ago, there is a real issue in accessing it.

This exercise consumed quite a lot of time and it was 1310 by the time we were all up and the tape stowed. Keen to see what the long slot offered on the western side we checked it out. There was another vertical slot but unlike the eastern side it ended in a drop. Heading south we walked less than one hundred metres before encountering the track from the end of the road (Birds Rock Trail No.1) to Zorro Canyon and the still trafficked road itself at 1318, GR 398 132.

As the vehicles were all parked on Birds Rock Trail No. 2, we had to cross the upper reaches of Pleasant View Canyon. The question was where was best. Near the Gardens of Stone National Park boundary, Pleasant View Canyon is still quite easily negotiated. It is not until below where two tributaries join that it starts to develop real canyon qualities. Our aim therefore was to leave the Birds Rock Trail No. 1 at a point which would make for the best descent, crossing and ascent consistent with our knowledge and the location of the vehicles. We left the trail at GR 393 120 and crossed the Pleasant View Canyon creek at GR 396 117. Birds Rock Trail No. 2 was intersected at GR 401 116, 1425. The vehicles were reached at 1428. Total distance walked 7.47km, total ascents 410m

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0849	Park vehicles	401 119
0901	Above Pyramid Pass	403 118
0948	On ledge at base of cliffs	401 122
0956	Outfall, Pleasant View Canyon + morning tea, 10 minutes	401 124
1053	On ledge	401 128
1108	Cave on point	401 130
1135	View of Pyramid Rocks, Michelangelo Cave	400 133
1144	End of finger point	399 134
1154	Checking options to climb point	399 134
1209	Climb Zorro Pass (bottom)	399 134
1215	Climb Zorro Pass (top)	398 134
1217	On pagoda, lunch, 27 minutes	398 134
1252	Exploring west- east slot	398 132
1300	Exploring vertical slot	398 132
1308	Tape assisted climb	398 133
1316	On track to Zorro Canyon	398 132
1318	Intersect track extension of Birds Rock Trail No. 1	398 132
1344	Leave Birds Rock Trail No. 1 and head south east	393 120
1357	Cross Pleasant View Canyon creek	394 117
1425	Intersect Birds Rock Trail No. 2	401 116
1428	At vehicles	401 119

6.29 Sinusoidal Ravine

Maps etc	Department of Lands Topographic Map 1:25000, Cullen Bullen 8931 – 3 N second Edition. GPS setting WGS 84.
Walk description and route	Park at Birds Rock Trail off Sunnyside Ridge Road. Use the bike track at GR 414 094 to get down into Sinusoidal Ravine. Explore the ravine and exit at GR 420 089. Then follow the Western rim of the Carne Creek escarpment south to about GR 422 083. Walk west towards spot height 1029 then north to explore two canyon like tributaries of Birds Rock Creek (Tangential and Co-Tangential Gullies), as well as the Semi-Circular Walls. Return to the cars via another (Northern) canyon-like tributary of the Sinusoidal Ravine (Co-Sinusoidal Gully). About 8 km.
Gear issues	GPS, PLB, maps, compass, 1 litre of water, electrolytes, camera. The leader will carry a tape. Warm gear to change into after the walk.
Comments	Deep ravines, spectacular pagodas and rock forms, high cliffs, incredible views.

Date walked 11th July 2011

The Weather

Cold, and brilliantly clear all day. No wind. Temperature ranged from 2 - 8 degrees. Light conditions made for very strong contrast making photography a challenge.

Background Notes

The upper reaches of Carne Creek and the associated tributaries of Birds Rock Creek and the SW branch of Carne Creek form an intricate and very deeply incised network of magnetic appeal to adventurers. Carne Creek is characterised by deep, vertical walls generally over 100m high with short steep talus slopes. The tributaries are a great contrast with intricate, pagoda crowned cliffs and very attractive erosion formations. The junctions of the creeks provide the challenges and the cliffs the views. Creating walking experiences that can be completed in a day is a challenge in itself. The fact that Carne Creek has an offset dogleg in its course at this juncture adds further to this wonderland.

The brief for this walk involved making use of the bike track network to avoid some of the more dense vegetation that is a real impediment to getting around. The amount

of time spent in the depths of the Sinusoidal Ravine was minimised to avoid the massive King Fern (*Todea barbara*) forests that conceal hidden logs, deep holes and often flowing water of uncertain depth.

After the wild winds of the previous week we were wary of fallen trees across the road network on the plateau. Loggers for Forests NSW and the activities of geo physicists proving reserves for the Springvale Colliery ensured we had an almost debris free trip to the start of the walk.

Track Notes

Parked at 0905 on the Birds Rock Trail at a bike track junction, GR 414 095, then set out down the track towards Birds Rock Creek. Stopped after about 100m to climb a large pagoda with stunning views to the east of a deep ravine with a complex crenulated and castellated crest, a truly fine example of the local country in the area. If we keep to the walk brief we would return to the vehicles exploring this ravine.

Returned to the track descending between pagodas and into the fern covered floor of Birds Rock Creek. A well constructed timber decked bridge has been built by the bikers. It seems incongruous – a piece of engineering in the middle of nowhere. Down in the creek it is easy to be side tracked by various feeder creeks. It took some checking and rechecking to pick up, and then follow the main drainage of the Sinusoidal Ravine.

Initially, progressing eastwards was easy and there was time to look up and appreciate the weathered cliffs, the great clefts and slots. After the second 'S' bend the going required more concentration as a boulder field was negotiated. A lot of climbing and descending through dense ferns took place. Promising tracks suddenly terminated and required back tracking. Slippery logs were used as bridges. A one spot we almost parachuted into the ferns to find solid ground via a muddy slope. All good stuff.

While all this was taking place time was ticking away. It is amazing how much time is consumed when negotiating a continuous obstacle course. A climb out at GR 416 088 onto a rock shelf in the sun was a welcome break and morning tea spot. Eight minutes and we were back into exploring once more. Looked up to the NW at 1057 to see a fantastic slot, GR 417 089. It was on the wrong side of the creek for our activities today but is a must revisit. It would almost certainly be a negotiable pass back to Birds Rock Trail.

At 1113, GR 419 089 our field of vision opened up significantly as we approached the angled bend in Carne Creek where the Birds Rock Creek discharges from Sinusoidal Ravine and plunges some 60m into Carne Creek. Minutes later we stood at the point, GR 420 090, (about half way up) and looked down into this awesome void. To the north is an apparent illusion of a 'blind' end section of Carne Creek (it is part of the dog leg), with the Josephs Creek ramp on the right, while to the east is also Carne Creek with a blind ended appendix creek, the combination being a total disorientation. You are confused? Temporarily we were too. Maps are a great comfort.

We now needed to climb to the top of the cliffs some 50m above and enjoy a broader perspective of the landscape. To do the climb there were several options. Brian and

Peter did a direct one with some exposure. The rest of the party followed a more relaxed scramble but still one with a few exposed pagoda steps. We reassembled at the top and a bit further east. The vision splendid to the north lay before us. It was similar to the lower panorama but with the added beauty of golden sunshine on the sandstone cliffs; a view down the Carne Creek with the sun bouncing off the water. Opposite the high terminal pagoda that marks the end of Fire Trail No. 3 off the Glowworm Tunnel Road was easily identified.

Being on this point in part fulfils a long cherished dream to do a connected walk from the S and SW branch junction of Carne Creek and the Sinusoidal Ravine (Birds Rock Creek). The distance is short – two kilometres at the most, however the challenges have taken four separate walks to date and the circuit is still not quite completed. This is a landscape where challenge is king.

We next headed SE to the cliff edge of Carne Creek at GR 423 087. Here a pagoda clings precariously to the edge. From it great views extend both up and downstream. It was 1216 and a great spot for a 24 minute lunch. Immediately to the south of this pagoda a deep cleft appears to successfully breach the cliff line to the talus slope about 90m down. No time to explore this today. But it is another challenge for the to do list.

It was time now to head further south. As we did so we felt the first change in temperature back down the scale. It was a fraction after 1300. This was not a place to be after 1600. Plans to explore further south along the cliff line were abandoned in favour of a certain visit to the Semicircular Wall.

A distraction on the way was an attractive natural sandstone/ ironstone filigree 'seat' perched high on a pagoda and a must sitting experience. Photographs taken here are extraordinary as they include views across a series of pagoda ridges forming a perfect background.

To reach the Semicircular Wall use was made of an abandoned bike track that descends a dry ravine. Regrettably about half way down is the remains of a biker rest station where old coffee mugs and fuel cans litter the landscape. An old newspaper was found dated 4th October 2007. If we had had a bit more time I would have packed this rubbish out.

The bike track cuts out above the Sinusoidal Ravine at GR 420 088. It was then a short easy level walk to the Semicircular Wall. This feature is large enough to be shown on the 1:25000 topographic map. It is about 100m across the chord and has a sloping fore apron of exposed rock beneath the wall that averages 20m in height. With the sun shining, it is a great sight and very photogenic and would not be out of place among ancient Egyptian ruins.

It was here after taking photos that I did a David Attenborough act, turning over a rock to see what may be underneath. The reward on this occasion was stunning - a comatose greenish coloured frog, possibly *Litoria citropa*. It was so stupefied it stayed for a series of photos including a series of close ups.

Next on the agenda was to return to the high ground to the south via the Cotangential Ravine or... The 'or' was a challenging possible slot at the eastern end of the Semicircular Wall that looked as though it might provide an interesting exit. There was some exposure in the climb but we did have a rope as well as a tape.

Nimble Brian scaled the lower 20m of stepped pagoda in a flash and the next 7m of unstable, partly convex rock tumble in no time at all. At the top a convenient tree provided an anchor point for a rope. With Brian at the top we knew we could do this and spice up the adventure component in this walk.

With the rope in place and the bottom end secured around her waist, Marion ascended, showering us below with debris and soil as she cleared her foot and hand holds. I ascended next the same way only using different foot and hand spots. On completion the feeling was one of exhilaration and satisfaction. Marion and I then went to a point adjacent to the slot climb, and using a tape organised a pack haul. The others then ascended. As we were all so busy, good photos of the climb are in short supply. Whilst of great satisfaction to all of us, we can only recommend this ascent to trained groups prepared to accept the real risks entailed.

Further modification to the original plans was now adopted. The climb activity had absorbed 30 minutes and seen the air temperature drop once more. Small puffs of wind emphasised the subtle but real change.

As we had elected to walk a rising ridge rather than explore the Cotangential Ravine, there was quite a bit of heath bush bashing to negotiate. Mostly this was well below our shoulders so there were good views of the cliffs above the Sinusoidal Ravine to enjoy all the way. Pictures however were a washout as the sun was behind them, the shadows just too dark to reveal the sculptural wonderland of future walking options. I need to return on a photographic mission merely to walk the ridgeline and pagodas that starts 100m immediately west of where the vehicles were parked and resolves as a grand looping arc on the north side of the Sinusoidal Ravine; then as the western margin of Carne Creek and it finally ends at the 148m high cliff where the north branch of Birds Rock Trail also terminates. This will be a full day summer walk-rope, water and camera the essentials.

At 1434 we regrouped on a prominent pagoda, GR 418 087 after individual exploring parties returned from various pagoda and cliff edge forays. Focussed we headed south picking up evidence of an old bike track at GR 418 085, (we have been here before). This time headed WSW making fast progress to GR 412 083, a track junction. After about 150m yet another photo opportunity presented, this time with the sun highlighting a great ridge of platy pagodas on the western edge of the planned grand arc walk.

After this I put the camera away and headed north down the track, across the Sinusoidal Ravine and back up towards the vehicles. About a third of the way up the hill, Yuri borrowed the camera to record even more shots of the declining sun on that very special ridge. Our adventure finished at 1520. Statistically we had not done much. Total climbs were 491m and total distance 9.9km. Statistics as always are only part of a story.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0905	Park vehicles and leave on bike track	414 095
0917	On the Sinusoidal Ravine	414 089
0925	Leave creek	413 089
0930	Back track	414 088
0950	In the Sinusoidal Ravine Creek	415 090
1035	Morning tea (8 mins)	416 088
1057	Great slot to west	417 089
1113	In the Sinusoidal Ravine	419 089
1131	On the discharge point to Carne Creek	420 090
1157	On top of cliffs	421 089
1206	Slightly further east on top	421 089
1216	On pagoda and lunch (14 mins)	423 087
1255	Heading south	421 086
1302	Walking north	419 085
1309	Walking north	418 084
1312	Bike track junction	418 085
1331	Bike track	420 088
1346	Semicircular Wall, Frog and climb	419 088
1434	On ridge	418 087
1450	Junction of bike tracks	412 083
1520	At vehicles	414 095

6.30 Striolata Ravine and Window in the Sky Ravine

Maps etc	Department of Lands Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, WGS 84.
Walk description and route	Drive down the Birds Rock Fire Trail to approximately GR 412 095. Walk from here to the amazing lookout at GR 420 095. From here, head north west along the cliff line and explore the compound gully system and slots down to the cliff base, until about GR 411 109. Return to the vehicles via the ridge line trending south west. Exploratory.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	Exploratory with scrambling and exposure. About 6km. Date walked 10 th October 2013.

The Weather

An unseasonably hot spring day with steady but strong winds persisting throughout the walking period, temperatures recorded on the car thermostat for our exact location were from 17 to 28 degrees.

Background Information

The walk today had its genesis in a similar walk executed on 8th July 2009. On that day it was 5 degrees and lightly drizzling as we prepared to set out from the vehicle at GR 407 094. The revised walk extended the area explored, and, due too more favourable walking conditions resulted in additional discoveries of exceptional geo diversity and beauty. Again, this is an area that is unprotected, being all within the Newnes State Forest. It should be urgently re gazetted as a part of the Gardens of Stone National Park.

Track Notes

A fallen tree across the track soon had two handsaws on the job. Time to move over, Emanuel had a chain saw and in no time at all the track was open again. The next 500m of the track were in poor condition. A few more heavy storms and it will not be trafficable except for heavy duty 4WD's. At 0855 the vehicles were parked, GR 417 094. During the briefing session reference was made to the spectacular cliffs, one

section exceeding 200m. It was also planned to visit several ravines that could have spectacular discharge points through the cliff line into Carne Creek.

Our first destination was the dramatic cliff edge lookout where the Birds Rock Trail terminates less than 10m from 150m drop into Carne Creek, GR 420 095. The view north down Carne Creek towards the Wolgan Valley is spectacular with just the smallest section of pastoral land visible. Brian has named this Birds Rock Lookout. Our immediate surroundings were equally special as we walked through a rich garden of spring flowers. *Baeckea brevifolia*, *Calytrix tetragona*, *Isopogon anethifolius*, *Boronia microphylla*, *Tetratheca rubioides* and the occasional Sun Orchid, *Thelymitra venosa*, vied for space amongst *Banksia ericifolia* and low clumps of *Casuarina nana*.

To gain a view south and upstream, a group of isolated pagodas a further 50m east and projecting into the valley were visited. A dogleg bend in Carne Creek prevents an extended view, however you can see where the Sinusoidal Ravine joins Carne Creek. Looking due east from the lookout, the course of Joseph Creek can be traced for its short steep journey into Carne Creek.

Leaving the lookout with its magnificent views, we retraced our steps a short distance up the fire trail before heading north west into dry open forest, walking virtually parallel to the cliff line, GR 419 095. The forest is quite sparse, and in rocky areas there is a similar plant assemblage to that at the Birds Rock Lookout. Where the cliff line is stepped back and pagodas have developed, there are occasional spot flowerings of the golden yellow Pagoda Daisy, *Leucochrysum graminifolium*, GR 417 097.

The whole cliff line area is a magical place with tempting slots that appear to provide access to the base of the first level of cliffs. A number of these were tested on 8th July 2009. Whilst they are attractive and challenging they are terminal in terms of further progress and there is little point in making the descent. Another good viewpoint is found at GR 416 098 and a slot descent nearby takes you into a shallow gully, which does not evolve into anything of great merit.

Climbing out of this area to the north west we crossed an almost imperceptible ravine, then mounted a cluster of pagodas at GR 416 101, but not before crossing a well defined fault line and associated slot. It was now 1012 and an excellent location for morning tea. I found the sun too hot on top and migrated back into a shady area. By 1022 we were on the move again.

The next section of the cliff north is well endowed with viewing points including several semi detached rocks on the very edge. Spectacular photos were captured of fearless members of the party in very challenging situations. At 1045, GR 414 103 we entered a small dry tributary creek, its course almost due north. As we headed downstream it developed significant cliffs, and at a junction, GR 413 105, showed signs of becoming a canyon. Immediately we dropped down into it and entered a different world where a microclimate enabled the survival of moisture loving plants.

As the canyon deepened and the watercourse became more incised, the cliffs came closer together and the walls moss and orchid encrusted. Looking up through the crossed fronds of King Fern, *Todea barbara*, at an almost uniform height, was a frieze of thousands of orchids in full flower. These orchids were *Dendrobium striolatum*. It

was only after taking numerous photos that I really appreciated the continuity of this floral experience. It is very special. I have named this ravine, Striolata Ravine in recognition of this amazing species dominance.

We kept moving downstream all the way to where Striolata Ravine, when flowing, discharges as a waterfall into Carne Creek, GR 415 106. Other noteworthy flora in this ravine is two magnificent specimens of Possumwood, *Quintinia sieberi*. These trees were massed with frothy creamy white flowers to such an extent that the leaves almost disappeared.

Easing back a few paces from the discharge point there is an easy ramp up north out of the ravine to the cliffs above. Here there is a noticeable change in vegetation with architectural *Xanthorrhoea* species being dominant and most flowering species becoming absent. A wing like protrusion from the cliffs forms another major viewing point that I have named Striolata Point, GR 414 107. After taking pictures we continued moving north west as well as climbing. It is here that a ridge has been truncated, its additional height enhancing the already significant cliffs, GR 412 107. Eager for more experiences, we descended into a shallow gully and then crossed to the northern side where we observed stunning views of the cliffs shown on the topographic map as having a relative height differential of 218m. Not only are these cliffs extremely grand, they are colourful and make for glorious photos. The biggest issue is trying to do them justice when even a wide angle picture fails to simultaneously record both the top and bottom. This was at GR 411 108.

An important objective of the walk was to reach the notch in the cliffs near the topographic map notation, 218r. Walking towards this objective was definitely to take the scenic route. Each step further north expanded the field of vision and the sense of scale of Carne Creek. Pyramid Rocks, an isolated rock formation, is a focal point in the valley view. It is also shown as a spot height 707.

Aerial photo research shows that nearby 218r there are amazing pagodas and a very deep ravine. To reach this location a counter intuitive route is required to bypass a non negotiable vertical rock face, and so it was that we walked back about 75m to a junction in a ravine and then turned north up another slot with an internal ramp. The shenanigans were not over yet, as a further counter intuitive movement was necessary to reach easily negotiable terrain at about the 960m contour level. Our lunch destination was the south side of the ravine as revealed by the aerial photos. Here an exposed rock platform, perched on the very edge and complete with semi shade from a solitary tree was reached at 1216, GR 409 110.

What a place to have lunch! Before eating could be contemplated photos were required. Not that the view would disappear, but to satisfy the compelling need to lock the images into our personal mental computers for safe storage and retrieval when we needed a boost to morale or just to relive the singularity of the bush explorers life. Later after we had eaten we discovered that this location is indeed a very special one, and wait for it, still outside the protection of national park status.

At 1235 we began walking what proved to be an odyssey. Just a few metres further north from the lunch site a pagoda hides the view of what is around the corner. Approaching from the south the first reaction is that this is an undoable canyon below.

Not so. Rounding the blind corner, suddenly a whole new world is revealed. Below in deep unfathomable darkness the tops of tree ferns can be discerned, at least 50m down. Spiralling from the base of this deep, and all around this chasm pagodas rise, devoid of any vegetation, but sculpted and honed into perfect minarets, and spires punctuated in key places by a few ironstone bands.

This is another very special place where few have ventured. After absorbing as much as we could, we headed south west, seeking a way down and simultaneously being overawed by the sheer scale and size of the natural architecture. At GR 408 111 we found a promising descent point, which turned out to be the roof of a tunnel. Looking around there was another tunnel upstream; downstream there is a huge tumble of rocks and a strategic log to act as a ladder. We shed our packs and descended, descended into another world of Cyclopean rocks and vegetation that would not survive for 24 hours anywhere nearby.

Decorating the walls are long stems of *Dracophyllum secundum*, its rapidly fading pink bell shaped flowers indicative of how quickly the dry conditions have shortened its flowering. Although this ravine is protected from the extremes of heat, surface water is virtually gone and what would normally be treacherous rocks are now dry and safe. There is one small internal pool about ten metres back from the drop.

As we explored downstream, and NNE the ravine drops rapidly, while the main watercourse has deeply cut into the rock. It is also a watercourse that when it runs, runs very fast. There are no loose stones here; everything has been washed straight through leaving beautifully shaped sculptural sections of sensual curvature. Equally, looking up is a revelation. A huge chock stone blots out a direct view of the sky. Looking ahead there is a window, a massive window that frames a view of the Carne Creek cliff line below the Glowworm Tunnel Road.

We made our way through the window frame and just enjoyed what was there. The sunlight had penetrated deep and the internal rocks glowed with suffused light. This is a 'window in the sky.' Picking up on this Brian Fox and I have named this the Window in the Sky Ravine. The window frame is about 50m below the top of the cliff line and by deduction the base of the cliffs below the discharge point to the talus slope is 150m. This is truly a marvel that we cannot let rapacious mining activity destroy. This window is not the rose window of Chartres Cathedral in France; it is infinitely more precious and worthy of homage and National Trust treasure recognition. At 1309 we commenced the return journey to exit the ravine. The creek that terminates in the Window in the Sky Ravine now becomes quite ordinary as you walk upstream. Initially pagodas are scarce, and then they disappear altogether. At 1327, we exited the creek at GR 408 108. We then plotted a course ascending a gently rising north to south oriented ridge and proceeded to follow this all the way to the Birds Rock Trail at GR 409 097. It was an interesting walk back through open forest. The understorey was dominated by two 'yellow' species, *Pultenaea microphylla* and *Dillwynia ramosissima* with large numbers of spikes of the brilliant blue Sun Orchid, *Thelymitra venosa*.

The vehicles were reached at 1420. Total distance walked 8.98km, total ascents 444m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0855	Park vehicles on Birds Rock Trail	417 094
0911	Commence walk	417 094
0918	Birds Rock Lookout	420 095
0932	Leave Birds Rock Trail	419 095
0937	Walking along cliff	417 090
0944	On a view point above Carne Creek	416 098
0951	On a pagoda above deep slot	416 099
1006	On a viewing platform	415 102
1012	Morning tea, 10 minutes, + great view	416 101
1028	Cliff edge views down Carne Creek	416 101
1041	Walking along cliff edge	415 104
1045	In tributary creek	414 103
1052	Drop down into ravine	413 105
1100	In dry creek bed	414 106
1105	In Striolata Ravine	414 106
1109	At discharge point of Striolata Ravine	414 106
1115	On Striolata Point	414 107
1122	High point north of Striolata Point	413 107
1135	Cross small ravine	412 107
1145	View 200m+ cliffs	411 108
1216	Above Window in the Sky Ravine + lunch, 19 minutes	409 119
1251	Entered Window in the Sky Ravine	408 111
1302	At the window frame	408 111
1309	Back at descent point	408 111
1327	Exit creek for Window in the Sky Ravine	408 108
1334	In forest on ridge	409 104
1348	In forest on ridge + Sun Orchids	409 097
1356	Link up with Birds Rock Trail	409 094
1420	At vehicles	417094

6.31 Birds Rock Creek

Maps etc	Department of Lands topographic map Cullen Bullen, 1:25000, 8931 – 3N, second edition. GPS setting WGS 84.
Walk description and route	Park one vehicle at GR 385 085 and another one at GR 418 095, return to the first vehicle and head east to pick up the headwaters of Birds Rock Creek. Follow it through Birds Creek Flora Reserve and later on, the canyon sections, till about GR 417 089. From here, head north and then west to the cliff edge at GR 419 093 for a great view of Carne Creek. Re-connect with the vehicles. About 8km.
Gear issues	2 litres of water, electrolytes, maps, compass, GPS, PLB, appropriate head and foot wear, tape (leader only).
Notes	Exploratory. Scrambling and exposure. Wet feet and more likely. Date walked 27 th December 2013.

The Weather

A warm still, humid summer day with variable cloud cover and rising humidity, temperature range from 17 to 24 degrees. Much warmer in exposed locations and in deep gullies.

Background Notes

Birds Rock Creek and the Sinusoidal Ravine were some of the first and glorious locations I visited on the Newnes Plateau. My first taste was in January 2007 when Roger Clarke, Dave Dash and I spent a memorable day walking and climbing the wild eastern section of Birds Rock Creek, the Sinusoidal Ravine. Visits to the upper reaches of Birds Rock Creek took place in March and July 2011.

Birds Rock Creek is located within Birds Rock Flora Reserve. Having its headwaters off the eastern side of Birds Rock Trig Station, it flows generally east for 4.5km into Carne Creek. James (Jim) Lancelot Bird (1895-1978) and his brother Richard Edward (Bert) Bertrum Bird (1891-1961) during the 1920s used horse teams to log the area on top of Newnes Plateau. Jim also worked for the surveyor Lieutenant Colonel Clews when Birds Rock Trig Station was constructed in 1930 by the Royal Australian Survey Corps. Ref: Joe Bird (son of Jim) oral history to Brian Fox 15th June 2009. Lands Department Bathurst Trig Summary Cards. Survey Plan 2811 & 2812.1507 records James Lancelot Bird having a special lease of 339ac (137ha) between the

years 1934 and 1961 within the Wolgan Valley. Cullen Bullen Topo Map, headwaters GR 390 086, junction GR 421 091.

Birds Rock Flora Reserve is roughly elliptical in shape and lies to the east of Birds Rock Trig Station within Newnes State Forest. About 16km north, north east of Lithgow. Access is via Sunnyside Ridge Road and Birds Rock Trail. Cullen Bullen Topo Map, GR 395 086. Birds Rock Flora Reserve has a total area of 415ha. Originally accepted for preservation in 1966 but not gazetted until 23rd September 1988. A number of Eucalyptus species are in this reserve, including the Blue Mountains Ash, *Eucalyptus oreades*. Ref: Birds Rock Flora Reserve No. 126; Newnes State Forest No. 748, Working Plan.

Birds Rock Lookout is a dramatic cliff edge lookout where the eastern end of Birds Rock Trail terminates less than 10m from a 150m drop into Carne Creek. Named by Brian Fox on a Bush Club walk, 10th October 2013. Access via Sunnyside Ridge Road. Cullen Bullen Topo Map, GR 420 095.

Track Notes

To allow maximum time and effort to be spent exploring, a vehicle shuffle was organised with two vehicles being placed near the planned end of the walk, GR 414 095 while another was placed a GR 385 086, the start of the walk. While the vehicle transfers were being emplaced the group was entertained by a trio of Gang Gang Cockatoos, *Callocephalon fimbriatum* feeding on eucalyptus seeds in several nearby tall trees. It was most encouraging to see these large birds in an area that is increasing hostile to their survival.

Walking started at 0850, GR 385 086 after a briefing session. We had not progressed far when Brian found a large bird nest on the ground. It was not that of the Gang Gang, which uses a convenient hole in a tree. As we moved down through the open forest there were several leafless spikes of the bright pink and maroon Hyacinth Orchid, *Dipodium punctatum*. This delicate chlorophyll free orchid is a saprophyte, dependent on decaying vegetable matter for nutrition. Nearby a Crinkle Bush, *Lomatia silaifolia* was just bursting into a mass of cream coloured flowers. This genus is often mistaken for a member of the Grevillea family.

At 0916, GR 394 085 the clear open forest floor gave way to a fern and rush filled ravine. One of the most striking plants in this densely packed vegetation was the Blue Flax Lily, *Dianella caerulea*, with clusters of deep blue fruits. Moving on, the fern mass became very dense with King Ferns, *Todea barbara* dominant in the creek bed while *Blechnum* sp. and *Gleichenia dicarpa* formed huge matted areas where the supply of moisture was constant. At 0928, GR 395 085, we encountered a bike track which was walked for several metres before it went south and we went east.

Another 100m on we were forced to leave the relatively easy progress through a Banksia and Leptospermum dominated forest to descend a major hanging swamp. This swamp at GR 396 085 is predominately *Gleichenia dicarpa* that is so well supplied with nutrients that it has become arboreal. At times it was greater than head height, particularly where it could use woody plants such as Leptospermum as a climbing frame. We needed to descend this swamp to reach the main watercourse and

did so by tumbling down through it. Lots of soft landings and many short slippery slide experiences culminating in an elevated narrow log walk.

We pushed on downstream making reasonable progress. At 0959, GR 399 085 a bower of the Satin Bowerbird, *Ptilonorhynchus violaceus* was discovered together with an array of blue objects. The following notes about the bower structure are included.

Males build specialized stick structures, called bowers, which they decorate with blue, yellow, and shiny objects if these are available, including berries, flowers, and even ballpoint pens, drinking straws and other discarded plastic items like clothes pegs. As the males mature they use more blue objects than other colours. Females visit these bowers and choose which male they will allow to mate with them. In addition to building their bowers, males carry out intense behavioural displays or dances to woo their mates, but these can be treated as threat displays by the females. Nest building and incubation are carried out by the females alone. Recent research has shown that female mate choice takes place in three stages:

- Visits to the bowers, before nests have been built, while the males are absent
- Visits to the bowers, before nests have been built, while the males are present and displaying
- Visits to a selection of the bowers, after nests have been built, leading to copulation with (typically) a single male.

At 1000, the first of many pagoda sculptured sandstone 'blades' up to 30m high was encountered in the creek. These blades of more resistant rock are a major structural control feature of the terrain and their regular spatial frequency creates the Sinusoidal Ravine further downstream. As we were checking out the creek near the base of this blade, Rodney disturbed a large Owl that flew into a tree about 70m away. A call was put out for Brian to come and photograph it but it took flight again before he could make it. Given its size and wing span we think it was probably a Powerful Owl, *Ninox strenua*. Also, in a cave nearby we found fur and skeletal remains of either a possum or a glider, both favoured items by this species as food.

Soon after the Owl sighting we entered a great cave at GR 402 083. This cave is approximately 18m wide, 12m deep and 6m high. It is one of three significant caves that occur along Birds Rock Creek. The other two caves are located at GR 409 086, dimensions 25m wide, 10m deep and 10m high and at GR 410 086 a cave that is about 30m long and is effectively a two storey cave. It is proposed to name these caves Birds Caves after brothers James and Richard Bird.

Morning tea was taken in the cave at GR 402 083. This cave has an almost level floor and a magnificent outlook downstream between two closely spaced impressive tall blades. Leaving the cave at 1035, we descended into a very thick natural planting of *Todea barbara*. Some individual plants had trunk girths in excess of 1m. The next ten minutes or so were spent most enjoyably as we negotiated subterranean like dark holes, slid down and around small waterfalls and crawled our way along narrow rock shelves. It was quite a playground.

Emerging from the other side, we kept high while the creek plunged deep and for a short distance formed a very deep and narrow ravine. The differential in height being over 40m. Our sense of height was exaggerated by an exceptional tall sandstone blade opposite. It was a superb spot to take photographs. All this was at GR 406 084, (1102), and then for a short distance we stayed on a high rocky ridge before again descending via a series of ledges back down into the creek.

One of the most attractive sights along the creek was the display of flowering *Leptospermum myrtifolium*. The flowering this spring and summer has been exceptional with large areas appearing as a sea of creamy white. Nature has also made certain that the pollinators for this species were around as well. Hovering above every flowering specimen and competing for air space were tens of thousands of Plague Soldier Beetles, *Chauliognathus lugubris*. What a sight!

As we progressed downstream the ravine became more interesting. There were wonderful bends that hid from view what was coming next as we experienced at 1129, GR 407 086 and again at 1131, GR 409 086 and then at 1135, also GR 409 086 another of the Birds Caves. At this cave and looking back upstream is an almost symmetrical pagoda that appeared to rise from a sea of frothy *Leptospermum myrtifolium* flowers. With a clear blue sky behind, this was a dramatic sight. This complemented the sandstone wall opposite the cave opening. The downside of this cave is that it has a mostly steeply sloping floor

At 1146, GR 410 086, we reached the third of the Birds Caves. This two level cave has the watercourse of Birds Creek flowing hard against the eastern end. It is a pleasant spot that marks a temporary end of the blades before the commencement of the Sinusoidal Ravine at GR 413 090. From 1146 to 1204 we walked in a broad, open gully section of the creek in very warm conditions and rising humidity. Keeping fluid levels up was an issue. At 1219 we intersected with a bike track and decided that rather than continue for another hour downstream, we would exit and follow the bike track back up the cliffs to the Birds Rock Trail.

We had only progressed to GR 414 092, 1234 when an opportunity to climb up a pagoda covered blade as an alternative presented itself. Immediately we decided that this was much more interesting than a track and so we went climbing. By 1245 we had gained the top of the first pagoda and had a chance to look downstream where we would have been if we had continued on in the creek. The view is a great one and the topographic map shows the cliffs opposite the pagoda we were on to be 46m high.

After exploring the immediate adjoining pagodas and noting the poor state of the Pagoda Daisies, *Leucochrysum graminifolium*, we found a spot with a great view for lunch, GR 414 093. About 10,000 flies thought it was a great idea as well and came and joined us. They were most persistent, not even increasing cloud cover deterred them from being a nuisance. By 1305 we had had enough, so packed up and started walking. We had only gone about 50m when we noted a pink tape on a tree and a sort of 'track' that headed north east towards Birds Rock Lookout. The 'track' soon disappeared but a reasonable way of route could be found and in less than ten minutes we joined the Birds Rock Trail at GR 417 094. Here it was decided to shed packs, have a big drink and walk out to the lookout with its stunning views down Carne Creek including Pyramid Rocks and Donkey Mountain.

Ten minutes was spent at the lookout enjoying the views. The cliffs deep in the valley of Carne Creek immediately opposite were decorated with many *Leptospermum myrtifolium* in full flower showing just how extensive this flowering is across the Newnes Plateau area. After returning to our packs we walked about 300m to the vehicles at GR 414 095.

On the drive back along the Birds Rock Trail, a stop was made at GR 387 088 so that those who had not been to the Birds Rock Trig or seen the expansive view north could have that experience. Visibility was reasonable and it was possible to catalogue all the high spots along the Wolgan Capertee divide from Mount McLean to Mount Dawson. On the far horizon Mount Marsden, Tayan Pic, Mount Coricudgy and Mount Yengo could all be identified. More immediately, we could see part of Donkey Mountain and especially of interest to some of us, the complexity of the Adrenalin Creek where we still have unfinished business.

It was very sobering to remind everyone that where we stood the NSW Electricity Commission (Elcom) now disbanded had planned to build a huge 6000 megawatt power station. Thankfully that project was scuttled. However alive and well is an application by vested coal interests to develop a huge coal mine nearby and pollute Carne Creek. The coal is of poor quality and that was the reason the power station proposal failed. How the coal is now suitable for mining and use is a question that no one seems to be interested in addressing.

Total distance walked 7.8km. Total ascents 248m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0843	Car shuffle completed and at walk start	385 086
0850	Walk start	385 086
0916	<i>Dipodium punctatum</i> and <i>Lomatia silaifolia</i>	394 085
0928	In a world of ferns	395 085
0937	Descending hanging swamp	396 085
0959	Bowerbird Bower	399 085
1012	Owl sighting	402 083
1019	Birds Caves (number 1) + morning tea, 16 minutes	402 083
1052	Above very deep gorge	404 084
1102	On high ridge	406 084
1113	In creek	407 085
1129	On bend	407 086
1131	On bend	409 086
1135	Birds Caves (number 2)	409 086
1148	Birds Caves (number 3) two levels	410 086
1204	In open ravine	411 088
1219	Bike track	413 090
1234	Leave track, climb pagoda	414 092
1245	Lunch on pagoda, 20 minutes	414 093
1315	Join Birds Rock Trail	417 094
1322	At Birds Rock Lookout	420 095
1335	At end walk vehicles	414 095

1410	Birds Rock Trig, 10 minutes	387 088
1422	At walk start vehicle	385 086

6.32 Carne Creek and Convolution Creek

Maps etc	Department of Lands: Cullen Bullen, 8931 –3N, topographic map, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	This walk connects two of the most convoluted and dissected short creeks in the upper Carne Creek catchment. Parts of both creeks I have walked sections of previously. Birds Rock Creek contains a rare flora assemblage and is a gazetted Flora Reserve within the Newnes State Forest. We will see cliff lines on average of 30m and expect lots of pagodas. Park at GR 386 077 Sunnyside Ridge Road and Fire Trail No. 4 junction. Walk east and drop down into an unnamed creek at GR 388 078 walk downstream and east through forest and into a tight canyon /ravine dropping about 250m into Carne Creek at GR 422 078. Walk downstream in Carne Creek to the Birds Rock Creek junction GR 421 091 then climb up Birds Rock Creek through incredible slots and go all the way to GR 381 086 and then walk 1km on the old logging road back to the car.
Gear issues	PLB, 20m tape, 1 litre of water, electrolytes, maps, compass, volleys, GPS and headlight torch. Leg protection optional. Gloves could be handy. Feeling adventurous and ready for rough terrain
Comments	Wet, wild and some exploratory, some rock scrambling may be encountered; wet feet are almost a certainty. Camera. Bring a change of clothes.

Date walked 5th March 2010.

The Weather

A mild overcast day with developing showers that became heavier in the afternoon. We were thoroughly soaked when we finished the walk. Temperature range 9 to 16 degrees.

Background Notes

How easy it is to design a walk from the comfort of the 'operations room' with a topographic map, and Google earth. How different it can be when those carefully measured and plotted lines translate into footsteps, handholds and cliff lines and under less than ideal conditions.

Given the size of our party we did well with everyone keen to be out there walking before the threatening heavy overcast conditions dissolved into rain. Assessing the current weather conditions and the gloomy forecast I had turned over in my mind the idea of doing the walk in reverse as the Birds Rock Creek is so beautiful. In the end we stuck to the original agenda and parked the vehicles at the Fire Trail No. 4 junction with Sunnyside Ridge Road, GR 386 077, at 0835.

Track Notes

After the briefing session we set off down the Fire Trail No. 4 track until GR 390 076 where the Fire Trail No. 4 continued along the crest of the ridge, and we commenced our off track descent into the creek. The top catchment country is reasonably open *E. oreades* regrowth forest with a Common Bracken, *Pteridium esculentum*, under storey. As we dropped lower, leptospermum species became the dominant under storey species. Looking down into deeper creeks the King Fern, *Todea barbara* was so thick that the actual watercourses were totally obscured.

At 0900 a rude shock – a fairly new motor bike trail cut across the gully, GR 396 074. Given that this is state forest and that Forests NSW appears to condone this activity it was not altogether surprising. A study of the topographic map shows that this trail would probably have its commencing point at the end of what would be Fire Trail No. 3, which is shown as terminating at GR 395 072.

We pushed on and at 0910 encountered our first cliff line, GR 399 075. A conscious decision was made to stick with the southern side of the creek, which proved to be a good choice although the rate of drop in the creek meant that we were soon seeking a ramp down, as it was important not to let the potential cliff descents become unmanageable. Scouting for the right way down was a much contested activity. A good combination of zig zag ramps, slots and small jumps had us down a generous 20m in no time at all.

The scouting force pressed on and soon a way down the next cliff line was resolved, and the next one as well. Our position was now GR 402 075 and the creek bed was ours. At 0940 a discontinuous line of massive pagodas trending just west of north south now flanked the northern bank of the creek, GR 406 074. On the south side of the creek the cliffs are set back about 50m and a small but tricky waterfall meant some climbing to the base of these cliffs to avoid this obstacle.

The light was now becoming a bit less as the cloud cover deepened and a few raindrops were mixed in with the general dampness of the air. A superb and dry overhang was found at GR 408 071, an ideal spot for morning tea and a great spot for some pictures. After 20 minutes we were back into the bush once more but it soon became impossible not to be creek walking. The rain now started to be a bit heavier but not quite at the point where a raincoat was a good idea.

As more tributaries joined in, the creek became bigger and the water flow in the creek increased. Soon most of us were wet up to the waist. Wet shoulders were by now universal – to all intents and purposes we were completely wet. At 1050 under

beetling, tall cliffs our creek joined with Carne Creek⁴⁶. Each time now after an entry in the notebook it had to go into a re-sealable bag. Then the ballpoint pen stubbornly refused to work. The next two kilometres of Carne Creek are spectacular even in the wet. The topographic map shows some cliffs as 41m, however it fails to show the compound nature of these cliffs so the total height differential from the creek bed to the top is more than double that figure. Successively most of us fell in the creek while trying to look at too many things at once. Also, those who are walking behind generally cannot see the bottom of the creek bed, as the water is muddy. What the...! When you are wet, you are wet.

As we were completing a north south section of Carne Creek, GR 417 074, we came across another unwelcome surprise that was not there in May 2007 – yet another bike track. We figured that to the south this would connect up with an old logging road at spot height 1072m, GR 414 058. To the north this would somehow connect with the eastern end of Fire Trail No. 4. It was clear that what was once an unspoiled remote area was now compromised forever. On the positive side it is also the case that excursions into the more remote parts of the Upper Carne Creek are now much more accessible.

Because of the density of ferns in the creek we travelled on this bike track for about 30m before again descending into the creek bed. The trail led upwards to the plateau. The next section of Carne Creek is characterised by successive, massive dissected cliffs that separate minor tributaries, particularly on the north side. By now it was raining almost continuously and there were ominous signs that Carne Creek was rising. We pushed on to the junction of the two branches of Carne Creek (or Carne Creek from the south west and Camp Creek as I designated it 7th March 2007) to avoid confusion.

In this section of creek there were quite a few small logjams requiring lots of ups and overs, downs and unders, controlled swivel manoeuvres over broad logs and similar contortionist moves. A member of the party misjudged one and some quick bandaging was required. It was too wet to do more and fortunately the minor bleeding soon stopped. Talking to someone while I should have been paying attention meant I spreadeagled into the bottom of the creek. It did not really matter, as everything was wet.

⁴⁶ Walked some of this section on a walk 4th May 2007. This is an extract from that report. "It did not take more than a few seconds to determine that wet feet were going to be very much a feature of the walk. The bed of Carne Creek was by far the best way of route for 90% of the time. At approximately GR 411 071 there is a short section where the cliffs tower high on the south bank. A small waterfall succeeds the cliff section, and then a block up that necessitates climbing up the north bank about 10ms above the creek bed. It is a dramatic spot and in the morning light very beautiful.

The river wade had until now been more or less confined to mid thigh height for the guys and a bit higher for some. Now we started to experience sections where navels were being submerged quite a bit. And, yes, it was cold. At 1010 found a high rock that was bathed in sunshine, GR 412 072. Here we had 20 glorious minutes warming up, eating up and regaining our sense of wellbeing.

The creek was calling, so it was back into it to continue exploring. The cliffs were generally becoming higher, the trees in the creek area bigger and the ferns more lush. The water remained consistently cold. We saw no crayfish.

At 1140 we reached the planned exit point GR 419 075 where one member of the party decided that she was cold enough. She would dry off, warm up and rest here while the rest of the party would try and reach the junction of the SE Arm and Carne Creek, some 400m further on.

At 1250 after an assessment of the maps, the status of members of the party (some were getting cold) and our rate of progress, I determined to call off the rest of the planned walk, return to the bike track at GR 417 074, climbing up through the cliffs whilst looking for a suitable dry overhang for lunch. I have to concede that the bike track is well graded; considerable effort has been expended to cut trees and bushes so that it is more of a made path. Alarming the small amount of rain had turned it into a running stream that has already caused parts of the track to gouge deeply. Left unchecked, which it surely will be, this area is headed for severe erosion.

The search for a dry overhang to have lunch was fruitless – we were on the top without a cave in sight. The best that could be found was a vertical cliff with about 30cm of less damp area to sit on. It was 1345 and hunger was more of an imperative than shelter so we huddled in our rain gear and ate. Dave the optimist thought a fire would be cheery so resources were pooled to try and make it a reality. The fire was finally coaxed into being, small but doing quite well when Dave in his exuberance to feed it, tripped and fell with his load of semi dry leaves, extinguishing it completely. After a good laugh at Dave's expense lunch was hurriedly finished as our minimal shelter began to develop small waterfalls along its entire length as the rain stepped up a notch.

Before leaving the spot and resuming our exit walk we climbed a pagoda about 30m to the south. Through the shifting mist there were ephemeral images of cliffs and pagodas, which on a fine day would have been spectacular. I look at my photos and can just make out three sodden figures, Sandra and John looking east in the vain hope of seeing some more of the Carne Creek cliffs and Geoff trying to pick up enough satellites for a GPS reading.

By now we were all feeling the effects of exposure and this inspired our efforts to link up with Fire Trail No. 4 and the way back to the vehicles. At GR 411 081 the bike track had a "T" junction. After some debate about which option to take, I asked for a pen or pencil to make a note, mine steadfastly refusing to function. We found Dave's pen in his multi pocketed jacket, however it was so well secreted that it was a combined effort, almost undressing Dave to retrieve it. After all the effort it would not work either and Sandra had to come to the rescue. Even more embarrassing for me was that the paper was so soggy that nothing could be written anyway.

The question again arose as to where the other branch of the bike track led. I figure that it would head more or less north and possibly across Birds Rock Creek to link up with a fire trail that is shown as ending at GR 408 088. Since abandoning the walk as planned, I was mentally plotting a further assault on this section of Carne Creek. Knowing of the existence of the bike track(s) I would now make the attempt by walking down the Fire Trail No. 4, then the track we climbed out, head north along Carne Creek to Birds Rock Creek and if necessary pick up this other track if Birds Rock Creek proved impossible.

From the track junction at GR 411 081 the way back to the vehicles was straight forward and we arrived at 1530. We did come across several other bike tracks that rather amazed us, as Forests NSW have a responsibility to preserve and maintain the integrity of Birds Rock Flora Reserve as a duty under the Act. Bike tracks and Flora Reserves hardly seem compatible.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0835	Junction of Sunnyside Ridge Road and Fire Trail No. 4.	GR 386 077
0850	Leave Fire Trail No. 4 (into creek catchment)	GR 393 076
0900	Bike track crossing	GR 396 074
0910	First cliff line drop	GR 399 075
0920	Down compound slot	GR 402 075
0930	Second descent ramp	GR 405 073
0940	Pagodas on north bank of creek	GR 406 074
1015	Morning tea – overhang (20 mins)	GR 408 072
1100	Carne Creek Junction (west branch)	GR 411 072
1215	Bike track crossing	GR 417 074
1250	Junction of Carne Creek and Camp Road Creek	GR 423 077
1325	Bike trail crossing	GR 417 074
1345	Lunch (vertical overhang) (30 mins)	GR 416 077
1430	Bike track 'T' junction	GR 411 081
1445	Trail bike junction	GR 407 078
1505	Trail bike junction	GR 396 078
1530	Return to vehicles	GR 386 077

6. 33 Convolution Creek and Tagine Point

Maps etc Department of Lands: Cullen Bullen, 8931–3N topographic map, 1:25000, second edition, WGS 84.

Walk description and route Park cars at approximately GR 395 061 (spot height 1090) on an old forestry access track. Walk down into a Carne Creek tributary, then to Carne Creek itself, exploring between the pagodas for slots, canyons and caves. Walk down the Carne Creek gorge, up to the huge cave at GR 408 067 that we saw (but didn't get to) on a previous walk. Take a "Y" shaped creek at GR 407 065 to exit (this creek does go up, but it is going to be an exciting journey).

Gear issues This is Autumn, have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).

Comments Exploratory. Wet feet and very likely more. Scrambling and exposure guaranteed, as is the spectacular scenery. About 5km, but this is not indicative of the effort that will be required to negotiate this country.

Note: there is a coal mining exploration licence application out on this beautiful and unspoilt area, which, if granted, will bring about its destruction. See it whilst you can!

Date walked 13th March 2013.

The Weather

A glorious autumn day, some brief morning mist that quickly cleared, occasional scattered cloud, temperature range 14 to 23 degrees.

Background Notes

Some six years ago, I began exploring this area. At the time, my knowledge base across many issues was much less than it is now, as was my preparedness to take on challenges that today I regard as routine. Returning to the area with new knowledge, particularly regarding the plans of three major coal mining companies to completely

destroy the Newnes Plateau, really sharpened the need to explore, document and capture the wonders of this area before we are left with nothing but a lunar landscape and regrets.

The most immediate area under threat is covered by two exploration licences, one already active and one an application, EL 6856 (Angus Place) and ELA 4719 (Springvale). This later application area is particularly important as it includes the presently pristine upper Carne Creek catchment and some of the most beautiful and dramatic pagoda country in the entire Sydney area.

Track Notes

The vehicles were parked at 0853, on an old forestry access track, GR 393 061. To give the exploration party context, we headed out on a narrow, pagoda studded peninsula between two canyon incised, and unnamed creeks. The views were stunning and dramatic, particularly at the terminal end where the vertical drop was over 50m. To the north east, and the east, bold cliff lines, great clefts and massive pagodas filled the field of vision. It is an inspiring place, GR 393 056.

We needed to descend into the creek network, an assignment that looked seemingly impossible from the end point, however on the eastern side of the ridge and just below the pagodas, a disjointed set of very narrow rock shelves, some bushes of questionable strength and some just possible foot holds looked possible. No time to consider or look for problems that may not arise so we headed off. There were a couple of minor challenges, but by 0947, GR 394 058 we were down and walking in a lush garden of rich very green ferns, consisting of King Fern, *Todea barbara*, and Coral Ferns, *Gleichenia dicarpa*.

As expected, following our earlier views from the ridge, this upper valley soon narrowed markedly and then constricted into a delightful canyon. The topographic map gives only the slightest hint of the sinuous convolutions of this creek, and of course absolutely no hint of the marvels of cavernous erosion, undercut banks, tunnels of cool flowing water or the magnificent specimens of Black Olive Berry Trees, *Elaeocarpus holopetalus*, many in excess of 30m high. This creek and its catchment I have named Convolution Creek.

In this paradise, time became unimportant as we savoured the sights and sounds. The fungi 'fruiting' season has begun and the variety and diversity of species on show were simply amazing. Species photographed included the *Paxillus* genus; *Austropaxillus infundibuliformis*, the fleshy pored fungi, *Boletellus emodensis*, *Phlebopus marginatus* and an unusual golden colour form of *Amantia*, very similar to the more common red form of *Amanita muscaria*.

As well as the bounty of fungi, nature provided some very special effects in the canyon, with shafts of light transiently illuminating cliff sections, then a length of creek, then some foliage and then it was gone. We had morning tea in this paradise at GR 395 055, twelve minutes of indulgent pleasure.

Moving down the creek became harder as more and more ducking and weaving over debris and rocks was called for. Our progress really slowed once our Convolution Creek joined with Carne Creek at GR 401 053. To give us some variety from creek

walking we tried the western bank. This was not much better as the amount of fallen timber, meant just as much log negotiation was required as in the creek. What it did do was expose us to more fungi species, and thanks to John's sharp eyes, a live specimen of a Camaemid snail. This snail was photographed, documented and then bagged for the Australian Museum, GR 402 055.

After about 500m of very slow progress we stopped and assessed the situation. It was now 1148, and we calculated that at best it would be a further two hours before we would reach the pair of "Y" connected ravines at GR 407 065, far too late too really do effective exploring. The decision, to exit at a very interesting ravine immediately to our west, return to the vehicles, relocate them to GR 396 071, and from this new starting point, explore the ridge in between the two branches of the "Y" ravines.

The ravine at GR 403 057, was scrubby in its lower sections so we headed straight up to the base of a pagoda bedecked ridge, as walking is always easier with a rock wall on one side. Reaching the cliff base we noticed a magic slot, possibly 15m high and about 60 cm wide. Like iron filings to a magnet we climbed up to it and then of course wanted to explore it and hopefully negotiate it to the ridge top.

It proved to be a wonderful slot, about 20m long before it made a right angle turn, narrowed, became filled with negotiable chock stones down low and then threw in a convex squeeze challenge with exposure and the prospect of jamming, all great stuff and a real change of pace to climbing or creek walking. It took the best part of twenty minutes for us to all get through and there were some stunning photo opportunities with us all at different points in the slot. This was at GR 401 058.

Pleased with ourselves we kept on climbing to discover our ridge was topped with a series of pagodas with commanding views and terminated with a special large one at GR 401 059, a truly great place to have lunch. The headwaters of the ravines on either side of the ridge featured extensive hanging swamps, ensuring permanent water flows to sustain the flow in Carne Creek. Walking to the plateau top after lunch we connected with a no longer used extension of the road to Spot Height 1090. This made for a speedy walk back to the vehicles.

On the way we passed a clearing, GR 395 061, with installed equipment to monitor underground water fluctuations. Several months previously, Brian had met with two operatives who were retrieving data from one of these installations. The measuring process is quite sophisticated and the device that is hauled up from depth is connected to a laptop and the data downloaded. With such gear already installed we wondered just how much of a formality the ELA 4719 by Springvale Colliery really is.

At 1326, we arrived at the vehicles and after stowing our packs drove to GR 396 071, about one kilometre due north. From this point it was an easy 600m walk east towards the cliff edge. The entire area is regrowth forest. There was evidence everywhere of former harvesting of timber for pit props. The first dramatic views occurred at GR 400 070. These views only got better as we turned slightly south east and out onto the peninsula, which simultaneously narrowed and fragmented into a series of pagoda towers stretching over 200m out into a yawning gulf where the two flanking ravines met.

Positioned on the north east vertical edge the view was hypnotic, the cliffs opposite were broken by steep vegetated ravines some of which were possibly negotiable. Everywhere was intensely sculpted, and lower down an extension of the ridge we were on sported a clefted rock that is a must visit destination.

How to advance from our high point to explore the next 200m? We circled the promontory we were on and it seemed to be an impossible task as we were surrounded by 4m high drops. Brian negotiated a route down and a tape was set. Emanuel went searching and found a walk down option that initially was easy but then included a section of compulsory exposure with a 30m + drop. Which option to choose? I rather liked the challenge of the exposed drop and so went that way. It was a great adrenalin rush and post completion, just a little euphoric. In the end about half the party used each option.

Looking at the last pagoda, a residual erosion piece has recreated an oversize Middle Eastern tagine, or cooking pot. It was so big two of us could sit in it, great for pictures. This strange piece also had an irregular pair of narrow horizontal slot windows that could be used as picture frames. I have named this amazing place Tagine Point, GR 404 068.

Once out at the extremity of the very last pagoda the views were breathtaking. To the south east a major waterfall discharges into the "Y" valley. Beyond it, and encircling the bastion cliffs below, a very deep canyon extends some 300m to the north west. It is no ordinary canyon. It has cavernous hollows and there are several huge caves that need exploring. At 1449 it was far too late to consider a descent. We will be back and invest a full day revisiting Tagine Point and exploring both arms of the "Y" ravine.

Walking back to the vehicles we were on a high. It had been amazing adventure and now we have the prospect of an even greater adventure next time we visit. Total walking distance a shade under 8km.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0853	Park vehicles, briefing	395 061
0900	Commence walk	395 061
0914	Exploring pagodas	393 058
0928	At terminal end of pagoda ridge	393 056
0947	Descent into tributary of Convolution Creek	394 058
1003	Creek junction	395 055
1010	Morning tea, 12 minutes	396 055
1035	Creek junction	397 056
1052	In creek	399 054
1053	Fungi	399 054
1110	Junction of Convolution Creek and Carne Creek	400 053
1138	Live snail	402 055
1148	Exit Carne Creek	403 057
1215	Great slot adventure	401 058
1238	Lunch on pagoda 17 minutes	401 059
1309	Climb to ridge top, hanging swamps	400 061

1310	End of old logging access road	400 061
1320	Ground water measuring station, 1090m	395 061
1326	At vehicles	395 061
1347	Relocate vehicles	396 071
1356	At cliff line	400 070
1414	At cliff edge (Tagine Point)	403 069
1426	Descent options, Tagine Point	403 069
1449	At viewing point, Tagine Point	403 069
1505	Fungi spectacular	400 071
1520	At vehicles	396 071

6.34 Upper Carne Creek and the Glory Box

Maps etc	Department of Lands: Cullen Bullen, 8931–3N topographic map, 1:25000, second edition, WGS 84.
Walk description and route	Drive via Glowworm Tunnel Road and fire trails to spot height 1072, GR 414 058. Follow the ridge to GR 409 066, and then scramble down into Carne Creek at GR 410 068. Walk down the Carne Creek gorge to the junction of two branches of Carne Creek at GR 422 077, where there are 95m cliffs. On the way back, explore the first northern tributary; if it doesn't go, we know that the second one does and leads to a stunning lookout at GR 418 076. Use the bike trail to come down to GR 417 074, and out at GR 419 075, where there is a good ascent spur. About 9km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	Partly exploratory. We will definitely get wet, short swims are possible. Expect some scrambling and exposure. Note: there is an exploration licence application out on this beautiful and unspoilt area, which, if granted, will bring about its destruction. See it whilst you can!

Date walked 2nd April 2013.

The Weather

The early morning start was a cool 10 degrees developing into a beautiful, warm cloudless autumn day with ideal walking conditions, maximum temperature 21 degrees.

Background Notes

The vast numbers of tributaries of the Carne Creek catchment all rise on the northern fall of the Newnes Plateau. Each of these tributaries is unique, and each contains an array of geomorphologic landforms and vegetation regimes that combined, make the Newnes Plateau a place of extraordinary heritage that should be accorded national park status and protected accordingly.

As the situation currently stands The Gardens of Stone National Park includes only a fraction of this pristine waterway. Applications to mine coal under the plateau threaten the last uncontaminated creek catchment system, its hanging swamps and spectacular canyons. These mining applications also threaten species habitats, Aboriginal archaeological sites and the water supply to the international Emirates *Wolgan Valley Resort*.

The walk today provided an opportunity to document another small section of the Carne Creek catchment, a unique natural asset. As we discovered, much of this terrain has never been documented and few people are aware of the wonders it contains.

Track Notes

At 0830, the vehicles were parked at GR 414 057, which is also spot height 1072. After introductions and a briefing of the proposed route and possible options, we headed north west down the now undrivable extension of the old access road to GR 409 066. A further 30m took us to the cliff edge and spectacular views into this section of Carne Creek.

Immediately opposite, on the north west bank is a large cavern that is on the must visit list. 300m upstream is the deep and dark "Y" shaped canyon that just over a week ago we looked into from GR 403 068. Yet another walk will take us exploring into this amazing feature that we know also contains a 30m waterfall. Looking to the north east, 40m + cliffs line a section of Carne Creek. Our plans were to descend from our current vantage point and walk downstream at the base of those cliffs.

Getting down was remarkably easy given that we were on a 44m high promontory. To the east, the cliffs merge into a spur that for the first 50m is readily negotiable; this descent was followed by several, short non return slides into a side creek at GR 410 068. It was now 0901. Carne Creek has recently been in high flood. Debris was noted in tree branches up to 3m above current water levels.

In Carne Creek, GR 412 073, and for about 100m downstream a deeply scoured rock section is an absolute joy to explore. It contains several short waterfalls, polished rock platforms, deep pools and a number of large walkable boulders. At present a very big log is jammed and provides a challenging walkway for the adventurous. I did it because I still have to fully conquer the fear of falling off. Above this area the cliffs rise majestically. With the sun reflecting off the higher points, the whole area was flooded with light.

As it was still too early for morning tea, we pushed on downstream where extensive sand strands alternate with short, pebbly reaches. The force of recent floodwater has flattened most of the King Ferns, *Todea barbara*, however these will soon right themselves and Carne Creek will look resplendent. At 1013 we stopped for morning tea, GR 414 074. During the break an assessment of our rate of progress was undertaken, together with a review of our desire to explore two tight ravines that drain into Carne Creek from the north side about 300m from the junction of the two principal branches of Carne Creek at GR 423 077. Given my knowledge of this section and that is planned to explore this again on a separate walk it was decided to abandon the walk to the junction and focus on exploring the two side ravines.

The contorted course of Carne Creek is such that we had many crossings and recrossings as we continued downstream. An actively used bike track⁴⁷ was encountered at GR 417 074. This track connects the end of Fire Trail No. 4 at GR 409 078 with spot height 1072, where we had parked the vehicles.

At 1110, GR 418 076, we crossed the 'mouth' of the first ravine. We planned to descend this ravine, as the one closest to Carne Creek appeared to contain the most exciting and challenging terrain for climbing. Twenty seven minutes later we had entered an amazing cliff enclosed space. The walls are vertical and capped with pagodas; the width at the mouth is maybe 75m. The ravine narrows rapidly and morphs into a totally delightful quiet, Soft Tree Fern, *Dicksonia antarctica*, filled retreat. The walls narrow even more until we were walking in a defile. What was ahead? In all these adventures one never knows what to expect, except to expect the unexpected.

Soon we were confronted with a tight, short leg up over a small waterfall topped by a shallow pool. This was no problem. However above that point was a much larger and non negotiable waterfall unless we could assist one member of the party up, set a tape and then climb up. Whilst pondering these logistics, Yuri managed to scramble up the western bank with the aid of a dubious anchor, a dead *Leptospermum* bush. It was clear that it would not survive repeated use so a tape needed to be set. Fortunately a living *Leptospermum* was to hand and this enabled us all to make the ascent.

Above this climb, a stepped wall of a huge pagoda stretched about 75m north, north west and rose in all about 40m. Brian Fox climbed up it and I followed him. Apart from a couple of exposure points it was a good climb up and a remarkable contrast to the deep narrow ravine below. The top of the climb, and a wonderful pagoda lookout was reached at 1137, GR 419 079. I have called this very special place the Glory Box. It is too small to be called a canyon and too beautiful to be overlooked. It is a place to revisit many times.

Where to next? The call of the promontory between the two ravines was compelling so we climbed up and down several pagodas and made our way some 300m south to the end point, GR 419 076. It was now 1215 and an ideal location for lunch. Carne Creek was a good 60m below. During lunch we scanned the cliffs opposite, the south side of this branch of Carne Creek, and noted several potential clefts that might just possibly be negotiable.

Twenty five minutes later and with a revised mission we commenced searching for a way back down to Carne Creek, this time within the next ravine west. We had crossed the mouth of this ravine earlier in the walk. Descending was not straightforward. A number of potential descent points looked OK but generally ended in vertical drops a bit higher than our tape was long. We kept moving upstream carefully using the projecting ironstone plates on the pagodas as our way of route.

At GR 418 077, a watercourse cum ravine looked like it might allow us to descend. It had lots of little slides and plenty of convenient *Leptospermum* stems to hang onto.

⁴⁷ This bike track did not exist when I walked this area in March 2007.

Then it all ceased and we were located on a rock shelf about 7m above the valley floor. Here the party split into two with the two Brians and Karl going even further upstream while the rest of us followed Yuri down a secondary watercourse that ended in a 1.5m drop. By the time the tape was set the others had arrived so the cameras came out to record our descent.

By 1318 we were all down and the tape repacked. It was an easy traipse down to Carne Creek, which was crossed at GR 419 076. Once over it we headed to the base of the cliff line and pushed out way east towards the base of what we hoped was a negotiable slot to the cliff tops. Unfortunately it was not to be. The base of the slot ended about 15m above the base of the cliffs. Technically it was climbable but we were uncertain about whether we could exit at the top so we headed west at the base of the cliffs to try the next cleft that presented.

This cleft was easily negotiable for the first 20m. It then bifurcated and neither option looked very good. Again the party split with half successfully following a rising ledge to the next point west and then up to the tops. I was with the other party. We climbed some rough *Gleichenia dicarpa* ferns for several metres to then be confronted with an outward curving boulder that presented a raft of challenges. Meanwhile the other party was already on top giving advice. In the end we determined it was best to back down and follow their route. It was so easy. An adjoining promontory was then walked to. From here there were views north to our lunch spot where less than two hours ago we had started lunch.

From aerial photo study, and our local knowledge we knew that the bike track was close to hand. It was just 50m away. Whilst normally we would despise such a track, it was useful and provided a tortuous but scenic route all the way back to the vehicles. We did stop at GR 420 067 to look at the view to the north east. It overlooks the junction of Camp Creek with Carne Creek and also the pagodas above the site of the Devils Throat at GR 431 072. Slightly to the north is the massive rectangular prism of rock known as Lurline Jack Lookout, GR 425 072.

Total distance walked 12.6km, total ascents 483m.

Table of Times Locations and Grid References

Time	Location	Grid Reference
0830	Spot height 1072 and park vehicles	414 057
0836	Commence walking	414 057
0851	End of old track and cliff edge	409 066
0901	On Carne Creek	410 068
0913	Exploring Carne Creek	410 069
0944	In canyon section on Carne Creek	412 073
1013	Morning tea on Carne Creek, 11 minutes	414 074
1040	In Carne Creek	417 071
1048	Exploring Carne Creek	417 073
1057	Bike track crosses Carne Creek	417 074
1110	Cross mouth of the first ravine	418 076
1137	Commence climbing within the Glory Box	420 077

1146	Tape ascent within the Glory Box	419 079
1215	Lunch, 25 minutes, on the point between the Glory Box and the next canyon west	419 076
1318	Descending the ravine west of the Glory Box + tape assisted	418 077
1337	Cross Carne Creek	419 076
1350	No go slot	420 076
1356	Slot and point up	419 075
1414	Top of cliffs	419 074
1417	Intersect bike track	419 073
1434	On bike track	420 068
1449	Viewing point the Devils Throat and Lurline Jack LO	420 067
1507	Track junction	419 060
1512	Vehicles	414 057

6.35 Wild Gorge, Pinch Point Circle and more

Maps etc	Department of Lands Cullen Bullen, 8931–3N, topographic map, 1:25000, second edition, WGS 84.
Walk description and route	Park at GR 396 070 and walk to the head of the south west branch of the Wild Gorge at GR 401 070. Descend it and explore, as on the previous walk we saw wonderful the north east branch of the gorge. Move south east and out towards Carne Creek and to the huge cave at GR 408 067, then find a way out at around GR 409 067. If there is still time, look at an interesting gorge at GR 409 073 on the way back.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	This is going to be a wild adventure. Scrambling and exposure. About 7km.

Date walked 16th May 2013.

The Weather

The first blast of winter for 2013, only small patches of blue sky were visible after arrival at Clarence, quickly the whole sky was filled with dense cloud, intermittent showers fell while we drove to the start point, they then stopped for about 2 hours before returning backed with a rising wind, temperature at the start was 6 degrees, at the finish 8 degrees, wind chill factor minus 4 degrees. It was a very cold walk out.

Background Notes

This walk located in a short, stub “Y” canyon flowing into Carne Creek contains some of the most dramatic, beautiful geomorphologic and botanic features and items that can be found in the Sydney Basin. The desire to explore the detail in this canyon came about at the end of a walk done 13th March 2013 when a visit was made to Tagine Point.⁴⁸ Tagine Point forms the crutch of the “Y”. The views from the top into

⁴⁸ Tagine Point located 2.6km south east of Birds Rock Trig Station. Michael Keats recorded, “Looking at the last pagoda, a residual erosion piece has recreated an oversize Moroccan tagine, or cooking pot. It was so big two of us could sit in it- great for pictures. This strange piece also had an irregular pair of narrow horizontal slot windows that could be used as picture frames. I have named this amazing place Tagine Point”. Cullen Bullen Topo Map, 404 068.

the canyon on either side were breathtaking. The views from the bottom up are equally special.

Track Notes

At 0820 we parked, GR 396 071, and began kitting up. Rain gear was a given except for Karl who seemed impervious to wet or cold. His short shorts and 'T' shirt gave the rest of us goose bumps. I put it down to his Bavarian background. After the briefing, that included the option that we may not be able to descend into the canyon at all, we set off at 0835, through open, previously logged forest.

By 0842 we had reached the last of the gentle contours and could look down into the deeply dissected terrain of the south branch of the "Y" canyon and view the ragged castellated crest that is Tagine Point. The 'pull' of the view was almost hypnotic. There was no doubt we would do everything possible to get down into this playground. At 0849 we had edged our way out onto a pagoda that capped a very short ridge, GR 400 070. The view enabled us to make an assessment of the descent options into this awesome place.

A very narrow ridge, almost a leftover from a real ridge led to another pagoda, GR 401 069. It was now 0908. This place was stunningly beautiful and featured a waterfall that had more water flowing in it than appeared natural. Two thoughts crossed our minds. One, that it was fed by an exceptional and large hanging swamp, or two, that it was boosted by coal mine tail water discharge.

We had to try and find out and as a first step secure a water sample for analysis. A way down via an extremely steep gully and then a bash through matted ferns, mainly *Gleichenia dicarpa*, put us at the base of the waterfall. A spare water bottle was rinsed and a sample taken, GR 401 068. Promisingly there was no smell.

At 0921 we moved off walking easily through delightful rainforest dominated by Coachwood, *Ceratopetalum apetalum*, and Black Oliveberry, *Elaeocarpus holopetalus*. These species persisted as the dominant trees for most of the south branch of the canyon.

Previously from Tagine Point we had observed a very large and dark cavern. Today at 0930 we climbed up into it. The floor, which is loose sand, is at an angle of almost 45 degrees, or 1 in 1. Walking up to the back wall was a challenge in itself. The cavern is a classic example of cavernous weathering and a recently collapsed section of the roof at the back of the cavern confirmed how the chemical decay process works. Looking up, the domed ceiling is naturally decorated by a series of almost perfect concentric circles as successive layers of ironstone banded sandstone have been uniformly removed. The cavern has been named, the Dome Cave by Yuri Bolotin. The dimensions are grand, 18m across the front, 16m from the drip line to the back wall and 12m high also measured at the drip line.

On the cave floor were footprints, possibly those of a wild dog or dingo. They were too large to be that of a cat. On the subject of wildlife, this canyon has a great complement of birds, large and small. For most of our time in the canyon we had a constant symphony of sound. The small bird population was large and diverse, and

impossible to photograph. Landscape photos taken in and around the cavern are classics because of the narrowness of the canyon and the complex detail of the adjoining walls. This is quintessential Gardens of Stone terrain. It has everything a national park requires except protection from misguided coal mining and a resumption of forestry operations.

We kept moving downstream towards the narrowest part of the canyon, a real pinch point. Here the walls close right in to less than 20m apart, the cliffs tower so high, more than 40m, they appear to be curving inwards. The way ahead looks dubious if not impossible. This is at GR 404 067. A huge section of cliff has been separated from the end of Tagine Point and then partly toppled over towards the opposite, southern side. Everything here is on a Cyclopean scale. It is a total wonder, especially as there are two ways around the isolated tower rock, one dry and one carrying the water course. Several vast clefts are associated with the rocks and the mix of sky and rock frames an unforgettable series of photographs. This area I have named Pinch Point Circle. It is unique and deserves a level of protection that only national park status can give.

But there is more. On the downstream side of Pinch Point Circle there is an area where the microclimate is so special that mosses and epiphytes have developed to an extraordinary degree. I have seen many boulders encrusted with epiphytes, but never decorated to the extent that occurs here. This area is one of ultimate bryophytic magnificence. It even rivals the famous Moss Garden in Japan for perfection. As well as richly adorned rocks and trees, there is a section where the ground is covered with various moss species that form mini hills of intense green creating a unique landscape.

It was here surrounded by the very best that nature could provide, we decided to have ten minutes for morning tea, 1005, GR 404 067. Most time was spent taking pictures or indulging in reverie in an almost sacred place. The waterfall observed on 13th March from Tagine Point had today, been reduced to a mere stain on the cliffs. The 'vee' notch through which it flows was still prominent. After morning tea it was time to move north along at the base of the cliffs that form Tagine Point and into the northern arm of the "Y" canyon.

At 1034 we were negotiating a horizontal ledge that started off quite benignly and then developed into an awesome, high level balcony with stunning views downstream towards Carne Creek. The balcony pinched out at various points, both horizontally and vertically making it necessary to crawl on all fours from time to time. This feature stretches from GR 405 068 to GR 406 066. That statistic fails to account for the meanderings of the ledge so the distance actually walked/crawled was at least 50% longer. As we looked out over the ledge into the canyon two huge cleaved blocks form a mini mountain set in the middle creating a great block up, GR 406 066. It was not difficult to see where the blocks had peeled off the northern wall and tilted to an angle of about 45 degrees.

Our ledge did not go all the way around the cliffs as we had hoped it would. Yuri scouted a possible ramp up but there was a two metre section where a rope would have been required. Although we had a rope unfortunately there was nowhere to attach it. Later we looked at this ascent slot from the canyon floor. To climb it would have been an unforgettable experience.

At 1113 we were off the ledge and commenced our descent into the canyon, proceeding downstream, GR 405 067. There is a section of the canyon creek that is a small Smooth Tree Fern, *Dicksonia antarctica* rain forest, GR 406 066. A bit farther on, we came across an example of the white Jelly Fungus, *Tremella fuciformis*.

As the canyon broadens out where it joins Carne Creek, the vegetation becomes more typical of the Carne Creek catchment with dense stands of King Ferns, *Todea barbara*, and various understorey plants that hide fallen logs and other traps for walkers. It was about now, 1156, that the rain began to be serious and the wind to pick up. These conditions prevailed as we walked down Carne Creek in search of a large cave that we had seen from the cliffs opposite when exploring in the area, 2nd April 2013.

As far as we could assess the cave was located in the cliffs at about GR 408 068. Well, we walked past this point and across a tributary stream without seeing the cave. It was now that the elements decided to increase the onslaught of rain and wind and we decided to pull out. Even if we did now find the cave taking quality photographs was going to be a challenge. A spur at approximately GR 409 067, 1214, proved an easy climb even in such adverse conditions. Amazingly, when we reached the top and looked around, there was the big cave we had been searching for. It was located just where forecast and where we had walked. Our problem was that we were too low down so we did not see it. During a short break in the weather, several hurried photos were taken.

All serious climbing was now over, however the challenge of dense, wet, heath lay ahead as there was about 1.2km of ridge to walk back to the vehicles. We stopped at GR 408 070 and noted some quite remarkable pagodas and caves in the next ravine north at about GR 409 072. I am sure another walk in the area is on the agenda. About 1km from the vehicles, the heath gave way to forest and cut stumps started to appear. This meant we were not far from a snigging track or even a road. The vehicles were reached at 1259. On this last leg back, the wind and rain abated somewhat, however many of us were quite cold. My fingers refused to function so undoing shoelaces and doing up buttons was not possible without help.

In warm dry gear we headed off, some already thinking about a hot pie and coffee at *Pie in the Sky* at Kurrajong Heights. Total distance walked 6.56km, total ascents 265m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0820	Park vehicles + briefing	396 071
0835	Start walking	396 071
0842	Top of pagoda lookout	399 069
0849	Descend ridge	400 070
0855	On pagoda + view into "Y" canyon + waterfall	401 069
0908	Steep descent	401 069
0917	Base of waterfall + water sample	401 068
0930	Overhang + Dome Cave	402 068

0952	Pinch Point Circle	404 067
1005	Morning tea, ten minutes north of Pinch Point Circle	404 067
1018	View waterfall	404 067
1024	Photographing the moss landscape	404 067
1034	In the crutch of the "Y" canyon	404 067
1045	Start ledge walk	405 068
1101	End of ledge walk	406 066
1113	Return from ledge + descent point	405 067
1120	In <i>Dicksonia antarctica</i> forest and ravine	406 066
1129	Jelly fungus	406 066
1144	Carne Creek junction	407 065
1156	Exploring tributary creek	408 068
1214	Climb out up ridge	409 067
1233	Walking heath and rock shelves + view cave	408 070
1241	Walking ridge + view north	405 070
1259	At vehicles	396 071

6.36 Gang Gang Creek and Gang Gang Canyon

Maps, etc.	Department of Lands: Cullen Bullen, 8931-3N, topographic map, 1:25000, second edition, Department of Lands: Lithgow, 8931-3N, topographic map, 1:25000, second edition GPS setting WGS 84. Various aerial photographs.
Walk description and route	Drive down Gang Gang Road to GR 398 038. Park then head down Gang Gang Creek, a tributary creek of Carne Creek, walk through wild terrain and deep gorges to GR 405 058. If time, we may explore upstream in a very deep canyon section of Carne Creek. About 5km of very technical and challenging progress, +&- 200m several times, cliffs to 40m.
Gear issues	This is summer, have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and 30m tape, (leader only).
Comments	Some rock scrambling and tape work may be involved. Lower body parts may get wet. Expect to be challenged.

Date walked 12th November 2012.

The Weather

A dry, warm spring day with variable light winds from time to time, quite hot in the sun but delightful in the deep canyon, temperature range 12 to 25 degrees.

Background Notes

Carne Creek, together with its tributaries and side streams contains some of the most challenging terrain found on the Newnes Plateau. It is country best explored in small sections, as the most innocuous lines on the relevant topographic maps give little indication of what is 'on the ground'.

The walk today was inspired by a walk done 27th April 2012, slightly to the east in an area now designated as Carnes Playground. On that walk weather conditions made rock surfaces treacherous and a planned descent into the creek system was abandoned for safety reasons. Knowing what we know now, a re walk into the canyon below Carnes Playground can be planned for summer, via the amazing canyon explored today, and exiting back to the Gang Gang Road.

Track Notes

There are not many walks in remote areas, where five minutes after parking the vehicle you can be standing above a 20m waterfall. That was how the walk started. None in the party could believe that less than 100m from starting we could stand on a cliff edge and look down on a large rock apron flowing with water. It was even more amazing that the water flow is all derived from a hanging swamp, immediately south west of where we parked. Equally amazing was the display of wild flowers, masses of pink *Boronias* and purple *Tetradleas*. On the drier ridges, throughout the walk, these colours were supplemented by the extraordinary blue, single petal flowering, *Hybanthus monopetalus*.

After noting the waterfall, we lifted our eyes to the north east where the ridges were crowded with massive pagodas. Why had it taken us so long to discover this amazing terrain that is so close to the road network, and yet never commented on by others? We would find out. The first objective was to try to take good photos of the pagodas, so we walked the cliff edge east, only to discover that there were more pagodas and sub spurs and islands of pagodas in the way. What a problem! To add to the challenge, there was a lot of dead scrub to push through that required a bit of energy.

The further we advanced, the more we saw. It was a 'kids in the lolly shop' situation. At GR 401 038, I wrote in the notebook a single word, 'Wow'. We could see now there was before us an adventure, as I had not imagined possible in this area. At 0859, we stood on a rocky promontory above a very deep, deep canyon. At the very edge, we could just see the bottom and water. A huge dead tree growing from the creek bed we estimated to be 40m high. This is a dramatic spot and we just had to find a way in.

It was clear that going further downstream was not an option, however a possible route over the cliff edge upstream looked feasible. Off we went, successfully negotiating our way down and down and down. We arrived in a special place where few people have ever been, if at all. It was lush, it was rich in every fern species that grows in the Blue Mountains, and the air was filled with birdsong. It was a hidden paradise and we felt privileged beyond compare.

The first and very convoluted section of Gang Gang Canyon is probably 20m wide and there is a lot of fallen timber to traverse. It is no hardship as the unfolding views are a total distraction. After about 50m we discovered a small side canyon with a multi level cave soaring 30m above and undercutting the platform we had stood on when we gazed down.

The mix of ferns, boulders and water just got better and better, there was a lot of crossing and recrossing, using highly unstable logs to traverse drops so high you did not want to fall off, then rounding a bend we entered one of the most spectacularly beautiful places I have ever been to. Statistically, Gang Gang Canyon is a walk through canyon about 500m long. It is variably narrow from 5 to 25m wide. The cliffs vary from 20m to 40m high. Vast Coachwood trees crowd the sky restricting the light. Tree ferns that have for 100 generations never seen a fire are lush; the older trees lie twisted and contorted, still growing as a living sculpture park. Mosses bedeck rocks, great Anchor Vines, *Palmeria scandens*, are strategically placed, the stream works its way through all the phases from burbling runnels to still, clear pools. None of us could believe that this piece of Heaven on earth was ours to enjoy.

At 0958, we came across an area of dry sand and even greater beauty where the birds were calling and decided to have morning tea. It was as though we had been invited to relax in nature's drawing room. It was just so magical. Shafts of light successively lit up sections of the rock walls. At times highlighting a branch loaded with epiphytes, at others turning on the rich ochre colours of ironstone where red, orange and yellow blended in harmony. At others, highlighting a spot on the ground where for a few seconds the light stayed and then was extinguished until the same time tomorrow.

Spellbound, we listened to the birds. We could not see them and they were unlikely to be Lyrebirds, but what song, what joie de vie they shared with us. It was one of the best morning tea breaks I can remember. A few metres further on a rising side canyon, (Gang Gang Minor) seduced us to go and explore. Here on the way up a semi dry watercourse were some of the most delectable moss covered rocks I have seen. The colour was intense, the texture so soft and the effect overpowering. And that was just walking up!

Here, the canopy above was 100% tree ferns, absolutely glorious. We kept climbing and soon we were inside a huge hemispherical chamber with a steep sloping floor. This was at GR 405 043. Dimensions of this chamber were 20m high, 20m deep and the opening about 20m across, an almost perfect sphere. While most of the party explored this wonder, Brian climbed to the opposite side to film us. He said we looked tiny as he tried to use our size to show a measure of scale. He said a similar, and possibly larger chamber was located next to the one we entered.

Unlike many of these chambers, this one had a negotiable balcony to the north. We trooped out to explore it, hoping for a way round to yet another chamber. Regrettably the balcony ran out and we had to return, but not before taking some great pictures. We then descended and returned to the main canyon wondering just what experience would be next. Sadly, the canyon was about to end. This occurred where a major tributary joins in from below Carnes Playground.

As suddenly as the Gang Gang Canyon started, it ended and became a wild, scrub filled ravine. The Coachwood trees were replaced by Eucalypts, the canyon walls became sloping rock surfaces and the magic disappeared. We could have persisted downstream, but it would not have been the same. We had been too spoilt. At 1030, we decided to climb out, GR 405 044. Fifteen minutes of climbing was followed by a further 10 minutes of bush bashing to the ridge top and an extension of the Gang Gang Road.

The plan now was to walk this road north to where Gang Gang Creek and Carne Creek meet, the major one being Carne Creek. We would then descend into Carne Creek, that on the topographic map showed great cliff lines, walk up it, and perhaps explore a major side creek at GR 401 053. The end of the road was reached at 1124. There are some dramatic pagodas above the creek further north and downstream. We went to the cliff edge and looked down. It was about 30m to the bottom and the ravine of Carne Creek was wide and scrubby. We had come this far so we would go and have a good look. We found an amazing rock chute that took us down through the first 10m and then it was a bit of a scramble. As we got closer to Carne Creek, it looked less and less inviting. The water in Carne Creek was very clear but the scrub

was stiff and scratchy with a good larding of Sword Grass. Having been so spoilt in Gang Gang Canyon, this was a letdown.

We persisted for some time, hoping that the massive cliff lines shown on the topographic map would translate into something special on the ground. It was not to be, and so after playing bulldozers for a while we climbed back up through the cliffs and made our way to the road once more. Our further revised plans now were to go and explore the narrow blade like ridges above the south end of Gang Gang Canyon we had enjoyed early in the day.

At spot height 1078, we left the road and headed due south. The pagodas could not be seen and we had to descend quite a few metres before we could get a fix on them. Once this happened we then had to contend with finding a way of route. This was achieved by walking the contours around an amphitheatre like valley. Then it was ours, we were on a blade like, ridge capped succession of stunning pagodas. This was a return to the magic of the morning but entirely different. We stopped at GR 401 041 at 1245, and picked a spot with a top view for lunch.

To the north west we looked across a 100m distance at a ridge very similar to the one we were on. It was impressive, sculptural and spiritual. This is country that is unique and must be added to the Gardens of Stone National Park urgently, it is far too precious to be left in the irresponsible hands of foresters and coal miners. After lunch, time was spent exploring the fine details of this ridge with its balancing rocks and fungoid like erosion finials.

There is another blade like collection of pagodas further south again, to go and explore. Again, we circled a semicircular valley head and emerged onto a very narrow, ten metre wide ridge with vertical 50m drops and stunning views. This was at GR 400 040. Sadly, on this point we found the telltale survey marks for a coal lease, a thoroughly depressing discovery. The prospect of so much beauty being sacrificed for a few kilowatts of energy is distressing to say the least.

It was a sombre and melancholy group that headed back to the road network and then the vehicles as we reflected on a walk with the highest of highs and the lowest of lows. Interestingly, a few hours after arriving home Yuri and I both developed ideas for further walks in this area. It is so precious and so vulnerable we need at least to see it, record it and hopefully act to save it before it is irretrievably lost.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0830	Vehicles	398 038
0841	View of waterfall and rock apron	401 038
0859	On rock promontory above canyon	402 039
0909	In Gang Gang Canyon	401 039
0926	In Gang Gang Canyon	403 040
0958	In Gang Gang Canyon and morning tea 10 minutes	405 042
1020	Exploring high level caves in Gang Gang Minor	405 043
1030	Leave Gang Gang Canyon and climbing	405 044
1045	Still climbing	405 044

1056	On road extension from Gang Gang Road	403 045
1113	On road extension from Gang Gang Road	403 052
1124	End of road	404 057
1129	Ramp/chute descent to Carne Creek	403 057
1152	Exploring overhang above Carne Creek	402 055
1203	Slot climb	402 054
1210	Rejoin road	403 053
1245	Pagoda ridge and lunch + exploring ridge	401 041
1320	End of ridge	401 040
1336	On another narrow ridge + survey mark	400 040
1345	Road again	398 041
1355	Vehicles	398 038

Total distance walked, 7.38km, total ascents 390m.

6.37 Carnes Playground

Maps etc	Department of Lands topographic map, Lithgow, 8931-3S, 1: 25000, second edition. Department of Lands topographic map, Cullen Bullen, 8931-3N, 1: 25000, second edition GPS setting WGS 84.
Walk description and route	This walk is based on information shared by Kenn Poppert of Lithgow. Park vehicles on North Ridge Road at approximately GR 413 034. Head west about 200m and descend the cliffs into Carne Creek. We will then follow Carne Creek for about 4km, noting high cliffs. We may get distracted and explore several small side creeks. Our planned exit is at GR 408 065. Before doing this we will explore a knot of ravines to the NW with cliffs up to 58m. Near our exit point, there is an old track, which we will follow back to the vehicles. About 10km. Many ups and downs.
Gear issues	1 litres of water, GPS, PLB will be carried, electrolytes, maps, compass. 30m tape will be carried by the leader in case of need. Change of gear for afterwards.
Comments	Be prepared to get some bits wet. We will try to stay dry. This walk will involve creek walking, rock hopping, and possibly some rope work. A camera to record the spectacular cliffs is recommended.

Date walked 27th April 2012.

The Weather

A glorious autumn day, initially clear but with light cloud increasing until early afternoon and then clearing again, virtually no wind, temperature range 8 to 18 degrees.

Background Notes

Carne Creek was first given this name in 1965 by Myles Dunphy. Myles had an influential role as a member of the NSW Geographic Names Board, although it took five years before the name was officially adopted. Prior to this time, Carne Creek was known as the Eastern Branch of the Wolgan River, a distinction that caused great confusion, cumbersome nomenclature and lack of precision.

Why did Myles choose the name Carne Creek? Joseph Edmund Carne (1855-1922) was the NSW Government Geologist who was responsible for the mapping of the Torbanite, or Kerosene Shale deposits in the Wolgan Valley and environs.

His major works include *The Kerosene Shale Deposits of New South Wales*, 1903, *Geology and Mineral Resources of the Western Coal Field*, 1908 and, with L. J. Jones, the classic *Limestone Deposits of New South Wales*, 1919. Like all Carne's writings, and maps, he combined clarity with meticulous scholarship.

Carne Creek, runs roughly parallel to the former Wolgan Valley Railway line constructed, 1905-06 to service the shale oil field. Carne Creek is a complex watercourse about 19.5km long. It rises as a series of three almost parallel, deeply entrenched, major tributaries, some 2.5km NNW of the Bungleboori Camping Ground. It flows generally north into the Wolgan River.

Track Notes

In threading our way through the maze of forestry tracks to find North Ridge Road, we travelled a sinuous section of the old Wolgan Valley Railway bed, where to maintain grade it has been recessed into attractive cuttings. There were several stops for photos.

The walk as planned called for an exploration of a 4km length of the central tributary of Carne Creek. The vehicle was parked at GR 413 038 and the group headed down the contours slightly north of west, at 0837. Initially progress was easy and we managed to avoid the wettest section of a hanging swamp. As our rate of descent increased, we could see a fine pagoda promontory ahead. This was our next destination and a real revelation to the nature of the terrain. It was spectacular.

We stood on the edge of an almost 'U' shaped valley that featured multiple descending cliff lines, none of which looked easy. After a photo session, exploration to find a way of route down became serious. We made several separate attempts, each terminating in impossible drop offs. As is often the case, there appeared to be a way down on the opposite side of the valley. To get to that point was 30 minutes away by vehicle, so we persisted and while we saw some stunning sights, great trees and cliffs of great beauty we were not able to descend to the valley floor.

It was now 0935, and we were at GR 410 039. After discussion about various options, it was agreed the walk would change to an exploration of the extraordinary complex, pagoda bedecked cliff line north for as far as possible. Soon we were immersed in exploring an amazing stretch of terrain that includes pagodas of all shapes and sizes, and individual features that range from the ultra grand to the small and intimate.

You could hardly say we frolicked around but we did have a truly wonderful time experiencing multiple sensations of awesome drops, expansive views and cuddle up sculptures that made for super photo studies. We were in no doubt; we were in an adult playground where every toy and natural device was available to play with without restriction. We had a ball.

There were views of waterfalls, views of cliffs and extended views down this unnamed tributary into a fairyland of more and more pagodas. From successive viewing points and from the tops of pagodas, rock shelves and interlocked ravines we captured magic moments.

In all we travelled a little more than a kilometre downstream in just over three hours. On the way, we did note another subsidiary stream entering from the south west. It is not only another walk in its own right, but includes a huge cavern. As a result of the discoveries on the walk today, there are at least three further walks to be done in the area.

Prosaically, the faint remains of an old logging road were noted at the cliff edge at GR 409 040. If the junction of this road with North Ridge Road can be identified this would make it easier to enter and enjoy this amazing playground. We suspect it is close to spot height 1095.

A quick morning tea was taken atop a pagoda at GR 409 039 at 0955. After morning tea our exploration of the playground continued with many slots being explored, pagodas being circumnavigated, pagodas climbed and sculpture gardens being enjoyed. One pagoda is topped with an amazing formation that looks like the control panel for a space ship. The panel is suitably angled, and pointing to the sky, knobs of ironstone are located in a row; a series of small shelves are appropriate for documents and papers to be stowed. Best of all, this site looks across the deep ravine and up another one where what lays a head is still a mystery.

The GPS tracking plot of our walk is a bit like blanket stitching, full of loops and counter loops. The time just flew as we were so immersed in enjoying our playground. As all kids know, play makes you hungry so it was an early lunch at 1203, GR 406 045 on top of a wonderful flat topped pagoda with 360 degree views and a particular view into the mouth of a great cave on the cliffs opposite.

Over lunch, we discussed further options, it was absolutely certain that from the eastern side of the creek we could not get down through the cliffs, travel downstream and walk to the cave 3 kilometres away, and inspect the cave as described by Kenn Poppert. As we wanted to see this feature, we would return to North Ridge Road, pick up the vehicles and then drive north as far as possible, then walk the remainder of the distance and visit the cave. At 1247, we intersected North Ridge Road, and minutes later picked up the vehicles.

At 1307, we embarked on the excursion to the cave at GR 408 067. The vehicles were left at GR 413 047 where fallen trees stopped further progress. The walk along the northern extension of the old road was easy, and made more so by the detailed notes compiled by Kenn. A pagoda set in a sea of *Allocasuarina nana* was climbed at 1344, GR 409 063. This viewing site was excellent as it enabled a line of sight up Carne Creek proper, and also the massive, 58m high cliffs that feature so strongly where several waterways join into Carne Creek. Keen to view the cave, we returned to the main track and ended up on a cliff edge at GR 409 067. Beneath us was an awesome drop of about 70m and a vast basin surrounded by soaring cliffs. This is a special place and a full day will be set aside to explore the cliffs and caves within this terrain. We returned to the vehicles at 1420 euphoric from a great day of adventure.

For the record, on this walk travelled 9km and climbed 507m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0837	Vehicles parked on North Ridge Road	413 038
0859	On a rocky ridge	410 039
0935	Still searching for a way down	410 039
0954	Morning tea	409 040
1016	Exploring cliffs and pagodas, lookouts and views	408 040
1111	Exploring cliffs and pagodas, lookouts and views	408 043
1129	Exploring cliffs and pagodas, lookouts and views	407 044
1203	Lunch on a flat topped pagoda + cavern view	406 045
1247	On North Ridge Road	413 041
1252	Vehicles	413 038
1307	Park vehicles	413 047
1320	Fork in road	414 057
1335	View of cave and massive cliffs	409 063
1344	Cliff edge above Carne Creek	409 066
1420	Return to vehicles	413 047

6.38 Devils Throat and the cliffs of East Creek

Maps etc	Department of Lands: Cullen Bullen, 8931-3N topographic map, 1:25000, second edition, WGS 84.
Walk description and route	Park cars at spot height 1072, GR 413 058 and follow an old fire trail north east, then a bike track to approximately GR 422 072. Drop down a ridge and to the left of a gully into East Creek at about GR 425 070. Head east into Camp Creek Gorge and visit the amazing Devils Throat. Return to East Creek; follow it north to the junction with Carne Creek, then west, then south west, investigating deep slots in the cliffs on the left hand side. Take the bike track at GR 418 074 to return to the cars. About 10km.
Gear issues	GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, 2 litres of water. The leader will carry a tape. Have clothes to change into in the car for afterwards.
Comments	Exploratory. Wet feet and most likely more. Scrambling and exposure guaranteed, as is the stunning scenery. About 9-12k. This will be a long, hard and spectacular day.

Date walked 15th April 2013.

The Weather

It was a very warm dry day with variable cloud cover, some smoke haze, temperature range, 17 to 22 degrees.

Background Notes

When I named the Devils Throat⁴⁹ on a Bush Club walk, 22nd March 2007, and looked down into the awesome void from the cliffs above the encircling amphitheatre, all attempts to descend the eastern cliffs of Carne Creek to inspect it at close quarters proved impossible. What the walk today proved was that access via the western cliffs, and crossing East Creek was possible and the unique geomorphology of the Devils Throat could be experienced up close.

⁴⁹ Devils Throat so named as the water rushing down Camp Creek enters a circular 2- to 4m diameter shaft of about 15m in height and pours out at the base via horizontal slot hole in the rock before cascading down another 15m drop. It is if the devils head is upside down and water pours down its throat and out of its mouth. Named by Michael Keats on a Bush Club walk, 22nd March 2007. Cullen Bullen Topo Map, 430 072.

The Devils Throat is a challenge to describe. It is part canyon at the top, however near the cliff edge a very deep sinkhole has been cut by Camp Creek into a vertical cylinder to a depth of about 15m. At the base the force of the falling and swirling water has found a zone of weakness in some horizontal strata and removed this, creating a 'mouth' from which water flows out onto a sloping apron. The force of Water has also over deepened the sinkhole below the mouth creating a pool estimated at more than 3m deep. Up close, the noise of the falling water is an assault to the ears. The feature has an aura making it a world class example of its kind. This feature, like so much of the Carne Creek catchment is not protected and urgently requires transferring to the Gardens of Stone National Park. The Devils Throat is a feature of international significance.

Track Notes

At 0849, the vehicles were parked at GR 415 058, gear requirements reviewed and some packs were lightened. We set off along a bike track that provides an easy but convoluted route to Carne Creek⁵⁰, crossing it at approximately GR 417 074. This track was followed for several kilometres to a high point, at GR 420 067. We stopped here to admire the views both north west and north east. The north west views include spectacular cliffs on Carne Creek and the Glory Box⁵¹. To the north east sections of two fire trails on either side of Camp Creek⁵² can be seen. Our destination, the Devils Throat is located in a deep gorge where Camp Creek plunges over the cliff edge. After photos we continued on our way north.

A high point at GR 422 072, on the bike track defines the point where we headed due east. It was now 0933. Each step east revealed increasing views of the cliffs of East Creek, so by the time we reached the cliff edge, 0945, GR 424 071, the view was stupendous as the complex cliff lines of the Devils Throat annex created a composite image of sequential pagodas and amazing rock sculpture. Even the topographic map is annotated with advice that the cliffs here are 51m high. We stopped here and just savoured the view. About 30m further to the south there is another viewing platform where more than a kilometre of East Creek imagery is a wonder.

Next how to descend? Hidden away between the soaring pagodas there is a way down. It does have a few small slide and jump sections but is otherwise easy. In less than half an hour we were crossing East Creek and fighting our way through flood flattened ferns on our way north to where Camp Creek and East Creek join.

The Camp Creek – East Creek junction area is relatively large and there was plenty of room for the party to spread out and enjoy morning tea. I spent some time gazing up

⁵⁰ There is a great deal of confusion about the naming of Carne Creek above the junction of two of its major tributaries at GR 423 077. The topographic map names the tributary entering from the west as Carne Creek. The other tributary is unnamed. In researching submissions by a consortium wanting to establish a coal mine at Birds Rock, the compilers have named this tributary East Creek. (Proposed Birds Rock Colliery, Environmental Impact Assessment, December 1981, figure 3. This name has precedence).

⁵¹ Glory Box is a 250m long cliff lined ravine and tributary of Carne Creek. Filled with tree ferns, felt ferns, fungi in season and boxed in by 90m cliffs. Walking access can be achieved in this ravine with one difficult spot where rope assist is handy. Named by Brian Fox on a Bush Club walk 2nd April 2013.

⁵² Camp Creek has its headwaters on Waratah Ridge at 425 020 and flows generally south for 5km passing through Murrays Swamp. It then generally winds in a westerly direction between Fire Trails No. 1 and 2 until it joins East Creek at 425 071. Lithgow and Cullen Bullen Topo Maps. Named after the road, Camp Road, which in turn was named after the old Newnes Afforestation Camp. Descriptive name coined by Michael Keats on his Bush Club walk 7th March 2007.

at the cliffs to the immediate north, as they looked scalable. They certainly looked no more intimidating than the cliffs we descended to reach East Creek. After a leisurely, 11 minute break we started walking up Camp Creek.

Camp Creek in the lower reaches meanders from one side of the valley floor to the other, making multiple crossings necessary. The Devils Throat feature is nearly 500m from the junction in a direct line and considerably more in actual distance as you negotiate the multiple bends as it wends its way. We shed our packs here so that we had greater ease of movement. A taste of the good things to come is small complex of waterfalls at GR 429 071, where we spent quite a few minutes clambering up adjoining boulders to get the very best pictures. Getting around this feature involved a choice of either a sloping tunnel crawl or a tight chimney squeeze. Most of the party opted for the tunnel crawl. The tunnel came in for some ribald anatomical names, none of which can be recorded!

In the final section of the narrowing gorge, immediately before the enlarged amphitheatre terminus, there is a large cavern, tens of metres across together with several smaller ones. It is an area of unrivalled magnificence. In the lower sections of the floor of the large cavern is a carpet of Hornworts *Phaeoceros* sp. These amazing organisms are rarely seen in such profusion.

It was just on 1130 as we rounded the last bend before the shimmering, inflated apron of the outflow from the Devils Throat came into view. Everything about this site is special. The foot of the apron has a series of very large negotiable boulders. These provide stepping (hopping) stones across the apron to the western side of the amphitheatre and the negotiable route to the base of the throat. The way up is over slippery rocks, some flowing with water. All around is sculptured sandstone. There are scooped pools that are like baths; shallow basins that in mid summer would invite a swim; there are treacherous sections where a false move would see you toboggan uncontrollably down the water slide. Then there is the noise of water crashing down as it discharges from the contorted canyon at the top into the cylindrical tube of the Devils Throat. Going up closer there is this amazing horizontal slit where the falling water can be seen as a perpetual curtain before it races down the slope and over the apron. The slot is perhaps 4m long and half a metre wide. It is very hard to photograph and capture the totality.

Stepping carefully around to the eastern side of the first pool below the mouth, it was possible to take pictures looking down the apronlike water slide. It was also possible to photograph the towering cliffs above. Through the camera lens, I spied Brian who had climbed up to the lip of the former sinkhole to take pictures of the wild water inside. We would all go up with some assistance so that we could look inside this rock and water wonder. The slope up was so slippery that even good gripping shoes were not enough to hold you in place. Successively Brian and Yuri assisted most of the party to have the ultimate experience.

With Brian and Yuri supporting me from below, and grasping the rock lip of the former sinkhole with one arm, I fished the camera out of my pocket and took a series of pictures. The top section where Camp Creek briefly becomes a canyon is wild with white water swirling and churning before it plunges 15m or so as an almost solid

sheet into the cylinder section. This is what we had come to see, a unique natural wonder. I am looking forward to seeing the images captured on the big cameras.

Leaving was hard because this place has a compelling fascination of its own. But we did have to move along so after nearly half an hour of total enjoyment we reluctantly started the walk out. The tunnel crawl was reversed and packs were retrieved. It was now after midday and time to walk to the confluence of East Creek and Carne Creek about 600m downstream. Recent floods have left a lot of debris to be negotiated and there were plenty of places where a misplaced foot suddenly discovered a deep hole. While walking this section a beautiful pale lilac coloured fungus was found and photographed. It is *Hygrocybe lewellinae*.

Lunch was taken on a rare, open and relatively clear space at 1257, GR 424 075. Twenty two minutes later, refuelled and ready, we resumed our way downstream. The junction of East Creek and Carne Creek was reached at 1333. Rather than walk in the creek we headed up to the base of the cliffs where there was less debris, and most of the time an animal pad to follow. It was also considerably warmer and drier. A juvenile Red Belly Black Snake, *Pseudechis porphyriacus*, was spotted sunning itself. After about five minutes walking we were able to pick up the track we created when exploring this area for a slot exit after visiting the Glory Box on 2nd April 2013.

An exit that does work well is located at GR 419 075. It is a good quick climb and once achieved is less than 100m from the bike track. A Blue Tongue Lizard, *Tiliqua scinoides*, was disturbed near the top of the climb. It was now 1418. After a short rehydration stop and some chatter, it was time to cover some distance on the bike track, which was intersected at 1429, GR 419 073. We were now walking in full sun so a further welcome drink stop was made at the viewing point, GR 420 067. It was now 1456 and a number of the party were feeling just a little fatigued. The vehicles were reached at 1518.

Total distance walked 9.73 km, total ascents 454m

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0849	Park vehicles	415 058
0914	Viewing point on bike track	420 067
0933	Leave bike track and head east to cliff edge	422 072
0945	At cliff edge + view towards the Devils Throat	424 071
0950	Second look out + view up East Creek+ descent	424 071
1016	At East Creek	425 070
1023	Morning tea on Camp Creek, 11 minutes	425 071
1047	In Camp Creek canyon	427 071
1130	Waterfall and tunnel	429 071
1142	At the Devils Throat (about 30 minutes)	430 072
1205	Waterfall and tunnel	429 071
1257	Downstream on East Creek + lunch, 22 minutes	424 075
1333	Junction of Carne Creek and East Creek	422 077
1405	Base of climb out	419 075
1418	Top of climb + break	419 074

1429	Intersect with bike track	419 073
1456	View spot and drink break on bike track	420 067
1518	At vehicles	415 058

6.39 Silkpod Point and Silkpod Gorge

Maps etc	Department of Lands Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, WGS 84.
Walk description and route	Park the cars on Fire Trail No. 4 off Sunnyside Ridge Road, at GR 402 078. Head south east into a gorge and down to the junction with Carne Creek. Continue downstream and explore 2-3 other ravines running north before reconnecting with the cars.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and tape (leader only).
Comments	This is the last unexplored portion of Carne Creek ravines, next to the recently visited Wild Gorge and Box ravine. This wild and beautiful country is subject to a coal exploration licence application. Scrambling and exposure. About 6km.

Date walked 6th September 2013.

The Weather

A glorious warm, windless spring day, scattered cloud from time to time, humidity noticeable but not unpleasant, temperature range 17 to 22 degrees.

Background Notes

Exploration of the upper tributaries of Carne Creek has revealed an absolute wonderland of glorious pagodas, slots, caverns, canyons and breathtakingly beautiful terrain that few bushwalkers let alone the greater public are aware of. In a very small area of less than 5 square kilometres we have discovered many amazing places, few of which show any sign of being visited by humans for decades, if at all. Unashamedly we have named these places because they resonate with the soul, need to be nurtured and need above all else to be saved as part of our national estate because they are unique. They are under threat from coal mining and degradation because of vested interests and short term thinking by state governments who are more interested in twenty five years of royalty payments than hundreds of years of eco tourism value.

To help you salivate before you get to the track notes, here are a few of the allocated names that now apply to this area. Silkpod Creek, Tagine Point, the Glory Box, Wild

Gorge, Pinch Point Circle, Gang Gang Creek, Gang Gang Canyon, Carnes Playground and the Devils Throat.

This terrain is very challenging and significantly we achieved less than 50% of the planned walk. We will be back to adventure and discover and document the next two creeks and intervening pagoda crested spurs east from where the walk finished.

Silkpod Creek has its headwaters on the eastern side of the intersections of Sunnyside Ridge Road and Fire Trail No. 4. This creek flows in a generally eastern direction for 2.7km to its junction with Carne Creek at 410 071.

Track Notes

Successfully driving to the start of the walk was a bit of a challenge. The topographic map shows the entry to Fire Trail No. 4 at GR 386 078 off Sunnyside Ridge Road. This is incorrect and after a few hundred metres the trail heads south east. The actual trail that takes you to the start of the walk is unsigned and leaves Sunnyside Ridge Road at about GR 385 079. It is driveable to where we parked at GR 396 078 about 250m west of spot height 1119. Beyond this point the trail is covered with fallen logs and debris.

Yuri had prepared well for the walk with a large scale aerial photograph that reinforced the magnitude of the challenge ahead. The few minutes spent at the briefing provided valuable insight to the locality and the physical demands it would make of each of us. We started walking at 0852 along the former trail that is rapidly reverting to bushland. Four minutes in and we came across a coal mine lease stake with the alphanumeric reference APX 125, a reminder that this area is scheduled for destruction.

Relics from the time when this area was actively being logged were in the form of numerous cut stumps but also as square blazes on trees, GR 400 078. At 0907 we reached the originally planned parking spot, GR 405 078. This was the takeoff point to walk south and explore a wonderfully dissected spur that would also provide overall views into our exploration area for today. What a spur it proved to be!

Emerging from the tree cover we looked out over a castellated wonderland, pagoda after pagoda filled our scope of vision. There are so many pagodas this location is as Yuri described it, Pagoda World. To really enhance an already stunning prospect most of the hundreds of pagodas were crowned with exotic erosion residuals that seemed like mythical beasts or plinths or glorious forms complete with penetrations, orifices and windows. The centre of this area is GR 405 076.

As is my want, I turned over small rocks in search of cryptic critters to photograph. My second rock was a real winner. Underneath was a beautiful young Black Snake, *Pseudechis porphyriacus*. Less than 50cm in length, it was beautifully coiled and better still it waited while the guys with real cameras came up to capture its image. This was a great start to our adventure.

The pagodas on the spur provided a succession of individualised platforms to view the ridges further east. Every one of them called out to be visited. With the best will in the

world we would only get to see a few. As we moved out along the spur the views changed and the precipitous extent of the terrain unfolded. The great thing about this area is the platy pagodas provide so many hand and foot holds that ascending and descending even 60m plus is not an issue. Just keep your cool and move slowly.

At 0934 we had reached almost the end of the spur and needed to descend and cross Silkpod Creek as we made our way east to climb the next spur of pagodas. The actual creek crossing was a step over as it is so narrow at this point, GR 406 074. It was now 0950. We then crossed over a rise that separates a small loop in Silkpod Creek and used a fallen log to re cross it and be at the base of an imposing line of high pagodas. Next it was a question of finding the most negotiable pagoda to the top of this next spur. It was a fascinating exercise as we each tried various options. In reality any choice would work. It was just a question of finding one to suit your individual skills and ability.

The climb was about 50m vertical and really very safe. It was also a real adrenalin rush as each ledge was conquered and the ridge top loomed ever closer. My climb started at 1016, and minutes later I was on the top, GR 407 074. I noted carefully and checked with the GPS that the climb had not changed our location at all! It was time to have a break and enjoy morning tea with a whole different perspective of Pagoda World. It does not get much better than this. We were restless and keen to get exploring once more, and so at 1032 we resumed exploring this time discovering even more glorious formations and erosion residuals.

At 1040 we arrived at GR 408 074, after climbing a series of pagodas, each one more spectacular than the last. This process continued and at 1046 we mounted yet another beautifully stepped stone tower, GR 407 075. The next spur east was a work of art and we wanted to go and inspect it. As we moved closer it was clear that a huge slot needed to be either descended or circumvented to reach the start of this spur, and so it was at 1053 we crossed several flattish pagodas and then around the back headwaters of this slot, GR 408 075.

By 1104 we had progressed a little further east and descended onto another small spur, GR 409 074. We could see that there was a huge drop, possibly 80m + framed by two soaring pagodas that presented shear vertical faces into a slot that appeared to morph into a canyon at depth. What we could see below made us salivate at the prospect of getting down to the base of these extraordinary cliffs, a great continuous overhang, GR 409 074. This country is absolutely awesome. It was clear that a descent here was out of the question. Our next option was see whether we could walk out to the very end of the next spur east, and just maybe there would be a stepped pagoda face we could use as a staircase. We would try anyway. From 1107 to 1128 we went pagoda hopping pushing south east along to the end point of this spur. The floral display en route was magic with pink *Boronia*s, white *Leucopogon*s, and deep lavender blue *Prostanthera hindii*. At 1135 we stood at the drop off end point looking down into the flowing water of Silkpod Creek, a hundred metres below. Yuri named this unique terminus Silkpod Point, GR 410 072

Could we get down? Emanuel went looking and returned with information that to the north about 20m away there was a possible slot but he could not see through the ferns in one section, and was uncertain whether it involved an unacceptable / non

negotiable drop. It was worth a try. Yuri and he then jumped down the first two metres and disappeared from sight. Soon the call came back that it was "all good". So after Daryl, down I jumped making rapid progress through a most welcome and unexpected descent option. It is now named Silkpod Slot, GR 411 072 at the base. I hesitate to use the term "pass" as the top exit would be a bit of a challenge. However a little bit of landscaping could solve this and create a truly awesome way down and back up to Silkpod Creek.

By 1143 we were all down at the base of the slot. Having achieved this we would now try and walk back up under the cliffs, but above Silkpod Creek to reach the overhang we had seen from the pagodas above. Silkpod Creek in this section is a canyon, and a further 30m below the ledge. As an aside it is very likely that the last 30m could be negotiated down to Silkpod Creek. This was not in our current plans but could be explored later perhaps in summer. It is suspected that wet suits and swimming would be involved in fully exploring Silkpod Creek and canyon.

We now walked south and then north west on an ever widening ledge. Initially we were very wary of going too close to the edge as a slip could result in a quick uncontrollable slide with unknown consequences. We pushed along and just before stopping for lunch photographed classic specimen of *Hovea purpurea*. The deep mauve flowers were exceptional.

The ledge soon became wide enough for us to consider a lunch site. We stopped at GR 410 073 and enjoyed 21 minutes of rest and some satisfaction. The ledge above was a glorious honey colour; it soared tens of metres upwards. We all had a look for evidence of its use as a habitation shelter and also for any sign of artwork. There was nothing visible.

Resuming at 1235 we began exploring the overhang. It is a great, protected dry place with a length in excess of 100m. A reading was noted at GR 409 073. The ledge continued to evolve and at GR 409 074 it morphs into a small amphitheatre but with the added extra of an inward curving ceiling. A great tree has recently crashed across the central drainage ravine. It forms a very safe high level walkway from one side of the amphitheatre to the other. On the subject of trees, this enclosed valley contains several hundred huge eucalypts of a number of species. Most individual trees are in excess of 40m in height.

The amphitheatre is in a gorge or tributary gully of Silkpod Creek. It has generated a very specialised environment and a search for unusual species resulted in finding more than a dozen examples of the Mountain Silkpod, *Parsonsia brownii*, GR 408 074. I named this gorge Silkpod Gorge. Although when we looked down from the top this gorge looked impossible to negotiate, it looked like a canyon, I wondered whether it could be negotiated. We did walk up as far as we could and were stopped by a 4m high waterfall, presently not flowing. It was now 1301, GR 408 074. It may be possible to descend using a tape, however it was not possible to see whether there may be other more serious obstacles higher up.

As we entered this area we noted that there appeared to be a negotiable way of route a little to the south. Several ramps and scrambles later we managed to break through the cliff line, 1315, GR 409 073. The climbing continued and at 1330 we had regained the

tops, GR 407 074. Here another fine pagoda was the setting for a short break and refreshments. Emanuel turned over a rock that was home to a young Copper Tailed Skink, *Ctenotus taeniolatus*. In the forest there were several specimens of a Wattle, *Acacia buxifolia*. Also found was a rather unusual, and yet to be identified *Kunzea*, *Kunzea. sp.*

After taking pictures, it was time to resume climbing through dense heath and into the plateau forest to link up with the eastern extension of the fire trail we had started walking on in the morning. The terminus of the old road was found at 1359, GR 408 076. Significantly the road shown on the topographic map does not coincide with on ground reality. I have amended my working copy accordingly. The track walk back was easy and we had time to reflect on a truly wonderful piece of terrain we had been privileged to experience. We also know that a further trip is required to explore the rugged terrain east from GR 410 on the northern side of Silkpod Creek and the several deep ravines there that are surrounded by yet another pagoda network. The walk was completed at 1425. Walk length 7.1km, total ascents 412m

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0843	Park vehicles	396 078
0852	Start walk on old fire trail	396 078
0900	Blaze on trees + cut stumps	400 078
0907	Leave fire trail, head south	405 078
0916	In Pagoda World + Black Snake	405 076
0926	End of spur	405 075
0934	Descent + cross Silkpod Creek	405 074
0950	Recross Silkpod Creek	406 074
1016	Pagoda climb + morning tea, 16 minutes	407 074
1040	Pagoda climb	408 074
1046	Pagoda climb	407 075
1053	Crossing flat pagodas	408 075
1104	Gully exploring	409 074
1107	Above big drop	409 074
1128	Pagoda hopping	410 073
1135	At Silkpod Point	410 072
1143	Narrow slot descent	411 072
1152	Base of slot	411 072
1201	Ledge walking	410 072
1214	Lunch on ledge, 21 minutes	410 073
1238	Exploring overhang	409 073
1244	In Amphitheatre + walk tree bridge	409 074
1252	Silkpod discovery + named Silkpod Gorge	409 074
1301	End of Silkpod Gorge	408 074
1315	Ramp up	409 073
1330	Afternoon tea on a pagoda	407 074
1359	End of old fire trail	408 076
1425	Back at vehicles	396 078

6.40 Seven Caves of Carne Creek and Pyramid Rocks

Maps, etc.	Department of Lands topographic map Cullen Bullen, 1:25000, 8931 – 3N, second edition. GPS setting WGS84.
Walk description and route	Drive to GR 420 130 on Fire Trail No. 7 off the Glowworm Tunnel Road. Walk to the end of the trail and inspect Twin Arch Cave ⁵³ . Use a known lot/pass to get down underneath the Carne Creek cliff line, then proceed south west for about 700m to visit Pyramid Rocks ⁵⁴ , an amazing erosion residual in the middle of Carne Creek valley. From here, turn east and walk back underneath the 150m high cliff line and then north for about 1km, inspecting for more overhangs and caves. At about GR 415 129, walk north east into a gully, visiting a sequence of stunning caves – Michelangelo Cave ⁵⁵ , Rain Cave ⁵⁶ , The Mist Cave, The Weather Cave, Sand Cave ⁵⁷ and Shovel Cave ⁵⁸ . Return to the cars via a known track. About 6km.

⁵³ Twin Arch Cave, also known as Double Arch Cave or Ronald McDonald Cave, is located on the northern side of a small gully above the main cliff line, 100m south of the end of Firetrail No. 7, which in turn is off Glowworm Tunnel Road. It was accidentally discovered on 20th March 2013 by a bushwalker who misinterpreted information received from rock climber Karen Coghill. He gave it the descriptive name Twin Arch Cave due to a natural arch dividing this overhang in two. Cullen Bullen Topo Map, GR 415 124.

⁵⁴ Pyramid Rocks is an isolated rock formation, on the eastern side of Carne Creek 1.5km west south west of road intersection of Glowworm Tunnel Road and Firetrail No. 6. This is a descriptive name coined by Michael Keats on his Bush Club walk on 5th March 2008. Cullen Bullen Topo Map, GR 411 118.

⁵⁵ Michelangelos Cave, also see Gemini Cave. Located below the main cliff line 200m north of the western end of Firetrail No. 7 via Glowworm Tunnel Road. It is a large overhang separated by a natural buttress, forming two distinct chambers. Dimensionally, these hollows are described: the smaller one, 3m wide, 10m high and 11m deep with a 40 degree climbable entry slope; the larger one is 17m wide, 20m high and 20m deep with a 45 degree climbable entry slope. Named by Michael Keats on a Bush Club walk on 16th January 2012. "The ceilings, again an inadequate word, are works of art, being a palette of colours with the embedded tracery of complex, three dimensional ironstone banding. As works of art they rival the Sistine Chapel and the work of Michelangelo." Cullen Bullen Topo Map, GR 414 129.

⁵⁶ Rain Cave is 40m wide, 20m high overhang located off the Glowworm Tunnel Road and Firetrail No. 7. It was first discovered by rock climber Frey Yule on a rainy weekend c1995. Rain Cave has been described as, "No matter how hard it rains – climbing is always possible at this spot" Named in Pircher, Martin. Blue Mountains Sport climbing Crags, 1998, 1st edition, pp. 106-107. This overhang was surveyed by Ross Ellis and Erik Halbert on 18th October 2006. Ref: The Journal of The Sydney Speleological Society, 2007, 51 (5); 136. Cullen Bullen Topo Map, GR 241655 6313094. Also known as Mist Cave and Weather Cave.

⁵⁷ Sand Cave is located just above the main cliff line about 800m due west of the junction of Firetrail No. 7 and Glowworm Tunnel Road. It is an excellent camp cave as it has a huge overhang and a level sandy floor. Cullen Bullen Topo Map, GR 415 132. Close by is the overhang known as Shovel Cave.

⁵⁸ Shovel Cave is located just above the main cliff line about 800m due west of the junction of Firetrail No. 7 and Glowworm Tunnel Road. So named because of an old rusty shovel leaning up against its back wall. Cullen Bullen Topo Map, GR 415 132. Close by is an overhang known as the Sand Cave.

Gear issues 2 litres of water, electrolytes, maps, compass, GPS, PLB, appropriate head and foot wear, tape (leader only). Have clothes to change into in the car for afterwards.

Comments Exploratory. Scrambling and exposure. Wet feet and more likely.

Date walked 31st January 2014.

The Weather

A clear, warm to very warm day with very occasional light breeze, high humidity in the valley. Temperature range 18 to 33 degrees.

Background Notes

Located in the middle of Carne Creek valley, surrounded by 100m plus high cliffs and with valley access blocked by privately held lands, a visit to Pyramid Rocks has until this walk posed an enigma. I first gazed on Pyramid Rocks on 5th March 2008. These rocks have a wonderful symmetrical geometry. A climb to the top of them has been on my 'to do' list ever since.

I took an exploratory walk by Emanuel Conomos on behalf of the Blue Mountains Conservation Society on 3rd November 2013 to discover a pass down through the eastern Carne Creek cliffs to make a visit to Pyramid Rocks a possibility. As Emanuel wrote,

"I was on a reconnoitre walk for the Blue Mountains Conservation Society with Lotti Heinz and Alice Terry, the purpose of which was to see if we could find a way down from the top of the cliff, which would allow me to link up with the bench below the cliffs leading to the caves, thus making it a round walk. Before descending the slot to test it, Emanuel said to his colleagues, 'if this goes it will be a miracle.'"

Leaving his pack, Emanuel descended the slot and to his surprise it went all the way down through the cliffs to the bottom. It was an easy, and reversible slot. It immediately was called by Emanuel, Miracle Slot. It is more than just a slot. It is a pass and with Emanuel's approval it is now known as Miracle Pass. GR at top is 416 125, at base GR 416 126.

This walk crafted by Yuri also drew on walks done in the caves area by Geoff Fox and previous visits by Michael Keats and Brian Fox.

Track Notes

At 0818, vehicles were parked on Glowworm Tunnel Road Fire Trail No. 7, GR 420 130. A briefing session highlighted the key elements of the walk and we set off at 0824 to visit a cliff edge pagoda, some 100m due west, and 50m beyond the end of the fire trail. From this pagoda, GR 415 127 there is a commanding view over the Carne Creek valley, and in particular we could look down on the Pyramid Rocks and also see the cleft in the cliffs to our south that we would shortly be descending. It is a great location to overview the bulk of the planned walk.

We now headed generally south and down into the catchment of an unnamed creek located between fire trails 6 and 7. The Twin Arch Cave is located under an eroded pagoda above the northern bank of the creek at GR 417 126. The cave complex is most unusual with a large, natural flying buttress dividing the cave opening. The cave also has a 'window' separating it from an adjoining cave. I find the name 'twin arch' misleading, as the main feature is the large flying buttress.

Leaving the Twin Arch Cave we descended into the dry creek bed and headed west to the cliff edge. The last section of the watercourse is deeply sculptured and a pool had some water although you would have to be desperate to drink it. The cliff edge gave a different perspective of the top of Miracle Pass and also the very rough terrain at the base of the cliffs. As we walked around the edge we came across a stunted Eucalypt that was loaded with thousands of Plague Soldier Beetles, *Chauliognathus lugubris*, busy feeding on the blossom. I shook the tree and showered Geoff with thousands of these black and gold insects.

Some 15m to the south was the top of Miracle Pass and at 0907 we commenced the amazing but easy descent through the cliffs. The pass, which is a natural rock cleft is angled north west; the eastern wall is almost vertical and extraordinarily colourful. It is a pass to exploring so much of the upper Carne Creek valley. Possible walks are across the valley to the west where there are other passes and also to the south to link up with Josephs Creek⁵⁹

We all reached the bottom of the pass at 0911, Gr 416 126, delighted to be out of the sun and walking in shaded forest. The route planned for reaching Pyramid Rocks involved progressively descending the talus slope while heading south west along an indistinct low, dividing ridge that stretches from the base of the cliffs to Pyramid Rocks. The talus slope has some steep sections and a lot of exposed rock. Once down into more gentle terrain the valley is very attractive. The dominant understorey vegetation is made up of ancient but magnificent *Xanthorrhoea arborea*; on exposed rock faces on the huge boulders in the valley the Common Rock Orchid, *Dendrobium speciosum* is dominant and flourishing.

At 0952, GR 412 120 we reached the first of the huge boulders that make up the Pyramid Rocks complex. Viewed from the air, the rocks are grouped in a rough circle about 100m in diameter. Walking among the boulders is quite an experience. All the boulders in the area are tilted from the horizontal, some at 90 degrees but many at lesser angles. The agency that caused the tilting was probably an earth tremor a hundred thousand years ago. In the process many of the boulders have split creating huge free standing shards of sandstone as well as multiple slots that are an adventure playground. At GR 412 120 there is one huge free standing shard maybe 15m high. It has been named Cleopatra's Needle in keeping with the pyramids nearby.

A bit of scrambling and we were soon at the base of the largest rock in the boulders field, the Great Pyramid of Pyramid Rocks, GR 414 118. While most of us were

⁵⁹ Joseph Creek has its headwaters between the road intersection of Glowworm Tunnel Road and Fire Trail No. 5. It flows south, south west for 1.2km into Carne Creek. Named by Michael Keats on his Bush Club walk, 16th February 2007 after Joseph Edmund Carne (1855-1922), a brilliant geologist, Curator of the Mining and Geological Museum and Government Geologist in 1916. Cullen Bullen Topo Map. Headwaters GR 426 106, junction GR 421 096.

content to be at the base, Brian, Yuri and Emanuel climbed to the top, 837m. The trio called out how marvellous the view was and that we should all make the effort to climb this iconic winder.

From the top the Great Pyramid is a huge, roughly cubic, tilted rock, so positioned that the top of it is a point and the four faces of the pyramid are nearly equal in size and slope down to the ground some 50m below. The north face is the one to climb. It is eroded along the strike of the rock and presents a continuous series of ledges, hand and footholds. The only difficult bit is the first two metres where assistance and guidance is gratefully welcomed. The view from the top is unique. Brian took a panorama sequence of pictures and also a video. I pose on top with Geoff Fox for pictures taken by Marion. There was just room for the three of us to be there.

With morning tea and the climb we spent from 1010 to 1055 in the area. Below the pyramid there is another cleaved rock section and two exit options. One is to climb down another rock face, the other to climb down through a tunnel, GR 411 419. I chose the tunnel option which was a tight fit but a lot of fun.

Leaving Pyramid Rocks was hard but we were very conscious of the rising temperature and the need to get into shade as soon as possible. On the return journey we did find time to explore yet another slot back near Cleopatra's Needle. This slot, some 10m long and with a bit of a step up inside, is at GR 412 120. I have named this Mark Anthony Slot as it is close to Cleopatra's Needle.

We now put effort into heading back to the relatively cooler shadow of the eastern Carne Cliffs. The scree slope was reached at 1129, GR 415 122, as the angle of the slope increased our rate of progress slowed. At 1142 we were at GR 416 123 and at 1153, at GR 415 125. There was quite a lot of scrambling to reach GR 415 126 and the base of the cliffs at 1220, GR 415 127, elevation 897m. Another fifteen minutes of tough scrambling with some exposure put us on a delightful broad ledge that showed signs of frequent use. It is one of several benched ledges used by rock climbers. The cliffs above are sheer and spectacular. A bundle of climbing rope tied to a tree was noted.

At 1235, GR 415 128 we emerged from a tight tunnel onto a magnificent flat area with stunning views. What a great place to have lunch. Before settling down to eat we did a bit of exploring. Rock falls have created some amazing micro environments for wildlife. We found a lot of evidence of bat roosts and indeed Yuri was bumped into by a bat making a hasty exit. On the ground we found the shed skin of a lizard. It was white, paper thin and complete in every detail right down to individual toes on each foot. It was so light that it could be carried on the wind. Brian found two similar ones elsewhere during the walk. We knew we were in an area with lots of food as a huge Wedge tail Eagle, *Aquila audax*, circled the cliffs. In an impossible location at the back of the lunch site was a deep cleft with a plant and ferns growing. I brought a specimen home and based on leaf structure, downy feel and known range, I believe it to be *Zieria cytisoides*.

At 1258 we were on the move making our way to Michelangelo Cave, GR 415 130, arriving at 1309. Here, in this truly magnificent place Sonya gave us part of a beautiful rendition of O Sole Mio. She has a great trained voice. In the Michelangelo

Cave, the effect was profound. Thank you Sonya for adding special memory to this equally special place.

A bit of climbing up the lower slopes of the Governor Pagoda and we arrived at the Rain Cave, GR 416 131, 1332. From here it was a very short step up to the Weather Cave, also at GR 416 131. The Weather Cave has an adjoining much smaller cave that is probably the Mist Cave.

We now descended into a creek bed and made our way through a slot (or around a big rock, GR 416 130, the choice is personal), and then proceeded to follow an overhang, GR 415 130, (unnamed but in comparison to some smaller named overhangs this is surprising), around a cliff nose, across an exposed section on the point where crumbling red shale is an issue and where due caution was in order, before climbing up another dry stream bed.

At 1411 we entered an amazing and very large overhang known as the Sand Cave. It has a more or less level floor and in times of heavy rainwater washes sand through this cave. There is also evidence of a dry waterfall in an alcove cave at the back centre of the larger cave. The cave is 40m long, 10m high and 18m deep to the back of the alcove cave.

Climbing further up the dry water course at the top end of the Sand Cave we came across a very welcome phenomenon, a natural slot that pours forth very cold air, GR 415 132. The source of the cold air is unknown but appears to be entirely natural. On the day it was very welcome, there being a good twenty degrees temperature differential. We all queued up to enjoy a chilling down experience.

We now moved further up the dry watercourse to GR 415 132, the Shovel Cave. This overhang takes its name from a very old abandoned round nose shovel that leans against the back wall. Speculation is that this shovel was left here by a workman on the Wolgan Valley Railway, c. 1905-6. The overhang is less than two kilometres from Deanes Siding a former major steam engine stop for refuelling and engine changes.

Dimensionally the overhang is 30m long, 7m deep and 15m high. It was now 1428 and we were all feeling the effects of the heat. Counter intuitively, we walked due north to reach the top of the plateau. At approximately GR 415 133 we picked up a faint trace of a former loggers track that becomes more defined as a road as you walk south east along the ridge top. For the last 200m before it joins Fire Trail No. 7 it is a fully fledged former logging road. The vehicles were reached at 1444. Total distance walked about 7km, total ascents 506m.

Table of Time, Locations and Grid References

Time	Location	Grid Reference
0818	Park Vehicles	420 130
0824	Completed briefing and start walking	420 130
0830	End of Fire Trail No. 7	416 128
0835	On pagoda with views	415 127
0854	Twin Arch Cave	417 126

0903	On cliff edge	416 126
0907	Top of Miracle Pass	416 125
0911	Bottom of Miracle Pass	416 126
0938	On talus slope	415 122
0944	In Carne Creek valley	414 122
0952	Cleopatra's Needle	412 120
1010	Pyramid Rocks 837m + morning tea, 5 minutes	414 118
1015	Climb the Great Pyramid	414 118
1100	Tunnel descent	411 119
1112	Mark Anthony Slot	412 120
1117	Crossing Carne Creek valley	414 121
1129	Climbing scree slope	415 122
1142	Climbing	416 123
1153	Climbing small cliffs	415 125
1205	Scrambling	415 126
1220	Base of cliffs 897m + ledge/ bench walk	415 127
1235	Lunch, 13 minutes	415 128
1309	Michelangelo Cave, 10 minutes	415 130
1332	Rain Cave	416 131
1342	Weather Cave	416 131
1350	Optional slot descent	416 130
1403	Overhang	415 130
1411	Sand Cave	415 131
1413	Natural air conditioning slot	415 132
1428	Shovel Cave	415 132
1435	Ridge top	415 133
1444	Back at vehicles	420 130

The Gardens of Stone National Park and beyond

Book 7 - The Gardens of Stone National Park and beyond
Bushwalks on the southern Newnes Plateau;
plus the Last Three Centuries of European Settlement.

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Contents

The Gardens of Stone National Park and beyond – Titles in this series

Preface

Introduction

The Authors

Acknowledgements

Disclaimer and Warning

About The Bush Club

Defining the area

Exploring the Gardens of Stone National Park and beyond

The Last Three Centuries of European Settlement

Introduction

- 1 Early European Settlement
- 2 Life in Airly town 1898
- 3 The Wolgan Valley Railway
- 4 The Shale Oil Towns
- 5 The Newnes Hotel
- 6 The Inca Highway
- 7 The Petrol Pipeline from Glen Davis to Newnes Junction
- 8 The War of the Wires – Newnes Telephone Service
- 9 The Glen Davis Water Supply
- 10 The Dam and Pump House on Bungleboori Creek
- 11 Gold, diamonds and other economic minerals
- 12 Forestry on the Newnes Plateau
- 13 The Newnes Afforestation Camp
- 14 The deadly secret of Marrangaroo
- 15 Declaration of the Gardens of Stone as a National Park
- 16 The Wolgan Valley Resort
- 17 Coal Mining
- 18 Sand Mining
- 19 Off Road Vehicles
- 20 Wollemi International Airport
- 21 Hunting in the Newnes State Forest
- 22 Hang Gliding
- 23 A 6000 Megawatt Power Station and associated Coal mine proposed for the Newnes Plateau
- 24 Selected early European settlement Shelters, Huts and Buildings

Walks

- 7.1 Mount Walker and the Cox's River Marrangaroo Creek junction
- 7.2 Marrangaroo Ridge
- 7.3 The peninsula between Sawyers Swamp and Springvale
- 7.4 Fernbrook Ridge
- 7.5 Clerestory Spurs 1 and 2
- 7.6 Clerestory Spurs 3 to 5
- 7.7 Clerestory Spurs 4 to 7
- 7.8 Clerestory Spurs 8 to 12
- 7.9 Ravines and Pagodas south of Angus Place Trail
- 7.10 Spurs and ravines around Clerestory Spur No. 1
- 7.11 Beecroft Firetrail to Clerestory Spur No. 1
- 7.12 The pagoda ridges south of Beecroft Firetrail north of the ADF area
- 7.13 Upper Wolgan River part 1
- 7.14 Upper Wolgan River part 2
- 7.15 Upper Wolgan River part 3
- 7.16 Two tributaries of Marrangaroo Creek
- 7.17 Another exploration of the tributaries of Marrangaroo Creek
- 7.18 Farmers Creek west to east
- 7.19 Comet Mine Incline Railway and Middle Camp
- 7.20 Monkey Creek
- 7.21 Kangaroo Corner Creek
- 7.22 Reedy Creek
- 7.23 Clarence Arch
- 7.24 Blacksmiths Cave
- 7.25 Doctors Gap – Ida Falls circuit
- 7.26 State Mine Gully and Hassans Walls
- 7.27 Zig Zag Railway and Ida Creek Falls

Maps, Cullen Bullen, Lithgow, Hartley, Wollangambe, Mount Wilson

Abbreviations

Bibliography

Index

This preface is unique. It is unique for several reasons. Firstly, it has been graciously compiled by the three people who were so moved by the beautiful nature of this terrain that the coined name is most apposite The Gardens of Stone. Secondly, one of the contributions is in the form of the photograph opposite, giving truth to the statement that a picture is worth a thousand words. Thirdly, as you read it, it is charged with emotion and passion, a truly fitting way to celebrate this extraordinary place.

The Wall. This highly eroded rock face lies within a narrow canyon. It is accessed via Glowworm Tunnel Road and Waratah Ridge Road, 3.3km south south east of the junction of Waratah Ridge Road and Two Trees Road and 200m north of Bungleboori Creek. Photo by David Gilbert Blackwell. Sadly, David passed away on 10th March 2012.

Preface

by Rodney Falconer, Haydn Washington and David Blackwell

When Charles Darwin visited the Wolgan Valley in the mid nineteenth century, he marvelled at seeing platypus sporting in a deep river pool but remarked poorly on the endless monotony of the burnt Eucalypt bushland around it. It was a shame he had no time to venture into the steeper gorges nor to visit the surrounding scarps, set irregularly with grey monoliths, golden stone castles and hidden gardens. On cliffs in the nearby Capertee Valley grow perhaps the easternmost tussocks of that intrinsically desert plant and dry ice age relic, Porcupine Grass. Mere hundreds of metres away are deep chasms dominated by some of the tallest Coachwood trees on earth, remnants of Australia's ancient Miocene rainforests. This incongruity and diversity exemplifies the nature of the pagoda country. In a brief walk anywhere in the Gardens of Stone travellers are faced with a vast array of differences of scale, stone architecture, forests, sedge meadows and scrubland. Haydn, David and I returned time and again over a couple of decades, as we do still today, though much less frequently. Like decades of bushwalkers before us, we came to revere and treasure this ragged patchwork quilt. We took friends, politicians and many others to be amazed and surprised at almost every turn. Mysterious winding rock passages, the overwhelming honey scent of spring myrtles and mint bushes, lone pools set in rocks plated with dark ironstone the texture of dragon's skin, vistas for kilometres beside intimate miniature works of ikebana in stone combine with the ever present calls of Lyrebirds and Honeyeaters. It is divine to find yourself high on some ancient stone citadel looking down at distant forests and mere humans in the sprawling valleys with their roads, scattered farmhouses and day to day concerns. The land invites endless curiosity, wonderment, affection and elation. **Rodney**

One can look at the pagoda country in two ways, first as a scientist, and second as a poet. As a scientist, I see the bio diversity and geo diversity side of the pagodas. They are hotspots of both. Like remnants of lost peoples in the Himalayas, the pagodas are rich in rare and threatened species. The species themselves change from north to south, but you always find rare species there. As an icon of geo diversity, the pagodas are special, and I have seen nothing quite the same anywhere in Australia or the world. For a poet, these are places of magic and mystery. They abound with lost cities, temples, tables and chairs, stone bells and pulpits. They evoke the imagination in wondrous ways. They inspire the muse. They are simply and overwhelmingly a thing of beauty. To me the pagoda country was always the 'land of the sandstone wizard'. It is a symphony in stone we should witness and feel wonder in and keep in trust for the future. **Haydn**

David has asked that his contribution to the preface be in the form of a picture. The evocative and powerful image captured by David pictured opposite says more than a thousand words. **David**

Introduction

The Gardens of Stone National Park, 15,010 hectares as presently gazetted, consists of three disparate areas separated by rural land used for broad acre grazing and, increasingly, subdivided into life style blocks. The current National Park boundaries exclude some of the finest rock formations and bushwalking destinations.

The political reality is that royalties from 'king coal', lurking hundreds of metres below the surface, fund the mendicant state of NSW distorting and dictating government decisions to the detriment of our heritage.

This book therefore encompasses some of the territory advocated by the Colong Foundation and allied conservation groups as proposed extensions to the existing Gardens of Stone National Park. The geographic scope of this text is however more than 100% larger than the presently gazetted Gardens of Stone National Park. This text does not visit the debate about the title such land should have or whether the proposed boundaries are appropriate – that is a separate brief being pursued by others.

The existing boundaries of the Gardens of Stone National Park are somewhat arbitrary, so for the purpose of this work some adjoining areas on the eastern border with the Wollemi and Blue Mountains National Parks are included, as from an access point of view for bushwalkers they sit more logically with the scope of this discourse.

What are the characteristics that make the Gardens of Stone National Park so distinct? The National Parks and Wildlife Service 'Draft Plan of Management, August 2004' in the synopsis about the existing park state inter alia,

"Important values of the park include the spectacular wild and rugged scenery, a diversity of natural environments, the occurrence of threatened or restricted native plant and animal species, extensions to plant communities of neighbouring biogeographical regions and its cultural landscape. Because of its values, Gardens of Stone National Park has been included as part of the Greater Blue Mountains World Heritage Area."

The Colong Foundation Hon. Secretary Alex Colley, O.A.M., in presenting the case for extension of the Gardens of Stone National Park (Stage 2), writes,

"The aim of this proposal is to preserve the whole of the Gardens of Stone area by adding the areas omitted from the Stage One (i.e. the existing) declaration. The Blue Mountains parks have ensured the preservation of most of the outstanding scenic and recreational assets of the Mountains but have not covered the unique qualities of the Gardens of Stone. These include the "pagoda" formations created by ironstone bands within the sandstone, and a high density of rare plants and endangered upland swamps. Despite the infertility of its soils, the area is threatened by development proposals because of proximity to Sydney, but it contains no commercial natural resources that are not found in abundance elsewhere. Its real value is in its scenic and bio diversity qualities, which are enhanced by its ready accessibility."

Pagodas are amongst the most beautiful natural landforms that jointly Mother Nature and Father Time have wrought. The Greater Blue Mountains of NSW are blessed with one of the finest examples and one of the largest contiguous areas of this erosion residual land form found anywhere in the world.

The susceptible sandstones with their ironstone banding give rise to these bizarre sculptural manifestations that are scattered over hundreds of square kilometres. Where these sandstones outcrops appear in ravines and gorges, running water charged with the products of erosion has carved dramatic forms that adorn or have become canyon walls, embellishing surrounding cliffs and gullies with unique features.

There are great slots, contorted twisting canyons; winding ramps; gentle waterfalls; rushing rapids, great caverns; keyholes; sinuous passage ways, and high above, turreted peaks and pinnacles that reach for the sky. Exploring this terrain is to embark on a never ending adventure of discovery. Every journey in this wonderland requires patience, careful navigation, physical stamina, constant vigilance, resourcefulness and self discipline.

Where massive cliff lines overhang deep valleys, 'ways of route' can be discovered, often presenting as a complex combination of ramps and slots; within these routes are countless glorious formations, deep caves and overhangs, subsidiary clefts and canyons, secret pools, waterfalls, spiral ramps and more.

Of the many forms and manifestations of the bushwalking condition, an addiction to pagodas is one of the most virulent and impossible to cure. The desire to be a recidivist overcomes rational thought and makes the need for yet another 'fix' more compelling. Capturing pictures, whilst never totally satisfactory, is a great way to relive each pagoda journey and ease the agony of waiting for the next trip.

Pagodas are fragile, decorative pieces that must be handled with, and trod on (preferably not at all), with enormous care. Tens of thousands of millennia have passed to create them, yet one careless footfall can destroy delicate ironstone and sandstone tracery in seconds.

The authorities in their collective wisdom have drawn artificial lines on maps for land use and naming purposes. Pagoda country follows the underlying geology and therefore the scope of this book transcends many conventional and politically expedient boundaries. In October 2005, the Colong Foundation together with allied conservation groups advanced a proposal to extend the western boundaries of three National Parks (Wollemi, Gardens of Stone and Blue Mountains) to include a lot more of the pagoda country.

Whilst this proposal is admirable and has our fullest support, it is less than perfect because it is forced to acknowledge the economic land use of much of the area – sub surface coal mining and forestry to name two activities. There is an urgent need to put an end to trail bikes and 4WD vehicles (ab)using the area. The surface destruction is devastating. The effects of fracturing of pagodas and the consequential damage and interruption to watercourses and the dependent ecological environments caused by long wall coal mining will take years to totally manifest themselves, and by then it will be irreversible.

No one bushwalker or even group of bushwalkers can fully explore these landscapes in a lifetime. This text is a record of adventures and experiences in pagoda country that we have shared with fellow aficionados. It is an attempt to convey an intense passion and compelling

addiction to others, who may find it useful to read a bit, before they too become hooked on pagodas.

The Authors

Michael Keats

When I was growing up at Balmoral during the Second World War, the beaches and headlands provided me with a diversity of experiences - walking, climbing, swimming as well as opportunities to observe and question the natural world rocks, plants, insects, reptiles and sea life.

Holidays were times of great adventures – whether it was the hills around Camden, the underground marvels of Jenolan Caves, or exploring the New England Ranges. My dad was a shutter bug. There was nothing he liked more than to capture a dew drop on a rose petal, a bird in flight or a luminous fungus in the dead of night. It was unremarkable to be in what others regarded as outlandish places – we went where the spirit of adventure called.

Coming to bushwalking at a time in life when the cares of commerce are over, I made it my de facto occupation. At least twice a week and sometimes more often I make forays into the wilder parts of the Greater Blue Mountains National Parks. Abseiling, pack walking and canyoning add to the diversity of places I visit and experiences I enjoy. A compulsive chronicler, I document each walk experience systematically, compiling relevant maps and annotating photographs. When I am not in the bush, my time is split between desk and library research.

In 2011, a singular honour was bestowed upon me. I was made a Life Member of The Bush Club Inc., “In recognition of Long and Loyal Service to the Club as a Leader of Walks and an Adventurous Member during many years of continuous membership.”

Our family includes my devoted wife Jenny, two married sons and one amazing grand daughter. Jenny and I plan to keep travelling and adding to the adventure in our lives. My published bushwalking books include:

Day Walks in the Lower Grose River and Tributaries with particular reference to the Engineers Track, 2005, 61pp. Snap Printing Pty Ltd, Wetherill Park; ISBN 0646 44522 7

Day Walks in Therabulat Country, also known as the Wild Dog Mountains in the Blue Mountains National Park, 2006, 200pp. Southwood Press Pty Ltd; ISBN 0 646 45582 6

Bush Club Leaders, 2014, 226pp. Whirlwind Print Pty Ltd ISBN 9780987583611

Brian Fox

Brian Fox's professional career with the Department of Lands started after he finished his Higher School Certificate in 1970. In 1976 the department, then known as the Central Mapping Authority, moved to Bathurst. During the course of his career, Brian's main expertise has been in the area of topographical mapping. Whilst in Bathurst, Brian has been involved in many and varied community activities, such as teaching gymnastics, church activities, being a youth leader and a part of the local Bush Fire Brigade. His community involvement was honoured when he was selected as one of the torch bearers for the 2000 Olympics.

In his younger years, Brian was a member of the Boys Brigade, where he gained its highest award – the Queens Badge. He moved through the ranks and became a leader of Epping Boys Brigade. This was the start of his love for the bush, his first walk to the Blue Gum Forest being in 1968.

It was his involvement in the 3rd edition of Blue Mountains topographic maps and his love of bushwalking that kindled a passion for investigating the origin of Blue Mountains names. To date, he has documented over 3,000 geographical place names and his bushwalking over the last 15 years has included over 800 day walks.

Brian has written four books, the latest being the Blue Mountains Geographical Dictionary, produced in 2006. He has contributed over 60 short articles to various publications. Brian is a member of the Bathurst and the Blue Mountains Historical Societies as well as a member of The Bush Club, a Sydney based bushwalking club.

Brian is married to Elaine and has three children and nine grandchildren. His published works include:-

Upper Blue Mountains Geographical Encyclopedia, 1999; 166pp. ISBN 0 646 36960 1

Upper Blue Mountains Geographical Encyclopedia, 2nd edition, 2001; 174pp.
ISBN 0 9578737 1 9

The Origin of Leura, Blue Mountains, 2001; 23pp. ISBN 0 9578737 0 0

Blue Mountains Geographical Dictionary, 2006; 310pp. ISBN 0 9578737 2 7

Joint Publications - Michael Keats & Brian Fox

The Passes of Narrow Neck, 2008, Ligare Pty Ltd; 126pp. ISBN 978064648112-8 (pbk)

The Upper Grose Valley – Bushwalkers Business, 2010, Whirlwind Print Pty Ltd; 569pp.
ISBN 9780646473192. (pbk)

The Gardens of Stone National Park and beyond, Book 1, 2011, 400pp. Whirlwind Print Pty Ltd; ISBN9780987054609 (pbk)

The Gardens of Stone National Park and beyond, Book 2, 2012, 492pp. Whirlwind Print Pty Ltd; ISBN 9780987054616 (pbk)

The Gardens of Stone National Park and beyond, Book 3, 2012, 448pp. Whirlwind Print Pty Ltd; ISBN 9780987054623 (pbk)

The Gardens of Stone National Park and beyond, Book 4, 2013, 932pp. Whirlwind Print Pty Ltd, ISBN 9780987054630 (pbk)

The Gardens of Stone National Park and beyond, Book 5, 2012, 448pp. Whirlwind Print Pty Ltd; ISBN 9780987054647 (pbk)

The Gardens of Stone National Park and beyond, Book 6, 2012, 448pp. Whirlwind Print Pty Ltd; ISBN 9780987054654 (pbk)

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A work of this magnitude cannot be written without extensive research, supplemented with contributions by passionate specialists who have willingly given of their time and expertise. We owe each of them generous thanks.

The diversity of content matter has caused the authors to consult widely on subjects as diverse as historic railways, rare and endangered species, water quality and Wywandy and Wiradjuri Aboriginal tribal descendants. It has been a rewarding journey and one we have thoroughly enjoyed. Individually and together we have met some wonderful people and developed lasting friendships. The networking process has enriched our lives and we hope that our efforts translate into real benefits for you as readers and users of this text that will help you appreciate the rich tapestry encapsulated by the Gardens of Stone National Park and beyond.

It is a rare and singular experience to know the trio concept bushwalker founders of the Gardens of Stone National Park. Brian and I feel a very special affinity with Dr Haydn Washington, the late David Blackwell, and Rodney Falconer. It is due to their vision, perseverance against powerful vested interests and dogged determination backed by the resources of the Colong Foundation for Wilderness that the present Gardens of Stone National Park exists at all.

A work of this size would not be possible without some direction. Fellow bushwalker and young retired entrepreneur Yuri Bolotin has brought to bear an array of skills across many disciplines to ensure that the authors' vision translated into a practical reality.

Fellow walker on many adventures and protagonist to see the venture succeed John Cooper put up his hand to create the hundreds of maps – one for each walk, required for the series. John's painstaking attention to detail is deeply appreciated.

A special mention must be recorded to Barry Hanlon for typesetting and assembly. Barry continues the work undertaken by Natasha Foley in Books 1 to 3.

Increasingly, we have enjoyed including the work of photographers far better skilled and equipped than ourselves. We particularly pay tribute to John Fox, Brian Graetz, Emanuel Conomos, Geoff Fox, Cotter Erickson, Yuri Bolotin, Stephen Imrie, Jeanette Holdsworth, Tom Brennan, Chris Sterling and Daryl Watson.

David Crestani, Blue Mountains Botanic Garden Senior Horticulturist who has been called upon numerous times for plant identification and very freely offered his advice, escorted us on botanical walks and viewed and labelled our DVD of 150 flora photos.

The shock accidental discovery of unexploded ordnance at Marrangaroo led to helpful contacts with the Australian Armed Services, including M. St C. Mark Walton, Non-Defence Training Area Manager, Joint Operations Support Staff, NSW; Kevin Cuthbertson, E.O.D. Department of Defence and Neil Hutchinson of the Defence Facility at Marrangaroo, who each helped significantly in documenting the story of what has gone on at Marrangaroo. Geoff Plunkett, author of Chemical Warfare in Australia, helped clarify many of the finer

points. Craig Brown, senior research analyst for the Australian Bunker & Military Museum, provided copies of significant historical documents.

Arising from the same story, there was the benefit of the helpful input of Cameron Dobson, Acting Regional Manager, Forests NSW, whose jurisdiction is impacted by the Marrangaroo Defence Facility. Cameron was also very helpful in providing information about the Newnes Afforestation Camp as well as rare and endangered plant species across the State Forests administrative area.

Writing the challenging chapter on Aboriginal history of the area was made more comprehensible after a full day was spent in the field with Danny Whitty, who has direct connections with the Wywandy tribe of the Gundungurra Aboriginal people. Danny's ancestry is also connected to early European settlement of the Wolgan Valley. He willingly provided access to his comprehensive records. A day was also spent with Wendy Lewis, a legally recognised traditional owner and member of the Wiradjuri people. Dr Geoff Ford, a specialist in Aboriginal Studies, has assisted in our understanding of this complex issue.

The story of the Wolgan Valley Railway has been greatly assisted by a number of dedicated specialists, including Leonie Knapman, author of several books on shale oil towns in NSW. Further, Leonie allowed use of her personal library to access and research early geological maps and books.

Mark Langdon, historic railway buff and author of arguably the definitive work on the Wolgan Valley Railway, generously provided information and photos from his collection for us to use.

Officers of the NSW Branch of the Australian Railway Historical Society clarified a number of contentious issues relating to the Wolgan Valley Railway line.

Stephen Imrie, bushwalker and historian with a passion for the Lithgow - Newnes area, has taken us to places not normally visited and also provided hundreds of photos and maps to select the most defining images for illustrating our work. Better still, Stephen has come with us into the field. We are also indebted to him for maps and information about the mining history of Blackmans Crown.

Duo Allan Watson and Thomas Ebersoll each contributed significant input into the story of what is now affectionately called by bushwalkers the Newnes Hotel. Allan also provided constructive input into the first drafts of the story of the Wolgan Valley Railway and access to rarely seen field notebooks of the late Eric Stephens, author of 'The Wolgan Valley Notebook', 1996.

Kay Skirt, Local Studies Librarian, Lithgow City Council Library, facilitated access to Council records about the dam constructed on the Bungleboori River and put us in contact with Brian Hustwayte, who not only gave approval for us to use historic pictures from the film archive on the building of the dam and associated infrastructure, but who patiently worked with us to secure the images we wanted.

Eminent NSW geologist and University of Sydney lecturer Dr David Branagan provided guidance on the chapter on the geology of the area, while gold and diamond miner and entrepreneur Col Ribaux made us welcome on his mineral leases. Four geomorphologists, Dr

Paul Hesse, Dr Marshall Wilkinson, Dr Robert Wray and Dr Osborne Armstrong, have advanced our knowledge of the formation of pagodas and the unique Newnes Plateau sand dunes.

Public relations staff of arguably the most expensive development yet in the Wolgan Valley, the Emirates owned *Wolgan Valley Resort*, provided assistance with all our questions about how the Dubai based company came to invest in Australia and the Wolgan Valley in particular.

One of the most significant and supportive groups in the whole project are the many members of The Bush Club Inc., who joined the authors over many years on the exploratory adventures that are the essence of this work.

Bushwalking icon, the late Wilf Hilder, has been a staunch supporter and mentor, never afraid of questioning or challenging established thought. We valued Wilf's incisive mind and the many occasions when some rewriting had to be done.

Inevitably, National Parks have boundaries with privately held land. Some of our most respected friends are landholders whom we have approached for permission to access otherwise remote and inaccessible areas. At all times we respect conditions imposed by them on us. They live in the area 24/7. They know.

For the comprehensive history of the formation of the Gardens of Stone National Park the authors wish to thank Geoff Mosley, author of *The Battle for The Bush*, 1999. He allowed us to reproduce the detailed blow-by-blow history documented in this book.

The board of the Colong Foundation for Wilderness Ltd has generously allowed us to reproduce pages of the Gardens of Stone Proposal – Stage 2 that was used in the quest to achieve the ultimate goal of protecting the irreplaceable but presently unprotected marvels currently outside the Gardens of Stone National Park. We are also indebted to the Foundation for being able to reproduce the material relating to coal and sand mining.

Andrew Valja and Karen McLaughlin, staunch conservationists, cartographers and monitors of trail bike activities, have been generous in sharing their expertise and knowledge.

More and more, water quality is an issue for every bushwalker. Gone forever are the days when it was safe to drink water from any stream without question. Dr Ian Wright, postdoctoral fellow at the UWS, has spent more than 20 years studying the ecology of the streams of the Greater Blue Mountains. His detailed analysis of the waterways of the Gardens of Stone National Park and beyond is a revelation.

When it comes to Fungi identification, no one does it better than Don and Judith Gover of the Sydney Fungal Studies Group. These two dedicated specialists have been able to identify most of the images we have sent them. What is more, the Sydney Fungal Studies Group has produced a field booklet to assist in identification. There are also instructions on how to take the right photos to ensure a successful and accurate ID. We are indebted to these experts.

Tim Hager of the NPWS has marshaled the extensive resources at his command to contribute a comprehensive list of the flora and fauna of the area. While this listing cannot be fully

illustrated, we have chosen a selected number of endangered species for more extensive notes and treatment.

Unsung heroes, our wives and families, have put up with much, including numberless mornings leaving home before daybreak and returning in the dark of night that day or several days later. Absentmindedness to the minutiae of the activities of daily living is also a case we plead guilty to.

Disclaimer and Warning

The walking Track Notes in these volumes are not to be interpreted as implying the requirements necessary to successfully accomplish the walks described. Some of the 'walks' include activities such as swimming, use of ropes, abseiling, canyoning, rock hopping and rock climbing with exposure. Very few of the walks in this text are on a made track. Having the skills and confidence to navigate through rough country where there are no or few landmarks is essential.

Most of the Gardens of Stone country and beyond as described is a wilderness area, some of the walks are on land designated as State Forest, and some walks are on land that has been resumed from agricultural activity. Land adjoining the Army base at Marrangaroo is a very dangerous place. In all cases, the areas visited are remote, wild, unpredictable and, at times, very dangerous places. Weather conditions can change rapidly, particularly in remote catchments. Many rivers in the area have extensive drainage catchments and can rise suddenly. Snowstorms and sudden hailstorms are common. The intending bushwalker should be proficient in all aspects of the craft, navigation, first aid, and be equipped to handle unexpected 'benighting', that is being unexpectedly forced to spend the night sleeping rough in the bush.

It is strongly recommended that an aspiring explorer of these wild places goes with others who have been there before and preferably first becomes a member of a recognised walking club affiliated with the Bushwalking NSW. Leaving behind a copy of your planned route, campsites and intended date and time of return will save anxiety for those you said farewell to when setting out on your adventures.

Modern communications such as mobile telephones are not reliable in the area except from some high peaks, and even then only under favourable conditions. Carrying a Personal Locator Beacon (PLB) for emergencies as well as using a GPS in plotting your way will ensure the time spent in the Gardens of Stone country and beyond is as you planned it.

Special attention should be given to the choice of footwear for a particular walk. Each walker has his or her own preference in footwear. Whatever your choice, make sure it is in sound condition and will not result in blisters. On some walks, carrying a second set of footwear with superior grip is an advantage.

Becoming 'benighted' can happen on any walk for a variety of circumstances. When it does happen, it is important to remember that walking in the dark in this terrain, even with a reliable headlight torch, can be extremely dangerous. It is far better to have a safe night 'sleeping rough' than to stumble and fall with possible serious injury. This concept needs to be explained to loved ones and family before you leave on your adventures. They should not panic and call emergency services or your club until you are 15 hours overdue. Within this time frame, it is these days usually possible to make contact and give reassurance of your safe return.



About The Bush Club

The Bush Club was brought into being when the first meeting was held on 19th September 1939. The auspicing co-founders were Marie Byles and Paddy Pallin.

At the first meeting, the seven members – Paddy Pallin, Beryl Carne, Mrs Hanna Lemberg, Eckart Hill (then Heilpern), Marie Byles, Mrs S.Clark and Hans Curtis – paid an annual subscription of five shillings to form the nucleus of the club. They were joined by a further 15 stalwarts before the end of the year.

In the year 2014, the Club boasts a membership in excess of 700, a comprehensive program of walks that every week provides choice of day walks at different levels of difficulty and longer walks involving camping. This program is supported by relevant publications and a committee that is very much aware of the important social and environmental issues that attach to bushwalking in the 21st century.

In the Club publication 'Looking Back - Walking On' commemorating the Club's first half century (1989), is recorded an important quote from co-founder Marie Byles: "Do try to form an active, strenuous walking section within the club consisting of people trained and also able to train others in leadership, map and compass, bushcraft and camping."

A perceptive editor writing in The Bush Club 60th anniversary publication (1999) 'Sixty Years – Sixty Mountains' said, "The real challenges for the club into the next decade are (inter alia) – to produce walks that have appeal to the membership and are sufficiently differentiated to attract additional members. One possible way may be for individual leaders from time to time to develop their own mini projects."

The Bush Club is a dynamic and evolving organisation. It is engaged with the latest in information technology. It is responsive to the need to be flexible in encouraging leaders. The advent of the short notice walk convened by email as an adjunct to a published program has provided undreamed of opportunities for additional walks with as little as 48 hours notice. The Club website is one of the most highly regarded in the bushwalking fraternity. Within this program flexibility, the club is responsive to the needs of a part time work force whose free days for walking can occur at equally short notice.

The future of the Club is unlimited, and provided the governance of the club is always focused on walking and opportunities to expand the range and diversity of the program, it will continue to grow and fulfil a very important physical, social and emotional role in society.

Defining the area

The territorial area encompassed by these books is broadly triangular in shape and generally contained within a boundary line drawn east from the tiny hamlet of Running Stream to the former kerosene shale mining town of Glen Davis, a distance of about 35km, and then due south to the hamlet of Bell, about 60km. The south western edge of the area is generally contained by the Chifley Highway and sections of the Great Western and the Castlereagh Highways – in all nearly 900 square kilometres.

Within this broadly defined boundary, apart from the three separate areas of the Gardens of Stone National Park, there are also the Mount Airly Genowlan Mountain massif, the Ben Bullen State Forest and the entire Newnes Plateau. On the Newnes Plateau, there is a significant State Forest and a large area of Commonwealth Land currently occupied by the Australian Army. A large segment of the adjoining western edge of the Wollemi National Park and part of the Blue Mountains National Park are also included.

Nine 1:25000 Department of Lands topographic maps encompass this area – namely, Glen Alice, Ben Bullen, Mount Morgan, Cullen Bullen, Rock Hill, Lithgow, Hartley, Capertee and Wollangambe.

A section of the Great Dividing Range falls within and parallels the south of the western boundary. The high country is essentially an elevated, dissected plateau that is epitomised by grand mesas such as Pantoneys Crown and spectacular erosion residuals such as Mount Canobla, Donkey Mountain and Birds Rock. Whilst Birds Rock is not so prominent, the view from the trig point at the top is very special and worth the effort of a visit.

The major rivers draining the area are the Capertee, generally flowing from west to east in the northern part, the Wolgan, generally flowing from the south to the north and then east, and the Cocks, flowing from north to south. A complex network of tributary creeks and streams feeds these major rivers. Of particular interest are Carne Creek, Deanes Creek, Rocky Creek and upper sections of the Bungleboori Creek and the Wollangambe River.

The influence of human activity permeates the entire area. Mining has wrought the greatest changes. In the late 19th and early 20th centuries, exploitation of the kerosene shale deposits saw the development of towns at Glen Davis, Newnes, Airly and Torbane, all long since depopulated, and except for Glen Davis, reduced to place names. A railway some 51km in length was constructed between Newnes Junction (previously on the Main Western Line) and Newnes to haul out kerosene shale and shale oil products. During WWII, a petrol pipeline stretched from a refinery operation at Glen Davis to Newnes Junction on the Main Western Line.

Currently most of the area is subject to underground coal mining. There is some open cut mining of the Irondale seam on the western edge, however the main issue is underground long wall mining of the Lithgow Seam with mine heads at Airly, Baal Bone, Angus Place and Springvale. Geological survey and drilling rigs have traversed much of the area, and many of the current tracks and trails have evolved from roads pushed through for mineral exploration purposes.

Apart from the obvious visual pollution of mine dumps and air shafts, the Wolgan River is the unwilling recipient of contaminated mine water above the Wolgan Falls. Dams for water

supply for the former Wolgan Railway and for Lithgow City have been constructed on a number of waterways. In times past the Wolgan River at Newnes used to catch fire from a careless cigarette as it was so polluted with hydrocarbons.

The coal mining industry has a lot of accountability to address. The Wollangambe River is so polluted with coal fines from the Clarence Colliery that it flows black. The cliffs and pagodas in Ben Bullen State Forest above Baal Bone Colliery operations are collapsing from long wall mining. Many sacred Aboriginal art sites are under threat, hanging swamps that sustain entire ecosystems are being destroyed, and the Cocks River water, a major source of Sydney's water supply, is contaminated to dangerous levels.

Much of the Newnes Plateau is subject to active forestry operations and the logging of old growth forest. Significant areas have been planted with *Pinus radiata*, an exotic species that reduces the under storey into a biological desert.

In the south, some 12 square kilometres of the Marrangaroo catchment have been designated as Commonwealth Land occupied by the Australian Armed Forces for decades. Unexploded ordnance and stored chemical weapons are still live issues over a large area that, until recently, had been an undisclosed land use. The most recent Department of Lands topographic map 1: 25000, Lithgow, 2006, fails to identify this significant and most concerning area.

To add to the above litany of issues, the State Government gave approval for the construction and operation of the first six star resort in Australia adjacent to the Donkey Mountain section of the Gardens of Stone National Park, at the confluence of Carne Creek and the Wolgan River, opened 2009. Despite all the caveats agreed to, we are fearful of the long term impact of this resort on the integrity of the National Park.

Notwithstanding current undertakings, we were wondering how long it would be before there is a constant service of helicopters ferrying in international guests who cannot accept the drive from Sydney International Airport, compromising the integrity of not only the Gardens of Stone National Park, but also the Blue Mountains National Park and the Wollemi National Park. On the positive side, there are requirements on the resort operator to eradicate feral animals and implement flora and fauna management plans, which presents a golden opportunity to improve the current state of the environment in that area. Fortunately helicopter use to-date has been minimal. The Wolgan Road, from Wolgan Gap to the gate the Wolgan Valley Resort has now been upgraded, sealed with line marking and safety signage.

The unfettered access given to 4WD drive vehicles and unregistered motor bikes into areas controlled by Forests NSW results in a major degradation issue that could, and should, be resolved immediately. These abusers of the natural environment have no concern for the irreversible damage they do. Their predilection to advertise their presence with aerosol paint cans and scarify the landscape must be stopped now.

Despite the above negative factors, the Gardens of Stone National Park and surrounding areas still present a unique and compelling experience to the keen bushwalker explorer. Rarely sighted animals and plants can still be found; day walks and pack walks can be constructed to completely avoid the worst degraded areas; the challenges of high dry canyons, finding stunning views and exploring pristine creeks and abseiling in wet canyons can still be your experience.

Exploring the Gardens of Stone National Park and beyond

The Sydney motorway network has made destinations within the Gardens of Stone National Park and beyond accessible for day walks like never before, with formerly remote destinations such as Genowlan Mountain and Donkey Mountain now well within reach. Even a climb and traverse of Pantoneys Crown can be undertaken as an extended day walk, a situation unheard of ten years ago.

The scale of the Gardens of Stone National Park and surrounding areas is huge. One of the most basic tenets for exploring in this area is to set achievable goals. In this country, distances are deceptive. Unless you are walking on a made road or rare track, progress is inevitably slow. This applies equally to the dry ravine country in the western part and the terrain in the wetter, eastern part. Exploring in an area with deeply dissected topography takes time. Many walks are included in these volumes that may show on a map as less than 5km in length, yet 6 hours or more may be entailed in completing the walk. It is not country to hurry in. At all times, the safety of yourself and your party must be the prime consideration.

Carrying a 20m tape, while not mandatory, is strongly recommended. Situations can and do arise where setting a tape can make all the difference to the comfort, wellbeing and safety of the party. Having training in remote area first aid and keeping your qualifications current is essential for leaders and good for all participants. Always make sure every member of your party carries an appropriate first aid kit.

Exploring the Gardens of Stone National Park in most 'off the beaten track' areas requires above average fitness together with some true grit of spirit. Working out at home, visiting a gym or a rock climbing gym on a regular weekly basis is a good way to prepare yourself for the rigors of enjoying this special place. If you ever needed a motive for fitness, fall in love with the Gardens of Stone National Park.

Available maps of this area have many deficiencies. Many Department of Lands topographic maps show topography with 20m contour intervals. The scale of 1:25000 is also inappropriate for this country, so many major features are not shown and the maps portray a simplicity which is very much at variance with reality. One of our bushwalking colleagues, who is besotted with the area, has spent thousands of dollars in commissioning maps at a scale of 1:15000 with 10m contours. These maps are a vast improvement, but even they fail to show features that can prove insurmountable.

Carrying a GPS and a copy of the best quality map you can buy is mandatory in this frequently complex terrain to be able to verify your actual position. High resolution aerial photographs are useful adjunct aids. Also, we never put on our packs unless a Personal Locator Beacon (PLB) is included. It is that kind of country.

Water. Carrying an adequate supply of water is absolutely essential in this country. Many of the creeks and rivers are heavily polluted. In the drier times, many creeks have ceased flowing and cannot be relied on. In some places, you may even need to lower a billy on a rope to collect water from a pool within a deep canyon.

Early European Settlement

Early European settlement of the 900 square kilometres of the scope of this work was principally confined to a small area of arable land, namely the Wolgan Valley. Due to its 'mountain locked' nature, more accessible areas surrounding the valley, and outside the scope of this work, were settled first. It is believed that a local Aborigine showed one of James Walker's (Wallerawang) station hands the way down into the valley (The Donkey Steps). The short articles that follow are a collection of documented notes from various sources that collectively embroider and stitch a tapestry of the occupation and settlement of the Wolgan Valley and surrounding areas.

In 1820 James Blackman marked out a route from Bathurst to Wallerawang. In 1822, together with William Lawson and Aboriginal guides, Blackman explored a route from Wallerawang to Dabee (Rylstone.) (See place names Blackmans Crown), Ref: by Gresser, P. J. The Aborigines of the Bathurst District, 1965 and Blackman, James Australian Dictionary of Biography on line.

In 1823 Archibald Bell at 19 years of age along with an Aboriginal guide was exploring the northern access in what today is called the Bells Line of Road. Later that same year in September, Surveyor Robert Hoddle followed Bell's route and further pushed on to become the first European to see the southern side of the Wolgan Valley. (See place names Bald Hill). Ref: by Colville Berres Hoddle. Robert Hoddle Pioneer Surveyor 1794-1881, 2004.

The earliest permanent European occupation of the Wolgan Valley is attributed to James Walker¹ of the Royal Marines, who established "Wallerowang" (Wallerawang) station to the west in 1824. He soon entered the rich, confined and attractive valley of the Wolgan and set up an outstation there that he named Wolgan.

According to Morgan, H.A. MacLeod. Short History of the Wolgan Valley, 1959. (Journal and Proceedings of the Royal Australian Historical Society, Vol. 45. Part 2, 1959, page 87) 'There seems little doubt that Wolgan was the native name for the locality, which became adopted for the entire valley and its river.'

Thomas Archer², whose father for a time managed "Wallerowang" for James Walker wrote.

"Wolgan, where Skranny [his horse] and I frequently went on stock driving excursions was a wonderful valley, about 20 miles long by 3 or 4 wide, completely surrounded by precipices, ranging from 200 to 500 feet in height. The end next to Wallerowang (about 6 miles off) was the lowest, and here a path had been cut in the face of the precipitous rock, (Wolgan Gap) and formed the only access to the valley for cattle and the horses. The native blacks could enter it at various points by scrambling down the precipices,

¹ James Walker's grave was relocated from what is now Lake Wallace to the eastern side of Lake Wallace when the Wallerawang Power Station was commissioned in 1957. His headstone inscription details a remarkable short history of his life and in part reads,

Beneath are the deposited Remains of James Walker Esquire Born Perth in Scotland 4th November 1785 Received a Commission at the Royal Marine Artillery 1805 Retired from that corps on half pay in 1822 and soon after emigrated to New South Wales He was the original Grantee of Wallerowang on which Property he came to reside in 1824 and Died there 24th November 1856

² Thomas Archer was a cousin to James and William Walker.

but no white man or quadruped could do so without imminent risk to their necks. The path in the precipice was barred by sliprails, so that stock, when once in the valley, found it nearly impossible to get out again, and this made it a very valuable weaning paddock. Two brooks (The Wolgan River and Carne Creek) of the most pellucid water flowed through the valley, entering by inaccessible gorges, and after joining their waters, left by another gorge equally inaccessible. This happy valley was occupied solely by some hundreds of young cattle and horses, and by old Ned Murray, an Irish emancipist, Rosie his wife, Jeannie his youthful grand-daughter and Neddy his Donkey."

Other early explorers and settlers in this area were the Dulhunty brothers who in 1824 were granted 2000 acres. They called their station (property) Cullen Bullen. Dulhunty Papers. www.dulhunty.com/htm, John McLean and, Sir John Jamison held large acreages at Capertee, and in this same time span, the Walkers were also acquiring additional large tracts of land.

Thomas Archer recalls the assistance of 'Miles' (also spelt Myles), a native, head of the Wallerawang tribe. Ref: Archer, Thomas. *Recollections of a Rambling Life*, 1897, p. 31. James Blackman and Archibald Bell used Aboriginal guides. The names of the places settled reflect the Aboriginal influence. Place names such as, Wallerawang (now Wallerawang), Cullen Bullen, Mudgee, Dabee (now Rylstone) Wolgan, Growee, Marrangaroo, Capertee are all of Aboriginal origin. Certainly, the first European entry to the Wolgan Valley is attributed to the guidance of a member or members of the local Aboriginal tribes. Ref: *The Lithgow Mercury*, 1907, Blackfellows Hand Rock near Wolgan Gap.

William Walker first came to Australia in 1813 on the *Eliza*. His business took him to Calcutta, India and he returned to Sydney in 1820. William's elder brother James Walker arrived in Sydney on the 24th September 1823 on the ship *Brutus*. Ref: *The Sydney Gazette* 25th September 1823, p. 2. He along with his two nephews Thomas and Archibald Walker joined William in his business, William Walker & Co., Later renamed Messrs Walker & Co. In 1828, William married Elizabeth Kirby; they had nine sons and two daughters. He died in 1854 aged about 67.

William held large land holdings being given grants of land of 1000ac from Governor Macquarie in 1821 and a further 1000ac from Governor Brisbane in 1825 at Lue, near Mudgee.

A note in Surveyor Robert Hoddle's diary, dated 12th November 1825, "Returned to Dabee (Rylstone) Mr Walker J.P. and party in that quarter". Ref: by Colville, Berres Hoddle. *Robert Hoddle Pioneer Surveyor 1794-1881*, 2004, p. 92.

On the 2nd January 1831, William Walker received a grant of 1000ac in the Wolgan Valley. Ref: Survey Plan B4.691roll. Portion 26. Parish Wolgan, County of Cook. This date is the official date for it appears that the Walkers were using this land well before 1831, maybe as early as 1825.

At the time, the process from selection to Title Deed was a long and tedious one. Upon selecting the land and squatting on it a claim was made to the Colonial Secretary's

Office Sydney, they in turn passed the information to the Supreme Court then to the Surveyor Generals Department who in turn assigned a surveyor to travel out to the property and enter the details in his field book.

The surveyor on return to the office to drew up the plan that was given to the Surveyor Generals Department hierarchy for checking and approval. From here the paperwork progressed back up the chain to Colonial Secretary's Office who in turn submitted it to the Collector of Internal Revenue, who upon receiving payment issued the Title Deed.

Ref: The Sydney Herald 9th September 1833, p. 4 Title Deeds.

William Walker, in whom the Title Deeds for Wolgan were vested, leased the property to his brother James Walker. Ref: Wolgan Valley Homestead Complex – Conservation Management Plan, prepared by Conybeare Morrison International, 2006.

James with an order for a grant of land in 1824 from Governor Sir Thomas Brisbane had selected his 2000ac near the headwaters of the Cocks River. He named his station Wallerawang, an Aborigine word meaning, 'place of plenty wood and water'.

The Wolgan Valley out-station he used as, "the weaning and fattening station, and bringing up 'killing bullocks' from there". Ref: Archer, Thomas. Recollections of a Rambling Life, 1897, pp. 12-13.

James had placed one of his assigned convicts, Edward (Ned) Murray as a shepherd for Wolgan Station.

Edward Murray was a son of a farmer, born c1791 in County Tyrone, Northern Ireland. On the 17th August 1823, he was sentenced for Life, charged with stealing a horse. He was sent to New South Wales on the ship the *Prince Regent* and arrived in Sydney on the 15th July 1824. Being assigned to James Walker a kind and honest gentleman, James had petitioned the Governor numerous times on Ned's behalf to have his wife Rosannah (Rose) and their five children transported from Northern Ireland to Wallerawang. Edward after numerous attempts at gaining 'tickets of leave' was finally given a Conditional Pardon on the 10th June 1843. Ref: Descendants of Edward Murray and Rosannah McConvil, prepared by Ean Jones.

James had returned to Scotland in 1834 to marry his cousin Robina Ramsay. She returned with him to Wallerawang and it is in her name that a number of his properties were registered. They had four children, Allison b1834, Wilhemina, Archibald James b1841, and Georgina Lyon Wolgan b1843.

Georgina married Edwin Barton who was the civil engineer who had surveyed one of the proposed routes for the railway up the Grose Valley. The pair also held extensive parcels of land in the Wolgan and Edwin acted as a go between when purchasing land in the Wolgan for his father in law, James Walker. (See notes Newnes Hotel land ownership) James died in 1856 aged 71 and his wife, Robina died in 1867.

Thomas Archer described Ned as old; he was about 47, his wife Rosannah was also recorded as Rose, Rosie and Rosa. His youthful granddaughter Jeannie was in actual fact his son, Michael's wife, Jane.

Ref: Archer, Thomas. Recollections of a Rambling Life, 1897, p.14.

It is the 1000ac held by James Walker at Wolgan that holds special interest for it is this parcel of land, which has the connection to the Bird family, and the present day owners of the Wolgan Valley Resort, the Dubai based Emirates Group.

Of Edward and Rosannah's five children, it was their only son, Michael whom we are particularly interested in following the family line.

Before we leave Edward and Rosannah, we should note that they did not just remain in the small bush hut in the Wolgan, but also purchased two 30ac lots of land.

The first was near land owned by his employer, James Walker. There is no doubt that James helped and encouraged them to purchase it, as Edward was illiterate; the second was in the same vicinity, but on the headwaters of the Coxs River.

Edward died on the 3rd February 1862 aged 71 and his wife Rosanna died on the 27th March 1864 aged 84, both death certificates record place of death as Kangaroo Creek. The junction of Kangaroo Creek and Coxs River where they lived is near Angus Place, midway between Wallerawang where he was first employed and the Wolgan Valley his main place of employment for James Walker.

Ref Survey Plans C14.1507 survey dated 28th March 1853 and 117.1507 survey dated 28th October 1856.

Returning to Michael. He married Jane Cunningham (also spelt Jennie, Jeannie) on the 18th July 1842 at St Marys, Sydney, they had seven children, John (1844-1920), Edward (1846-c1900), James (1848-1870), Patrick (1850-1926), Samuel (1853-1900), Mary Anne (1855-1929) and Rosannah (1857-1861). Michael died at the early age of 39 and Jane at 52. Ref: Descendants of Edward Murray and Rosannah McConvil, prepared by Ean Jones.

The family name of Murray is bestowed on several local geographical features, Murrays Mount and Murrays Swamp. See place names section for more details.

Of their seven children, Mary Ann married Henry Beecroft on the 1st November 1873. It is the Beecroft family name which, has given rise to the names, Beecroft Trig Station and the Beecroft Firetrail. See place names section for more details.

Samuel Murray married Rebecca (also spelt as Rebekah) Hughes in 1881, their marriage being registered in Hartley. They in turn had eight children, Helena (Nellie) (1882-1883), Mary J (b1883), Ada M (b1885), Edwin (b1887), Amy O (b1889), Edith Muriel (1895-1933), William A C (b1898) and Joseph. Ref: Descendants of Edward Murray and Rosannah McConvil, prepared by Ean Jones. Samuel's brother, John Murray married Rebecca's sister, Julia Hughes and it is this family name, which is applied to Hughes Defile.

It was Edith Muriel Murray, who married Richard Edward (Bert) Bertrum Bird (1891-1961), in 1917. He was born in the district of Rylstone and died aged 70.

Ref: Birth, NSW BDMs Rego No. 31451/1891, district Rylstone. Death, Ryerson Index, Obituary 8th June 1961, Aged 70. Late of Wallerawang formerly of Rylstone. Mudgee Guardian 8th June 1961.

Richards's brother was James (Jim) Lancelot Bird (1895-1977). James had married Dorothy Madge (Molly) White (1907-1996) in 1926. In their later years they lived at 'Kilgoola' Lidsdale. Ref: Birth, NSW BDMs Rego No. 14933/1895.) Dorothy Made (Molly) White Ref: NSW BDMs Rego No. 3997/1927 district Wallerawang. Dorothy was born 1907. NSW BDMs Rego No. 30090/1907.

It was during the 1920s that Bert and Jim used horse teams to log the area on top of Newnes Plateau. Jim also worked for the surveyor, 'Major', Lt. Col. Hugh Powell Gough Clews, when a trig station was being triangulated on top of Newnes Plateau in 1930 by the Royal Australian Survey Corps. The Trig Station was assigned the name, Birds Rock Trig Station. Ref: Department of Lands, Bathurst Trig summary cards.

In this same area a Flora Reserve also took the family name, Birds Rock Flora Reserve and the Fire Trails surrounding these two features were given the names, Birds Rock Trail, Birds Rock Trail No. 1 and Birds Rock Trail No. 2.

James (Jim) Lancelot Bird applied for a Special Lease for the purpose of Grazing and Agriculture on 339 acres. Portion 44, Parish of Wolgan; County of Cook. The Wolgan River flows through the west and northern boundaries and the southern boundary is below Cape Pinnacle. The south west boundary was and still is known as Jacks Camp. This lease was for the term 12th April 1935 to 31st December 1948. A further extension was shown on the survey plan to 31st December 1962. Ref: Survey Plan 2812.1507.

Jim Bird was the licensee of Stammers Hotel at Newnes from 1940 -1946. Prior and after this period Jim worked for Frank Neubeck a successful business man who owned and operated an open cut coal mine. Ref: Correspondence, Joe and Dick Bird, Jim's son December 2009. See also notes on the Newnes Hotel

Jim and Dorothy's children included: Joseph (Joe) Bird b1926, and Richard (Dick) Bird b1936.

In 1865 Edwin Barton³ married the late James Walker's daughter, Georgina Lyon Wolgan. Barton was employed as Engineer in Charge of Trial Surveys with NSW Railways. Following the death of his wife's mother in 1867, he inherited a number of pastoral properties including substantial interests in the Wolgan Valley. The last of the Bartons, grandchildren of Edwin and Georgina were callously murdered on Wallerawang Station on September 26th 1948. Ref: The Canberra Times 3rd November 1948; p 2; col. 7. Other snippets of information of historical note are included for completeness.

*Charles Darwin in January 1836 visited the Wolgan Valley briefly while a houseguest of James Walker. In his diary he wrote,

"When cattle are driven into the valley of the Wolgan by a path (which I descended) partly natural and partly made by the owner of the land, they cannot escape for this valley is in every other part surrounded by perpendicular cliffs and eight miles lower down, it contracts from an average width of half a mile to a mere chasm, impassable to man or beast."

³ Barton was involved with the survey of the Engineers Track in the Grose Valley

*Surveyor, Walter Rennie. Davidson's Field Book No. 479 records that Walker had a number of portions surveyed for purchase in 1840.

* The map of the Parish of Wolgan, County of Cook; 1st edition, 1884 records seven families dominated landholdings in the valley,⁴ which, collectively owned more than 95% of the parish. The map is also significant as it includes details of the stillborn town of Wolgan located on the northern base of Mount Wolgan. As early as November 1893, land had been set aside for 'residential and business purposes'. Earlier, on 13th March 1877 land had been set aside for a Presbyterian Church and Manse and the cemetery surveyed. Within the cemetery, special areas were dedicated to various faiths, including Church of England, Roman Catholic, Presbyterian, Wesleyans, Jews, Independents and a general area. The public school area was Portion 143 and was 2 acres. Note: Parish Maps show original land ownership, not lease holders or subsequent owners.

The authors are privileged to have been granted interviews with members of the Bird⁵ family, whose ancestry is intimately bound up with the history of this Parish and the adjoining easterly Parish of Barton where the rise and demise of the mining and industrial town of Newnes occurred. Material from these interviews has been used to corroborate information used elsewhere in the text.

Insert Bird family tree here. I have hard copy MK 8th August 2010.

2 Life in Airly town 1898.

Airly Town 'happened' because of the discovery of several rich seams of Torbanite (kerosene shale) in the cliffs below Mount Airly. The settlement had a rapid rise to prominence and an equally rapid decline and demise. At its peak Airly town had a large school, a hotel, a billiards room and a selection of stores. More information about Airly town is contained in Book 5 of this series.

The following 'newsletter' has been compiled by Dianne Mayne from a variety of sources including correspondence with the children and grandchildren of former residents of Airly; from old newspapers; journals issued by the NSW Department of

⁴ These families were Baldwin; Barton; Lamb; McAndrew; Penrose; Tomlinson and the Williams.

⁵ The family name applies to Birds Rock Trig Station; Birds Rock Floras Reserve and Birds Rock Trail.

Mines, and from various sources within the State Library. The 'Airly Newsletter' included here represents only a fraction of the compiled source material.

Dianne Mayne was inspired to this work after she heard stories being retailed by a Mrs. Sands, nee Donoghue, about her younger days in Airly, when she realized "that here was living history". Reproduced below is an extract of her painstaking research work which, after editing and consolidation, she circulated to all interested contributing parties as the, "Airly Newsletter."

We have chosen to select that part of her work covering the year 1898, when Airly town and the mines were still a going concern. The stories are human and about the lives of real people, their work, their safety, their heartbreaks, the stirrings of workers compensation insurance and the debate about whether the Australian states should form a federation. The language is of the period, and takes some time to get used to.

The authors are indebted to Frank and Wendy Wilkinson, present owners of a cottage, built in 1986 by Phil and Anne Irvine, in the surveyed south section of old Airly Town. Frank and Wendy bought the cottage in February 2003, and have been exploring the area regularly ever since. Dianne's research papers were handed to Frank and Wendy when they purchased the cottage from the Irvine's. In turn, we are indebted to Frank and Wendy for generously making the material available.

January 14, 1898

THE CAPERTEE SHALE MINES

Work at the Genowlan shale mines was resumed on Monday last after being shut down for the holidays. The New Hartley mine is still shut down and not likely to re-open until the tramline, which is now in progress is completed. They don't expect to have it completed before March. About 60 men are employed on the work. The New South Wales Shale and Oil Co. have between 2000 and 5000 tons of shale yet on hand, stacked in the Capertee yard, but not sufficient to supply such an order as the Last they sent away. The A.K.C. Co. have a large supply of shale now out stacked at their siding.

January 28, 1898

N.S. WALES SHALE AND OIL COMPANY

The third half-yearly report of the New South Wales Shale and Oil Company to December 31, shows the credit balance of £741, inclusive of £221 brought forward. It was decided to carry this on to next half-year. Though the manufacturing department had shown an increased volume, they had had to compete against the exceedingly low quotations from America. At Capertee the shale property continued to look well, and the new tramway was expected to be completed by the end of February. At Hartley Vale considerable labor saving improvements had- been effected at the refinery. 'Herald'

February 4, 1898

GENOWLAN MINES

On Friday night, last a miner named Robert Dowling met with a nasty accident. Whilst working in the mine a piece of shale flew out, striking him in the eye and it is feared he will lose the eye. He went to Lithgow on Saturday morning for medical treatment and up to the time of writing no word has been received as to how he is progressing.

The Genowlan mine is working full time, and they have a lot of shale stacked ready for shipment. The New South Wales Shale and Oil Company's mine is still shut down, but they expect to be able to start work again about March. They are making good progress with their new tramline.

The people of Genowlan must think things are going to be brisk as two new billiard rooms are going up. Mr. Williamson is erecting one adjoining his hotel, and Mr. C. Bottrell is building another, which will make the third billiard saloon in Genowlan.

On the 26th ultimo, the local Sunday school held their annual picnic, which was a great success.

March 11, 1898

AIRLY

Last Friday night our village was quite animated and several strangers were also observable. The cause of so much stir and bustle was that Mr. Robert Dowling's friends and fellow-employees were tendering him a benefit, and the manner in which those people patronise the affair shows that the deepest sympathy prevails throughout the camp at his unfortunate accident. The surrounding districts were represented. Ben Bullen and New Hartley being well so. The duties of M.C. were carried out by Mr. Samuel Erskine, while the music was gratuitously supplied by Messrs. Brown, Lamb, and Kelly (Ben Bullen). Mesdames Annesley and Hamilton assisted by Messrs Wilson Brothers and Murphy attended to the wants of the good folks in preparing and distributing the supper. Numerous vocal items also were-rendered during the night. Between the lists and dance, a sum of about £19 will be handed to Bob and this is very satisfactory.

Mr. C. Bottrill opened his billiard-room, which is spacious and commodious last Saturday night. He did the thing in style, the "flowing bowl" being in evidence. As a steady young fellow, he deserves to get on.

A movement is on foot to form a strong committee and endeavour to gain for the inhabitants a resident medical officer. Where so many families are, and where the danger of accidents is so strong, such a person is needed.

Work on the Genowlan pit still continues slack, although there was a slight change during the past week; but it was only a sudden spurt as once again the old style prevails. Hartley has a few men employed in the pit, but things are not expected to hum just yet. The tramway will shortly be completed; the platelayers are making good headway.

March 18, 1898

CONCERT AT AIRLY

The long expected and much advertised concert in aid of the Genowlan Brass Band came off on last Friday night, and, as was expected turned out a splendid success, both financially and artistically. Under the baton of Mr. C. Lombard, the band discoursed sweet music outside the hall. Punctually at eight p.m. the curtain rose and the chairman, Mr. W. C. Murphy extended, on behalf of the band a hearty welcome and announced the first item "Fair Maid of Perth" by the band, the solos "Annie Laurie" and "Mary of Argyle" being capably handled by Messrs. Lombard and J. Blackley jnr., respectively, while old Jack Nimmo was heard to advantage on the bass. Mr. J. Young followed with Maggie Murphy's Bean and pleased his

audience immensely. They wanted more, but Joe was not inclined. The favourite duet "Convent Bells" was ably handled by Messrs Ashman and Hamilton, while Mr. F. Penrose, senior was doubly encored for his Hebrew ditty "I'm going to Hang Three Balls Above the Door" and responded with "A Mother's Advice to her son". Misses T. and K. Porter made their debut and sang in a very taking manner "Whispering Home" and they acquitted themselves remarkably. Not being a Welsh scholar I cannot give you the name of the next item sung by Mr. W. Davis, but the boys appreciated the item and gave him a second call. Little Ivy Greenacre, a mere child, in a sweet voice accompanied by good action sung, "Hush! Baby, go to Bye Bye," and being vociferously recalled, pleased the audience with "Squirrel in the Tree" The acting of this child and also her Highland Fling, performed in the second part, shows that capable hands had her tuition in both singing and dancing. Mr. Porter has a promising pupil, and one that will establish his fame as a teacher of dancing. Messrs Dawson and Lombard created much mirth in their duet, "Upper Ten, Lower Five" – the get up of the latter being quite amusing, more especially the appearance of "to let" in a conspicuous portion of his garments. "Marguerite", by Mr. H. Williamson, and a song by Mr. J. Greenacre with banjo accompaniment, brought the first part to a close.

After a brief intermission, Miss Garth opened the second part with a piano forte selection and her execution and manipulation awoke well earned applause. Later on, she sang "Waiting" and. proved to the audience that she is an accomplished musician and also the possessor of a sweetly rich contralto voice. That soul stirring duet, "I was Dreaming" was very nicely sung by Mesdames Greenacre and Dawson but they did not do full justice to themselves as they were evidently both suffering from stage nervousness. A stump speech by Mr. J. Greenacre was very amusing and his references to women's way provoked much laughter. After several other songs had been disposed of the evenings program was concluded with a laughable absurdity, entitled, "The Star Artists on Tramp", the characters being sustained by Mrs. Greenacre, Messrs Dawson and Lombard. The duties of accompanist were ably carried out by Miss Garth, while Mr. J. Lord proved quite ubiquitous, and did the lions share of the work in attending to the arrangement of the visitors comfort. Dancing followed the concert and the gay and festive dance was indulged in until the wee small hours

March 18, 1898

NEW HARTLEY MEMS

Tenders closed last Saturday for driving the coal tunnel, on the far side of the mountain, belonging to the Hartley Company. The successful tenderer for the supply of props and lids is Mr. W. Power, a man who understands his business. Thus, it is evident that we may shortly see good numbers of employees at Hartley pit. A few hands temporarily discharged from the tramway last week and Mr. C. Williams' contract accepted for laying the line are the only items of interest from the tramway end.

March 18, 1898

AIRLY

Mr. W. Forbes having resigned his position as check weighman at the Genowlan pit, the duties during the week were carried out by Mr. J. Ashman. At a meeting held last Saturday evening it was unanimously decided that the position be given to Mr. J. Shipley who entered on his duties last Monday.

Mr. F. Casimir has opened a hair dressing saloon here, and will also be a great assistance to the local band, having formerly belonged to the Mudgee band.

March 25, 1898

THE GENOWLAN MINE

Matters at the Genowlan pit are somewhat brisker this week, no doubt to the company having a couple of large orders to supply. A few hands have also got a start, so that appearances are healthy.

March 25, 1898

AIRLY NEWS

Mr. A. Rowe invested small sum in a bottle of eucalyptus and received an order for a gold watch within the wrapping. Needless to say, the lucky investor is thinking of advising his many friends to go and do likewise.

Mr. C. Lombard, who has acted as bandmaster of the local band since its inception, having resolved on seeking fresh fields and pastures has tendered his resignation, which was accepted with feeling of regret. Under his tuition, the band made good progress, and the members have decided to still keep together under the leadership of Mr. J. Nimmo.

April 1, 1898

THE SHALE MINES

Airly, Wednesday – Messrs Adams and Greenacre, are the successful tenderers for driving the coal tunnel on the New Hartley Company's lease, and they have commenced operations. The platelaying of the New Hartley tramline is being pushed on by Mr. C. Williams, and the endline for the line will shortly be in working order and an air of life pervading the camp. The Genowlan pit, having a couple of orders to handle, is very busy loading from Torbane siding and trains are running very constantly. Thus, the stock on hand will be considerably diminished. A few more such orders and the surplus stock would be a thing of the past, and the demand for miners would improve. At present the men employed can without any difficulty, maintain the average output.

April 1, 1898

AIRLY

The medical committee are inviting correspondence from medical gentlemen, desirous of accepting the position of advisor to the miners and their families. Such a person is sadly needed, as many of the young folk, as well as their parents, continually need some attention, and in serious cases, whether accidental or from natural causes, the want of a doctor is an important matter, and also a matter of great expense, the nearest medical advisor being a resident of Rylstone

A benefit concert is being tendered to Mr. Tom Stapley, whose accident, which occurred many months ago, has rendered him still unable to go to work. His family, several of whom are young, need assistance, the good folks of the united camps will indulge in a bit of pleasure themselves and give pleasure to others in the true sense.

April 1, 1898

WORKER SUPPORT

Mr. Sydney Smith, the Minister for Mines, put forward a proposal that a percentage of each miners wage be put aside by the Government to assist injured miners. Quote from his proposal. "Miners have to run risks that do not attend other occupations. They must dare death that their families may be fed and clothed. All must therefore admit, the Minister says, that men whose lives are spent under circumstances such as these are deserving of

consideration at the hands of the Government, and Mr. Sydney Smith feels that it is only right that some provision should be made by the legislature for a fund of the kind he has in contemplation. In support of his view, he points out that the Government receives a royalty on every ton of coal raised by these miners, and they are in a sense therefore practically working for the Government as well as the proprietors of mines. The Minister estimates that 10s per annum from the miners, 1/2d per ton from the colliery proprietors, and 10 per cent of the royalties from the Government would make up a fund of £10,000 a year on the present output.

April 22, 1898

AIRLY – NARROW ESCAPE OF MINER

A somewhat peculiar accident occurred in the Genowlan pit on Monday. But fortunately the result was not serious as was anticipated by those who were working close by. Shortly after “crib”, a young man named Alick Horne was engaged holing when without any warning a slip occurred, and although the bord was securely timbered, the unfortunate young man was entombed. The fall evidently became weakened in some unaccountable manner and came without any warning. Luckily, the roll split in the centre and formed a kind of arch, thus keeping the full weight off the sufferer, whose back was bent over and his head on the floor. His cries having been heard, brave men came to his rescue, and he himself having a strong heart and his spirits buoyed up by the encouraging shouts of his mates, the unfortunate young fellow, who was under the fall for fully an hour, was eventually released from his perilous position and brought to the mouth of the pit. Having been placed on a stretcher, he was carried home to await a full examination by Dr. C.W. Pardey, first aid in the meantime being rendered by skilful nurses. The result of Dr. Pardey’s inspection proved a compound fracture of the left leg, with three ribs broken, also several cuts about the head and body. The wounds and breaks having been dressed and attended, the doctor advised his removal to Lithgow where accordingly he was taken next morning, eight of his mates carrying him to Capertee. No blame is attached to any person, as it is one of those accidents, which are unaccountable. Both the manager and the deputy are extra strict in the supervision. There is not the slightest doubt but what many a man in a similar position would have allowed his heart to sink. By his fortitude, Alick has demonstrated that he is of good heart, and I hope to hear shortly of his recovery.

April 22, 1898

AIRLY

Our village has been “en fete” this past week. First a band (three) of musicians paid us a visit, then a circus for one night, the second night proving a failure (very few attended), and tonight, (Wednesday) a dance promoted by the travelling band.

We are expecting a visit from our local member to expound the pros and cons of federation. A public meeting was held at Williamson’s hotel last Tuesday night when it was decided to hold a day’s races on the Birthday holiday. The course is situated conveniently close to the village on the Glen Alice Road. The hon. secretary is Mr. H.F. Williamson, who evidently knows how to manage matters, and the committee are all energetic.

MAY 6, 1898

CAPERTEE

Things are very dull here just now, nothing worthy inspector of note. Sub inspector Morrow from Mudgee, was here for two days last week making inquiries as to the necessity of establishing a court of Petty Sessions at Capertee.

The new doctor for the mines arrived last Thursday, a Dr. Brennan, from Murrurundi. He has taken up his abode at Capertee and visits the mines three times a week.

Mr. J.C.L. Fitzpatrick, our member, is billed to address electors here on Thursday night next and his coming is eagerly looked forward to as great interest is being taken here in the coming election. Over 200 names have been added to the roll around this locality during the past few months.

May 6, 1898

AIRLY

Contentment now reigns supreme in the heart of the miner, as we have our own medical advisor in the person of Dr. Brennan, late of Murrurundi. Like his predecessor he is residing at Capertee, but visits the mines tri-weekly. His credentials are of the highest and being an elderly man a fair share of outside practice should fall to his lot. At any rate, his attendance at the campo is satisfactory.

Our local member, Mr. J.C. Fitzpatrick, paid us a visit last Wednesday-night and delivered an interesting address on politics in general devoting a good part of his discourse to Federation, the present Commonwealth Bill being strongly opposed by him. He received a hearty vote of thanks.

May 6, 1898

THE SHALE MINES

The A.K.O. Company have just completed loading a cargo of shale somewhere about 1000 tons having been dispatched, so that the stack on hand has a diminished appearance. A number of hands at this mine have also been dispensed with as the demand has fallen off, this practically speaking being the slack season. Most of those knocked off have gone to try their fortune at Joadja. Hartley Company are connecting a telephone between the manager's office and the siding, the contract will probably be completed this week.

May 13, 1898

STORM AT GENOWLAN – Narrow Escape

Once again, but with a short interval, has Genowlan been the scene of an accident, which, like the former, has been fortunately without loss of life, although in both cases it was a very narrow escape. On last Friday morning, the 6 inst, just as the miners were entering the pit, the wind, which had been blowing furiously during the night and that morning, loosened a large tree, which descended without any warning and struck Alex Wilson, (wheeler) who was taking in a load of empty skips and also a youth named William Penrose. The former, who is a married man, was rendered unconscious by the severe knock, while the youth was only slightly hurt, he being evidently more injured by the shock to the system. A messenger was immediately dispatched for Dr. Brennan (Capertee) and Wilson was removed to his residence. Before the arrival of the medical man, he began to exhibit signs of consciousness. On examination, it was found that his head was severely cut, necessitating a number of stitches while there were also several abrasions about the body. The youth's injuries were very slight, but by his own presence of mind, he evaded serious injuries, as seeing no chance of escape he dropped in between the couplings of two skips (the skips being stationary), and thus was only struck by the smaller boughs. Several others narrowly escaped, being injured, as it was a busy hour. The youth may probably be about in a few days, but Wilson's injuries will compel him to remain an invalid for about a month.

June 3, 1898

THE SHALE MINES

AIRLY, Tuesday - The New Hartley tramway has a finished appearance and during the past week, the line has been going without the slightest hitch. It is a splendid job and reflects credit on those closely connected in its construction.

The pit was not working last week, but normal operations were resumed this week. A.K.O. mine is very slack, the output being very small. Manager Edwards left for Joadja on Saturday last to superintend operations there.

June 10, 1898

CAPERTEE

Mr. J. D. Fitzgerald addressed the electors here on Thursday night last on Federation, and there is no doubt that he influenced a lot to vote for the bill. The number of votes recorded here was only 41 -27 for and 11 against. A large number of electors around this locality never recorded their votes at all.

Mr. House, our stationmaster is away on his holidays and Mr. Nash is in charge of the station during his absence Mr. Nash is a very obliging officer. He is ably assisted by Mr. J. McGuinness, who has made a host of friends here owing to his being a civil and obliging young officer.

Colds, or a sort of influenza are the order of the day here. Every other one you meet is bad or just recovering, but our worthy Dr. Brennan does not seem to be kept very busy. He has a good many patients at the mines, which place he visits three times a week.

June 17, 1898.

THE SHALE TRADE, AIRLY

Wednesday - The New Hartley tram is working regularly and the Co. at present are busy supplying a couple of orders. Work there is more constant than at Genowlan.

June 24, 1898. AIRLY

The township allotments were submitted for auction last Friday 17th inst. by Mr., E. H. Davies C. P. S., of Rylstone, but the number of buyers was small. Only four allotments were sold but one has since been applied for, so that the people do not seem disposed to settle within the prescribed area. A movement is on foot to extend the town in a northerly direction and thus suit the convenience of the employees at both pits. Another drawback in the surveyed township is the absence of good water. The proposed extension would be better as the business places would come in the area, and as things are at present the removal of a residence is not difficult. The decision of the Minister Lands is awaited.

The school closed yesterday (Friday) for a fortnights holidays, and our worthy pedagogue is away on pleasure bent.

At present, our village is as dull as the proverbial cemetery. No sound of revelry awakens the sleeper. A serene calmness pervades the entire camp. This in itself is a sign that the miners are not working full time and in receipt of as many skips as they can fill. But cheer up, boys! A better time is awaiting you and then your hearts will be as light as the best of them. Keep believing (favorite army phrase) and you must succeed.

July 7, 1898

POLITICS AT AIRLY

During the last week, our village has been visited by Messrs. Fitzgerald and Fitzpatrick, the two candidates for Rylstone. Notwithstanding the poll here was strongly in favor of Federation under the Commonwealth Bill. I am of opinion that the forthcoming contest will be mighty close, but expect the Reidite to gain a victory. Both candidates had good meetings and were attentively listened to by their respective audiences, while the usual vote of confidence was unanimously carried, which to some may appear somewhat conflicting, considering the same people formed both audiences. The Hon. J. Cook, visited us on Tuesday, and delivered a stirring address in support of Mr. Fitzpatrick's candidature. This probably will have the effect of causing many who were wavering to vote for the old member.

July 22, 1898

AIRLY

A benefit social is being tendered on Friday night to Mr. Alex Horn, the young man who had his leg broken some time back through a fall in the Genowlan pit. Owing to the slackness in the shale industry and the reduction in population, this benefit will not prove as financially successful as others, but we trust for a good attendance in this most deserving case.

Influenza in a mild form is prevalent in our camp, and our worthy medico is kept busily employed in attending to the many cases. Dr. Brennan is rapidly becoming a popular favorite by his kind and affable manner and by the attention he devotes to the patients.

July 29, 1898

THE NEW SOUTH WALES SHALE AND OIL CO. HALF-YEARLY REPORT.

The fourth half-yearly meeting of the New South Wales Shale and Oil Company was held yesterday. Mr. G. M. Merivale in the chair. The report showed that the net proceeds, after making provision for bad and doubtful debts, amounted to £284; balance from last half-year, £741 making £1,025, which it is proposed to carry forward to next half-year, the returns not permitting of the payment of a dividend. All the manufacturing departments had been kept fully at work, but the low prices of stearine candles and foreign oils had most seriously affected the returns from paraffins and lubricants. The general manager, Mr. Hall, was sent to England during the half-year, and was expected back next month. He had visited most of the Scotch shale oil works, and reported in his letters that he had great hope of being able to introduce several improvements here in the utilisation of the by-products. With regard to the shale trade, the exceedingly low price of coal and Scotch cannel had no doubt, militated much against the use of shale in the gas companies, and the output had been very small. Their arrangements for hewing and delivery at New Hartley might be said to be perfected. The seam is of first-class quality, and the new tramway quite satisfactory, though the outlay was higher and the time of construction longer than was at first anticipated. The report was adopted, Mr. G. S. Caird was re-elected a director; Messrs. T.F.H. Mackenzie and T. B. Firth were again chosen auditors, and a vote of thanks was passed to the directors.

August 12, 1898

THE SHALE TRADE, AIRLY

Tuesday, the New Hartley mine is fully manned and matters appear somewhat lively in this pit. They are erecting an extension of the telephone to reach the siding. The Genowlan pit has

lost several of its hands, some of whom have gone to fresh fields, while others are working in the neighboring pit. The Genowlan train has been running during the past week, putting in a supply at the siding, ready to meet the first order which comes along.

August 12, 1898

AIRLY

Our camp is at present infected with influenza, and in several cases, the patients have also an attack of pleurisy and pneumonia. Nearly every family has one or more inmates suffering from the dreaded influenza. So far, no fatalities are reported.

We had an official visit from one of the Mudgee Salvation Army officers last Sunday, but owing to the unpropitious state of the weather the attendance at the meetings was not up to the usual. On the next occasion, we hope for finer weather and bigger meetings.

August 19, 1898

CAPERTEE NOTES

The Capertee cricketers held a meeting at Philipson's hotel on Saturday night last for the purpose of reorganising the club, and they decided on having a concert and ball, on an early date, for the purpose of raising funds to liquidate the debt owing from last season and making a fresh start. I will send you the full account of concert and ball later on, also the averages at the Capertee C. C. for the past season.

Mr. J. Shervey has completed his new store but has not yet got a tenant. Several gentlemen have had a look at it. The shale trade seems to be on the increase, as truckloads are being sent away almost daily now and both mines are working full time.

The weather has been all that could be desired for this time of the year. Several nice showers have fallen during the past week or two, which will be very beneficial for the grass and crops. It has been one of the mildest winters experienced here for years past.

August 26, 1898

SALVATION AT GENOWLAN (War Cry)

Eleven at the-Outpost – Eight children decided for Jesus in a Sunday afternoon meeting led by Lieutenant Wood at Genowlan shale mines, outpost from Mudgee (NSW) and three adults yielded to God, while the Lieutenant was visiting in the district making a total of eleven souls.

Airly, or Genowlan shale mines, a distance of about seventy miles, are occasionally visited by the Mudgee officers. There are upwards of 200 people in the place to whom a minister of the Gospel never comes, but thank God, the Army has penetrated even here writes Lieutenant Wood. We have two soldiers and some practical sympathisers, who are looked upon by the people as "quite Army, you know!" On Sunday, in spite of wet weather and sickness, fair numbers rolled up to the meetings.

September 9, 1898

IN MEMORIAM

PERKINS - In loving memory of our dear mother, Catherine Perkins, who died September 4th 1897. Inserted by her loving daughters, Mary, Ann, Hope, Agness, and Annie - now in Queensland.

Again appears amidst our gloom
The month of bitter woe,
When the one we loved so dear
From us was forced to go.
Oh ! vacant is that chair,
The form we loved no longer there
And only those she left can know
How much we lost one year ago.

September 2, 1898

AIRLY

The Rev. Mr. Bowden, Wesleyan minister at Rylstone, paid his quarterly visit last Sunday, and held service in the local hall. He had a very fair attendance, and is highly spoken of by the congregation.

Once again is our village free from the many prevalent complaints, and our worthy medico is having an easy time, which he is entitled to after the late busy one.

September 2, 1898

DISTRICT ITEMS

Constable Scott, of Capertee, is an established favorite at that place and the Genowlan mines. Every Saturday he is to be found at the mines, besides visits on all pay days (Mudgee Guardian).

September 28, 1898

AIRLY NOTES

Mr. W. Porter has been appointed check-weighman at the Hartley Vale Company pit. It was a close contest between him and Mr. A. Johnson.

Mr. W. McMillan, sub-manager of the AKO Co's pit, has received marching orders, and departs very shortly to take over that company's mine at Joadja where he will have a larger number of men under him, and consequently, a larger amount of work to attend to. The men here regret his departure.

A few children are suffering from quinsy, so that our medico is again getting anxious as it frequently happens that the epidemic runs through the camp. Sandy blight can also claim a few patients.

October 7, 1898

AIRLY NEWS-A DIFFICULTY SETTLED

Mr. H. Williams has entered on his duties as sub-manager of the AKO Company's pit. Harry is an old hand among the men, and is bound to get on all right, as he has had a fair share of experience in shale mining.

The employees of the Hartley pit had a grievance on last Friday, and came out. It appears the company's weighman and cleaners commenced operations that morning earlier than usual, and the check-weighman was not present at the weighing. Consequently, on his arrival, he announced to the men what had been done. The manager admitted it was an oversight in not acquainting the check weighman, and the men appeared satisfied; but the men then wanted

from the manager a definite promise that he would not again start work earlier than the usual hour without first acquainting the check weighman. The manager would not bind himself down to a hard and fast rule, so the men decided on coming out. On Saturday afternoon they held a meeting, and again on Monday, when they decided to re-enter the pit on Tuesday. This is satisfactory to all concerned, as at present skips are running well and the miners are making a fair wage, so that, were a long strike to have been the outcome, many families would have been compelled to seek fresh fields, as the Genowlan pit is fully manned.

October 14, 1898

AIRLY

Matters are running smoothly at both pits. I forgot to mention last week that the manager of Hartley pit informed the deputation that waited on him, regarding the difficulty that the pit would be open on the Tuesday morning, and all those desirous of going on could do so. Those who did not could get their tools at the mouth of the tunnel. It is satisfactory that all hands turned up, thus showing that, the men were too hasty in coming out.

The quarterly cavil was held last Saturday, also the election of a check weighman, when Mr. A. Johnstone defeated Mr. W. Porter by a small majority.

Mr. T. Norris, of Capertee, has commenced running tri-weekly into our village.

A novel ceremony, which also proved highly interesting, was the christening of a child by Capt. Downy, of the Mudgee Salvation Army corps, in the hall on last Sunday evening. Being the first Army christening in this village, it proved highly attractive, and the attendance was very good.

During the past week Mr. Nixon, surveyor, has been busy on behalf of the Hartley Vale company, conducting some surveys on the far side of the mountain.

October 14, 1898

ONE POUND REWARD

Strayed from Airly, One bay saddle horse, branded P. D. over 5 on off shoulder; also one bay, Light Draught, on near shoulder. Reward on returning to, W.C. MURPHY. Airly.

October 28, 1898

SUDDEN DEATH IN THE HOSPITAL

A miner, named Evan James was admitted into Lithgow hospital on Saturday night. He had been sent down by the police at Capertee by mail train and was in a state of collapse when admitted. He was so far gone that he only lived seven or eight hours and expired at about half past nine on Sunday morning. A post mortem was made by Dr. Ashcroph on Monday, and he certified that the patient had died from lung trouble and affection of the kidneys. The deceased had no friends in the colony and was about 50 years of age. He had been treated for some time previous to his death for pneumonia. It is also stated that he had previously been employed in one of the shale mines near Capertee. The circumstances of the case were communicated on Monday by Sergeant Atkinson, to Mr. R. H. Bulkeley, J. P. the district coroner who ordered the post mortem, and, later on, sent an order for burial.

October 28, 1898

AIRLY

Mr. D.D. Murphy, who has been in charge of the A.K.O. Company's store for the past two years, and previously was at "The Glen" for the company, has severed his connection with his employers and departed last Tuesday to Katoomba where he, in partnership, intends to commence business. He carries away with him the best wishes of the community for his future success, as by his attention to duty and his straightforwardness he has gained the goodwill of all. His successor is Mr. W. Casey, a young gentleman who was in charge shortly after the store was opened and who is an old favorite among the customers.

An elderly miner named Evan James was removed to the Lithgow hospital last Saturday, but his complaint was in such an advanced state that recovery was hopeless. During the latter part of his illness, he was attended to by Mrs. Blackley and family, who were extremely generous and attentive to him, and exhibited a perfect Christian spirit in ministering to his wants. I learnt today of his death, which occurred shortly after his admission. The deceased for many years worked in the sewers, and most probably, it was there that the foundation of his fatal malady was laid, as the symptoms were very similar to those of others who were suffering from the "sewer complaint". His few possessions will be disposed of by Constable Scott, so that there will be sufficient to pay his funeral expenses.

Owing to representations made by our member, an alteration has been made in the hour of departure of our mails to Capertee. Certainly, there is a slight advantage in the change, as 4 o'clock was somewhat early, but the mail contractor is entitled to some compensation, as it becomes a matter of more expense to him to have to remain until 6 p. m. The new departure came into operation last Monday.

The Wesleyan minister from Rylstone, Rev. E. Bowden, paid his regular visit last Sunday and conducted services in the hall. A great number of people here are suffering from sandy blight, while a number of children are victims of croup, so that Dr. Brennan has plenty of callers.

During the past week, the splendid downpour did an infinite amount of good, and extinguished the bush fires which had been raging all round and threatening the heaps of "seconds" convenient to the pit. The smoke was so dense that the pit hands were compelled to knock off early, volumes of smoke were pouring into the pit. At one time, the magazine was surrounded with fire, but fortunately, the explosives were removed to a place of safety.

October 28, 1898

FIRE AT AIRLY

A hut occupied by Messrs. Evans and Hayes was completely demolished one day last week. As was their usual custom, they securely fastened their place and departed to work. Both occupants are positive they left no fire about. Shortly after dinner, smoke was observed issuing from the premises. Before any assistance arrived, the hut was completely destroyed. Besides their wearing apparel and cooking utensils, Mr. Hayes lost his musical instrument, besides about £5 worth of music. The fire is a mystery, and it seems improbable that the origin will be discovered.

November 4, 1898

CAPERTEE NOTES

At the Rylstone Police Court on Friday last, before the P.M. William Herriott was charged on the information of Constable Scott of Capertee that he did (near Capertee) on the 3rd October dispose of certain goods by lottery. Fined £5 and costs. Several cases of minor importance from Capertee and Genowlan were disposed of at the same court.

The want of a court of petty sessions at Capertee is seriously felt by the residents of this locality as they are put to a lot of expense in going to Rylstone to transact any court business; and on that account, many a person escapes. The Minister for Justice four or five months ago approved of a court of petty sessions being established here on trial for 12 months, and nothing has been heard of it since (Why don't the people worry their member - E.D. L.M.).

November 4, 1898

A CHURCH ESCAPE

At Kangaroo Flat (near Capertee) Wesleyan church had, says the Rylstone Express, a narrow, escape from being destroyed by fire one day last week. The church is almost surrounded by scrub, and, by some means, this caught fire and was in a very short time burning fiercely. Fortunately, Mr. W.J. Gallagher, J. P. who lives not very far from the church saw the fire and hastening to the scene was in time to beat the flames back from the building. But, for Mr. Gallagher's prompt action the Church would, undoubtedly, have been destroyed.

November 11, 1898

Among the voluntary sequestrations of the week appears that of William Stapley, miner, of Genowlan.

November 11, 1898

THE SHALE MINES

AIRLY - Wednesday. In mining, both pits are working regularly, and although the demand for shale is not great, we are hoping for couple of big orders, so that matters will be somewhat enlivened and enable the miners to draw a good pay for Christmas.

November 11, 1898

AIRLY

Mr. W. Laughlin, our local butcher, is retiring from business, and we now have to obtain our supplies from Capertee. The difficulty of keeping meat during this warm weather, causes annoyance to many families, and it is to be hoped that we shortly have a butcher in our midst. There is a fair opening for a good butcher.

A petition has been drawn up to try and alter the direction of the road into the village, and thus do away with the big hill which leads into the township. This is a matter of importance and a matter of necessity, especially as in wet or damp weather the greasy nature of the soil renders it an extremely difficult operation for a horse to keep its footing. The proposed route would be a shade longer but better and safer for travelling.

November 25, 1898

AIRLY

It is my painful duty to chronicle the death of the infant son of Mr. W. Forbes, which occurred last Thursday, the 17th inst. This is the second death in this village, and both are buried at the foot of the big hill. If the stability of this place were an established fact, we should have no hesitation in making application for a grant for a cemetery.

Inspector Rooney was busy conducting an examination at the Genowlan School last Thursday week. From a perusal of the report, it is evident that good progress is being made, and the marks obtained are highly satisfactory.

Sunday night we had a visit from the Rev. J.J. Thorpe, Presbyterian minister at Rylstone, who conducted service in the local hall; where, also Capt. Drury, of the Salvation Army delivered his farewell address, as he has received orders to prepare for a new appointment. It is proposed by the Presbyterian clergyman to pay us monthly visits, and thus we shall now be visited by ministers of all denominations.

December 9, 1898

AIRLY

A regular exodus of residents is setting in. During the past week, Messrs. Catts and Casimir have both departed to fresh fields. The first to Katoomba and the latter to Sydney. The Catts family will be sadly missed among the Sunday school, and in church matters, as they were always foremost in attending to the spiritual comforts. Mr. Casimir intends opening a business in Sydney where I hope to hear of his success.

A youth named Simpson paid a visit to Lithgow hospital to have his finger attended to. Some time ago he was caught on the edge of a trolley and had his fingers badly crushed. Dr. Brennan attended him and advised amputation of the first joint of the middle finger. With this object in view his mother removed him to Lithgow Hospital where I learned the operation was performed with good results.

December 16, 1898

AIRLY

The A.K.O. pit closes on 21st December and restarts on 9th January 1899. Thus allowing its employees to enjoy a Christmas holiday.

The school broke up on Friday for its Christmas vacation, and each pupil received a small memento of the joyous season from the teacher, who has departed for an extended tour to recuperate.

Owing to the sudden changes in the weather the number of our residents who are Victims to severe colds is surprising.

December 23, 1898

CAPERTEE

On Saturday, last our cricketers journeyed to Cullen to meet the Wallerawang team for a game, but for some unaccountable reason the Wallerawang men never turned up, so our boys had their 12 mile journey for nothing. I think it was a very curious proceeding for the 'Wang boys, as they might at the very least have sent a wire to say they could not come.

Our new butcher's shop is now completed, and is quite an up-to-date structure, which reflects great credit on the owner. Mr. Paton has spared no expense in the building and fitting up. It is good enough for any town in the colony. Our old friend Mr.

Tom Norris, is still delving away at the butchering, and seems to be doing a nice business.

The new store erected by Mr. James Shervey is still untenanted.

3 The Wolgan Valley Railway

Henry Deane's paper delivered to Sydney University Engineering Society on 21st September 1910 is the most widely quoted history of the Wolgan Valley Railway. The opening remarks of his paper, set out below led to deeper research.

"I found that some surveying had already been carried out, consisting of a trial-line, for which too little time had been allowed, and therefore insufficiently worked up, between Clarence Siding and the northern end of a long ridge or spur (Island Mountain), overlooking the Wolgan Valley, at a point where the mining of shale had already been commenced."

A map titled, "Plan and section from Lithgow to Clarence, and from Clarence to Capertee and Wolgan Shale Mines along The Commonwealth Oil Corporation's first Railway Trial Survey" attributed to geologist, Joseph Edmund Carne and published by William Applegate Gullick, Government Printer, undated, shows the route of the trial survey by surveyor John Haydon Cardew. The surveyed line is not dated, but would be prior to "the end of April 1906", the date of Deane's appointment.

Carne's field notebook entry for 11th January 1906, page 75, tells a bit more of the story. On that day, he left Clarence Railway Siding at 0900, presumably by horse⁶ and made his way north reaching 'Barcoo Hut' at 1220, and the south side of Constance Gorge by 1535. He spent time here sketching a site for a high-level bridge across to Island Mountain. The sketch is fully annotated, and even shows the anomalous, but correct situation of Constance Gorge draining into both the Wolgan River and Deanes Creek (marked as Rocky Creek with a question mark as Deanes Creek is a tributary of Rocky Creek).

An energetic fellow, Carne made it to camp on the Wolgan River at 1725 and then rode around to Cardew's survey peg (near the mine entrance) for the suggested terminus of his incline ropeway, and sketched two options for the descent off Island Mountain. One is titled Cardew's Incline and the other Jones Incline. The page from Carne's field notebook is reproduced on page XX.

Carne's map shows the northern end of 'Cardews Line' as descending into the Wolgan Valley from Island Mountain and connecting with the No.1 Line Tunnel. The map also shows Glen Davis as Newnes North⁷. Deane writes of this option,

"For the connection between the top of the spur and the valley, it had been proposed to construct a rope incline. The terminus of the railway proper would thus have been at a high level, about 1200 feet above the Wolgan River⁸. The question as to whether this was the best scheme to adopt, or whether it would not be better to take a locomotive line right down into the valley if it could be managed, had not been settled when my services were called into requisition."

⁶ The Old Coach Road was constructed about 1907. Some form of pad or track may well have been established in January 1906, particularly given the reference to the Barcoo Hut.

⁷ The Commonwealth Oil Corporation (COC) carried out some mining at what became "Glen Davis" and this was called "Newnes North". It was soon abandoned when COC decided to concentrate on "Newnes South", which then became just "Newnes". The railway was pulled up before the later "Glen Davis" period started. (Personal communication from Allan Watson, 22nd September 2009)

⁸ Jones Incline is shown as 1,200 feet and Cardew's Incline as 1,400 feet.

Deane further comments about the possible route

"After trying the spot where Dargan's Creek crosses the Main Western Railway at 87 miles 45 chains, and from which it was possible to get a line to the top of the ridge, I found that the best point of departure was at 86 miles 70 chains, which is about 1½ miles back from Clarence. From this point a fairly continuous ascent was obtained without much difficulty, and the top of the ridge was reached 7 miles out. At this point, which proved to be the summit of the line, alternative routes presented themselves. A deviation off the main ridge had been suggested, along what was known as the Sunnyside route. By following this route the descent to the valley commenced, only a few miles out, while the other alternative, the line on which Mr 'George' Marshall (surveyor) was engaged, left the main ridge only after 20 miles from the junction had been traversed.

It was clear, after some study of the problem, that the adoption of 5 chain curves, and 1 in 25 grades (4%), was unavoidable. Mr 'William Stronach' Thom (surveyor) was therefore instructed to work up the Sunnyside route under these conditions, while Mr Marshall made renewed efforts with the so-called Penrose Creek route.

"Mr Thom carried out his work in a very capable manner, and obtained a good line; but as it proved to be considerably longer, and to pass through a good deal of private land, over which, under the older Mining Act, right to construct would not have been acquired without obtaining an Act of Parliament, preference was given to the one surveyed by Mr. Marshall. A great deal of work had to be done, and a vast amount of scheming carried out before a really practicable line was obtained. The gorge through which a great part of the descent had to be negotiated, was so narrow and the levels were so bound by the necessity of passing through certain spots, that many times the task seemed almost hopeless."

The absence of a map the location of the Sunnyside or Thom Route initially presented a problem. Fellow bushwalker, Graeme Melville heard of my interest in this matter and offered the opportunity for me to copy a map of the Western Coalfields of NSW, drawn in 1906 and signed off by Richard Hind Gamage, surveyor and botanist, appointed Chief Mining Surveyor of NSW in 1902; - no contours and no grid lines- essentially, a sophisticated 'mud map'.

An unforeseen bonus on the map was the addition of a faint line showing the alignment of the Sunnyside or Thom Route. Graeme believed that the line might have been added either by his father or grandfather, both having worked for the NSW Railways as surveyors, and his grandfather possibly as a member of Thom's team.

After sharing this information with several others, fellow bushwalker John Cooper offered to 'translate' this line of the probable Thom Route onto the current 1: 25,000 topographic maps. This was a painstaking exercise as John disciplined himself to observe the specified criteria that the grade of the line did not exceed 4% and that the minimum curvature for the line of 5 chains (approximately 100m) was never exceeded.

The result was astounding. John produced a superimposed hypothetical alignment that met the criteria that also fitted the features on the Cullen Bullen topographical map. It also fitted

the sketched Sunnyside Route. It was then planned to walk a small section of the 'surveyed/calculated track' where it breached the cliffs.

This was completed on, 24th June 2009. To keep us on the straight and narrow as far as possible John preloaded the map and the hypothetical route into his GPS. All we had to do was find the way on the ground.

At 0854, we started walking from GR 380 094. A large fallen tree, too big to yield to manual labour, stopped us driving any further. Close to our starting point we could visualise through the clearing rain the Thom Alignment where it circled below Birds Rock to the north, cut across the road we were on and then trended northwest, before looping southeast. The grades looked excellent.

At 0913, our tree littered road joined the Birds Rock Trail that is still driveable all the way to the National Park boundary. At approximately GR 387 107 the congruence between the present road and the planned alignment was 90% plus and remained so for the next 2 kilometres.

As we approached the terminus of the ridge at approximately GR 398 127, the alignment would have moved closer to the eastern cliff edge to maintain grade and continued its gradual descent around the nose of the point. We noted the loop crossing point would have occurred at approximately GR 399 131. Our destination was the cliff edge, right at the end of the point, GR 396 133 where we had an appointment for morning tea.

What a spot! It is stunning. At about 200m above the talus slope we perched, birdlike on the edge, photographing Donkey Mountain, Wolgan Pinnacle, and most importantly for this exercise, the valley to the west where the surveyed line could have been. As the cameras panned to the southwest, the immense cliffs amplify the challenge of this terrain, and with the moving drifts of mist- it was awesome.

From this point, we were now off any track and very much seeking to try and descend on a gradual line. It was not easy as this is dissected pagoda country. From the map I estimated at least 16 gullies would have to have been negotiated either by filling or trestle bridges in the 2 kilometres to the next loop where the track would start descending along the creek bed. This proved to be conservative – there were dozens of complex areas for negotiation.

At 1112, we were at the top of our first temptation – a magnificent slot (Zorro Canyon) that just could possibly be a way of route down to the talus slope. Adrian almost pleaded with me for us to lose the plot and go for it. It was tempting but we had an objective to reach. This slot is certainly intriguing enough for a separate visit. During the next 90 minutes we found at least another dozen slots – each worthy of thorough examination.

We pushed on at a much slower pace than expected. This country is hard going and our attempt to keep descending at a constant rate proved impracticable with multiple cliff lines, deep re-entrant gullies and pagodas. All fascinating but for the line to have maintained constant grade there would have to have been major cut and fill works carried out.

Our starting elevation at the point where the line would have come off the ridge was 1000m and we needed to descend to 900m at the loop at the creek crossing point, approximately GR 383 111, some 3km further on. The best we could achieve was 970m at our lunch spot on top

of a pagoda, GR 387 123. Opposite we could see where the alignment should be, and also the soaring cliffs. If built, the line would have been spectacular.

At 1355 we made a conscious decision to descend into the valley and check out the loop area. Imagine my surprise when we decided to use a ramp that resolved into a mountain bike trail, GR 385 114. I was shocked and dismayed but then realised that Forests NSW do not stop such activity, and the map confirmed that we were now close to the National Park⁹. We followed the track down all the way to the surveyed loop area, dropping the 70m or so quite rapidly. Down on the valley floor we were able to envisage the railway alignment.

It is a very lush forest area with its own charm of great trees and cliff lines. The floor is thick with sword grass (*Gahnia sp.*), ferns and multiple streams. Exploring the alignment down through this section would be challenging and would require protective clothing, gloves, secateurs and close fitting headgear. We were pleased to have 'proved' the validity of the route.

The line as finally constructed essentially followed the so- called Penrose Route. Deane in his inimitable style writes of some of the issues,

"As an example of the difficulties encountered, it may be mentioned that when after much trouble it was found possible to get down through the gorge, and out into the open valley, the level of the formation turned out to be at a height of 40 feet above the base of the cliffs, so that either the railway would have had to be carried on a high viaduct along the front of the cliffs, or it would have been necessary to keep it inside the tunnel, and so avoid the open altogether. Of these two alternatives, the latter would have been the only safe location, but it would have been too costly. The problem was attacked once more and, eventually, by lengthening the line, suitable levels were obtained. A tunnel¹⁰ of 20 chains length, however, was necessitated.

All this work and trouble involved the expenditure of much time, which may be shown by the fact that, although the survey of this part of the line was commenced in April, 1906, the final selection and location of the centre line, between 20 and 31 miles, was only just completed in advance of the earthworks in November, 1907."

From a curious bushwalker's perspective the decaying remains of old infrastructure always poses questions. Rusting remains of old water tanks at "Deanes Siding" gave rise to another day of field research. The trigger was a section from Deane's paper entitled 'Water Supply at Deane.'

"Considerable difficulty was experienced in obtaining a water supply at or near this part of the line, as the latter follows the top of the spur. A fair supply was eventually obtained at about a mile from Deane Station, where a swamp exists. The gully here has been dammed, and an excavation added to hold a good supply of water. The reservoir thus formed is 200 feet below the level of the engine tank at Deane, and the water has to be pumped up. The plant erected for this purpose is as follows: At the station there is an 8 horse power Cundell Oil Engine, driving by means of a belt a Siemens Dynamo, which produces current at 500 volts. At the dam there is a three throw pump, direct driven by an electric motor. Between the engine house and pump current is conveyed

⁹ The boundary is further down at GR 385 121

¹⁰ Now known as the Glowworm Tunnel

by copper cables, and there is another pair of wires by means of which, with the aid of a starting switch in the engine house, the pump can be set in motion.

In this way, the pump can be started without the necessity of any man visiting the pump. Labour is thus saved, and the water in the tanks can be replenished without delay. At both station and dam, the machinery is housed in a small building. A line of 3 inch pipes conveys the water from the pump to the engine tank.

In connection with the water supply, an elevated stage has been erected carrying six 400 gallon tanks as at the Junction, and there is also a coal stage to carry 50 tons of coal.

Engine sheds have been provided at the Junction, and near the bottom of the steep incline. At the first of these, water is obtained by pumping at the second by gravity. Triangles for turning the engines are provided at both places.

A separate telephone line has been provided for railway working and in accordance with the conditions laid down in the lease, namely, that traffic is to be conducted to the approval of the Chief Commissioner, steps have been taken to install the staff and ticket system.

It may be interesting here to state that the earthworks in the open cost, on an average, 1s. 6½d. per cubic yard, and that the tunnel excavation was got out for 8s. 6d. per cubic yard, also that the sleepers sawn at the mill, which were chiefly stringy-bark; cost 1s. 8½d each."

On 22nd April 2009, the quest for answers was under way. At 0830 parked at Deanes Siding, put on our packs and commenced the search for evidence of any remaining infrastructure as detailed by Henry Deane.

The most obvious items were examined first – at GR 426 136, 3 of the original 400 - gallon tanks. These cubic, riveted steel tanks are now located on the western side of the road. There is no remaining evidence of the 'elevated stage'. The tanks have been severely damaged, probably by heavy road building equipment but are still identifiable with some of the flange fittings undamaged. A photographic record was taken.

In the immediate area of the tanks, several pieces of flat porcelain ware were found. A brand on one piece identified the pottery as the Empire Pottery, Stoke-on-Trent, the words surmounted by an elaborate stylised crown. More photos. A brass buss bar with copper wires attached was also discovered.

We recrossed the Glowworm Tunnel Road and commenced a thorough search of the area, still shown as a faint outline on the third edition Ben Bullen, 1:25000 topographic map. From a detailed plan of this area (Portion ML5) from the archives of the NSW Department of Mines, approved 7th December 1907, we knew that in the north west corner of the approved area we may find evidence of the former motor house and tanks and near the centre some evidence may still exist of two buildings designated as stores.

Our searching resulted in somewhat meagre finds. The most useful being parts of a heavy duty white porcelain insulator that was probably used to support the electric cables from the

motor house to the pump house. These were photographed. Other useful finds included footings for the stores buildings and several kiln-fired bricks.

Setting a bearing to correspond with the approved alignment of the pipeline, (as per the survey plan) we commenced walking NNE downhill towards the pump house site. The three of us spread out over a range of about 30m, criss-crossing back and forth, as we progressed. Our hope was to find some remains of footings or other structures that carried the pipe and perhaps a flange or other object that would confirm the previous existence of the line.

We were unsuccessful. Not one item was found. We can only conclude that when the line was dismantled every valuable item was removed for reuse. We did have one success right at the very end of the alignment, just before the 'tank' (in reality an excavated dam) and site of the former pump house. A gleaming white object focussed my attention. I went over to it and discovered an almost complete white porcelain insulator about 15cm high and next to it a very early design small white glass jar, GR 433 146.

We all moved to the area for a much closer look at what else may be around. Nothing. Lots more photos. At least we now had confirmation that we were on the alignment and that this was near where the power line was built. Another 20m on so and we intersected with the old access road.

Immediately opposite a cleared and levelled area was inspected. We found evidence of footings, a doorstep and bricks, GR 434 147. Was this the site of the former pump house? It is hard to be 100% certain. An examination was done of the creek, and as described by Deane, it had been excavated to create a deep pool about 10m x 20m in size. On the eastern bank a crude stonewall probably supported the suction point for the pump.

Over morning tea we had another look at the current Cullen Bullen topographic map. The rectangle of excised land for Deanes Siding has an interesting additional area shown near the SW corner, not shown on the original approved plan for ML 5. Why? Ever curious we went and checked it out. An excavated area about 30m x 30m initially had us puzzled. Was it a dam or was it a water holding tank? Climbed up out of it to the west, and onto what appeared to be a road. The others came up. Steve said he would walk down it for another 100m or so. Minutes later he yelled for us to come and join him.

Steve had found some large squared timbers and even larger iron bolts sitting on top of a level topped mound. What he had discovered was the Deanes Siding Engine turning triangle mentioned in Deanes Notes¹¹. The squared timber pile was part of the terminal buffer to stop trains from going over the end. We now did a trace of both sides of the triangle and were able to confirm the line position. I was delighted to find this piece of history confirming the 1910 notes.

Drove back down the Glowworm Tunnel Road (on the old railway alignment) to just south of Cockatoo Hill, GR 443 061 where a bend in the road clearly shows where the former railway and the current Glowworm Tunnel Road diverge.

¹¹ Correctly Allan Watson is critical of me here for not doing my homework before going into the field. Perhaps as a bush walker with only a peripheral interest in trains I did not think that we would find as much as we did. Allan explains, "the land falls away here and the triangle is built up. The "excavated area" is actually a borrow pit for the embankment.

Parked on a side road at GR 443 057 and went walking. Very soon we picked up the old railway alignment and spotted several sleepers still in situ. By relating the alignment to the contours we had a pretty good idea where the railway would have gone. We embarked on a mix of walking and progressive car shuffling.

The embankments and cuttings made for good walking. Where the alignment went through the pine forests there were large numbers of the *Pinus radiata* mycelium rhizomorphs or fruiting bodies – brilliant red fungi, (*Amanita muscaria*) with white or cream attachments. It was fairy tale stuff and made just a little spooky by the misty rain conditions.

Steve found a nearly complete cast iron rail ‘cleat.’¹² Great photograph for the record – we have over the years of walking in the area found many fragments but an almost complete one – special. Then at 1215 we had a most unexpected discovery – a hut! GR 437 058.

It is a very small, painted pale green galvanised iron building well hidden at the base of a very old pine tree and attached to it on the western side for support. Perhaps 1.5m x 1.5m, it contained an old chip heater, properly flued to the outside. A car seat and dry wood completed the furnishings. The door is a bit damaged but it is a dry shelter if needed¹³.

Nearby was another surprise – a defunct rain gauge complete with electrical connections. It has a special plate advising that it is the property of the Commonwealth Bureau of Meteorology and it is of the electrical impulse type. It has been unserviceable for some time.

We kept on exploring along the alignment and soon came to a series of specially formed concrete foundations that would have supported fixed heavy-duty machines. There were numerous glands, bearings, a steel belt pulley (about 30cms diameter) and other items scattered about. We also found four railway sleepers complete with spikes and lengths of railway line. We had stumbled on the Murrays Swamp sawmill site, also referred to by Deane. This would have been where many sleepers for the line had been milled.

To add to the history of the Wolgan Valley Railway, set out below is a copy of an article published in The Railway and Tramway Magazine of 2nd May 1921 by C.R. Jacobi entitled “A Trip to Newnes Junction and the Wolgan Valley.”

‘Many passengers by No.31 (0925 a.m. Western train ex Sydney) have on arrival at Newnes Junction had their attention drawn to a curious type of Engine in the yard... curious in that it is different from the engines one is accustomed to. This class of locomotive (owned by Messrs John Fell & Co for use on their private line to Newnes, 32 miles distant) has the boiler fitted on one side of the engine, similar to a horizontal engine; on the other side the driving shaft extends the full length of engine and tender, is knuckle-jointed at every set of bogie wheels, and fitted on the outside of the right hand of the engine, and bevel geared to all wheels of both engine and tender; thus every wheel becomes a driving wheel. The shaft is knuckle-jointed to permit of engine taking either right or left curves of short radius without affecting the speed or driving of the engine. Departmental engines cannot run on this line (which is 4’8 ½” gauge), as their wheelbase is too rigid to permit of their taking the numerous sharp curves of 3 ½ and 5 chains radius

¹² Correctly a “chair” in railway terminology.

¹³ Allan Watson opines this was probably a Forestry Hut.

The line was originally constructed by the Commonwealth Oil Co in 1906 to 1908, under Mr. H. Deane, formerly Chief Engineer of Railway Construction for the NSW Government, and, also later with the Commonwealth Government in the construction of the Transcontinental Railway.

The original trial survey presented many difficult features, and the ultimate construction is a monument to the skill of the surveyors in selecting the present route, which runs through rough rugged and difficult country. It is unique in having many sharp curves and steep grades. There is one long stretch of line of 1 in 25, with two tunnels. The engines (shay geared) of which the company possessed four, take a load of 200 tons on the steepest grade, and have a maximum speed of 12 miles per hour.

The country round Newnes Junction – the highest railway station on the Blue Mountains – is noted for its wild flowers; hundreds of visitors come in spring to gather Waratahs, Flannel Flowers, Boronias and Mountain Moss. In future there is every possibility that the wild flowers will disappear and in their place will rise large industrial and manufacturing centres. Even now most of the country is held as mineral lease, principally for coal and shale. The working face of the State Coal Mine is only distant three miles. The finest pottery and fire clay in the State is found here in abundance. Red oxide for paints and ironstone also abound. In fact, the mineral wealth of the district is hardly known.

For the first 12 miles of the journey on the Newnes Line, one passes through forest country, and it is here that most of the mining timber for the Lithgow Coal Mines is cut and dispatched by rail; Mountain Ash and other timbers are also cut for building purposes. The best of the Mountain Ash logs are used in the manufacture of "Oak" furniture.

The Forestry Department has planted thousands of trees in the district, in connection with the re-forestation scheme, and controls the cutting of all timber.

At the three mile siding the line skirts Bald Hill, with its trigonometrical station, and from here on a clear day one can see Katoomba and the beaches around Sydney, Mt. Victoria, Mt. Wilson, Mt. York, and (through a telescope) Singleton, Bathurst and Rylstone.

After leaving the 12-mile siding, scenery of stupendous splendour is encountered. One striking view comprises four parts of the line in successively lower stages. In the distance of ten miles by train, the line descends 2,000 ft., and the actual distance from point to point is only 3-miles. High cliffs overshadow the line to a height of 1,200ft., with perpendicular walls. Waterfalls are numerous, many from 400 to 700 feet drop, and tree ferns and wild flowers are in abundance. About 20-miles on the journey one gets a view of a wonderful gorge, with the sun painting the cliffs in lurid colours, while the trees below are shrouded in a blue haze. What a difference in the scenery, first innumerable curves flanked by forest, and then cliffs, and gorge, and rugged rocks! These latter weather beaten in countless years, have taken on many queer and fantastic shapes. The rocks, soft sandstone with ironstone bands have had the softer substance washes away by storm, and crumbled with age, leaving the harder portions projecting in queer angles and curves; one in particular RESEMBLES A HUGE Chinese pagoda.

When emerging from what is called the short tunnel, one has a view of a portion of the line, in the form of a huge "S", and viewed from the top it seems impossible for a train to get down, but cuttings and embankments overcome the difficulty. The lower or big tunnel is one of the wonders of the line; it is on a ten-chain curve, and about twenty chains long. The line follows a narrow gorge hundreds of feet deep, at the bottom of which is an underground river which, after heavy rain becomes a rushing roaring torrent. A ten-minute walk here fills one with awe and wonder. Towards the end of the passage, it widens out, and here huge tree ferns and varieties of other ferns flourish in abundance. It is claimed that this is the actual track that Captain Starlight and his bushrangers use on their journeys from the mountains to their hiding place in the valley below.

The natural gorge at this spot looks like a beautiful grotto, hemmed in and overhung with the rocks above. A few hundred yards from here the line emerges from the cavern into the Wolgan Valley, and here is the view "par excellence"; cliff after cliff with tall slopes stretch away in the distance up the valley. Donkey Mountain and Mt. Wolgan rise up in the foreground, their outlines rugged against the sky, while the opposite cliffs show their bluff faces to advantage, and below a great expanse of trees in the valley, with here and there a clearing, and the while glistening of the river, with its green banks. Well can the visitor say with Clancy of the Overflow, "I have seen the vision splendid."

The line now hugs the cliffs closely which, at one place, completely overhang the track and rises to a sheer height of 500 and 600 feet; they look dangerous, but a large amount of work has been done in blasting away loose rocks. The base of the cliff for hundreds of yards has been cemented to prevent erosion and the line is deemed by the engineers to be safe.

The train continues down the incline, leaving the cliffs and through deep cuttings, winds round the slopes, to the Wolgan River, and on to more level formation, eventually reaching the township of Newnes.

On discharging passengers, etc; the train continues its journey on to the works, one and one half miles beyond the Town

The works at Newnes are an eye-opener. The company has spent £1,500,000 in the construction and equipment of the line and the works.

From the shale which is dug out of the mountains, residual and fuel oils are produced; also benzine and kerosene oil by-products are numerous, such as bitumen, tar, and coke. It is also stated that it is possible to produce excellent dyes from the by-products. Also the ash, left after extracting the above commodities, and at present discarded, makes an excellent metal polish. A very large candle factory is erected and will later be brought into operation. It is said that the shale extends practically all the way north to Murrurundi.

As fuel oils are such an important factor in up-to-date shops and power machinery, and as benzine and kerosene oils are daily increasing in demand, Newnes works should look forward to an era of prosperity.

The oil works and mines are controlled by J. Fell and Co., and about 500 men are employed, a considerable number being engaged in the shale mines.

Being off the beaten track, one hears very little of the beautiful scenery on this line, and, also very little of these wonderful and important works. In fact, very few people in NSW know of these local products, and even our schools neglect to point out that such commodities are produced in NSW.

The whole trip from Newnes Junction to Newnes occupies from 3 ½ to 4 hours. This includes stoppages for water, and for shunting at the various sidings. The Train is made up of oil tanks, log trucks and ordinary "S" and "D" trucks for the transport of timber, benzine, kerosene and general goods, one passenger car and a compo brake van. The train runs on every Monday, Wednesday and Friday and connects with No.31 ex Sydney. A trip is usually made to "Deane" about half way on Tuesdays, Thursdays and Saturdays for the purpose of taking up a portion of the load and is picked up the following day by the regular train. A mail coach runs on Tuesdays, Thursdays and Saturdays from Wallerawang, and takes five hours for the journey.

The township has a fair-sized hotel, with the usual stores, picture show, etc., and also a fine public school. The town is hemmed in by cliffs, which rise to a height of up to 2,000 feet. Railway officials will find that 3 days of their annual leave spent on this trip will well repay them, in knowledge, experience and recuperation. The company's officials are very courteous and ready to show tourists points of interest, etc. The present single fare is 8s. 7d. only one class of passengers being carried.'

Brian Fox has extracted copies of the Parish Maps showing the lands set aside for the construction of the Wolgan Railway line. Copies of these are included.

Mark Langdon, a railway history aficionado responded to the circulation of the track notes on the Wolgan Railway by advising that he had a general idea of where several construction camp sites might have been and retrieved some pick heads stamped with the letters 'COC'. A treasured picture from Mark's collection is included.

Stephen Imrie has extracted from his records a map of Newnes Junction showing the successive overlays of development that have occurred since the Wolgan Railway was abandoned. A copy of this map is included.

4 The Shale Oil Towns

The Shale oil towns of the Wolgan and Capertee Valleys - Airly, Torbane, Newnes and Glen Davis – all now ghost towns¹⁴ - arose out of the mining activity for kerosene shale or more correctly, Torbanite commencing in the late 19th century.

What is Torbanite or Kerosene Shale? According to Rice, C. M. Dictionary of Geological Terms, 1957, p 420, “Torbanite is a variety of oil shale, containing some 70 - 80% of carbonaceous matter. It is a dark brown substance, having a dull luster, a yellow-fawn streak, and a low specific gravity – 1.2 – 1.3. It can be retorted to yield liquid hydrocarbons.”

Dr. Adrian Hutton, Honorary Principal Fellow, University of Wollongong, advised¹⁵ current research has revealed that torbanite can contain more than 95% organic matter depending on the grade – the higher the grade the = higher the organic matter content. Although torbanite contains a few spores, the dominant oil producing organic matter is derived from algae – generally known as *Botryococcus*. Earlier researchers believed the algal matter was spores. We now know they are algae.

Carne, Joseph Edmund. The Kerosene Shale Deposits of NSW, 1903, p. 38, includes a chronological tabulation of the “Progress of Discovery and Development of NSW Kerosene Shale Deposits”. The date of discovery time span is from 1824 to 1899. The date of opening mines from 1865 to 1900, the names and dates of company’s formed for the purpose and the date distillation began from 1865 to 1901. The remarks column makes fascinating reading.

Within the same text Carne includes another comprehensive table detailing the individual localities in NSW “where kerosene shale has been prospected, is currently being worked and was formerly worked”. This tabulation together with a summary locality map of deposits is set out in the following pages.

In the study area, of the sites listed by Carne, only the towns of Airly and Torbane are discussed. The two former major shale towns in the area, (Newnes and Glen Davis) postdate Carne’s work, although they too, have risen to industrial might, but are now relict localities for modern day archaeologists.

Because this text is primarily about bushwalking, the focus of this chapter is confined to understanding what the curious bushwalker may find, and unraveling the mystery of how, when and why. There are many good books on the economic and social history of Newnes and Glen Davis, and some of these are listed in the bibliography.

So just why was kerosene shale so important that it stimulated such a flurry of activity and enormous capital investment? Why was its time as an economic good so short? For some answers Carne offers a view in his author’s preface where he refers to Kerosene Patents secured by Dr. Abraham Gesner, who in 1846, first successfully attempted the manufacture of oils (liquid hydrocarbons) from coal in America.

Gesner, trading as the Asphalt Mining and Kerosene Company the Asphalt Mining and Kerosene Company sold his patents to a new entity, the North American Kerosene Gas-light Company. The oils the company manufactured were sold under the brand name ‘kerosene’.

¹⁴ There are protestations that Glen Davis is still alive, but much diminished.

¹⁵ Personal communication, 5th November 2009.

Carne in his *The Kerosene Shale Deposits of NSW*, 1903, p. xii, records, Davies, David Christopher. *A Treatise on Earthy and other Minerals and Mining*, 1892, 3rd edition, p. 214. "kerosene oil of great lighting power, but unpleasant odour, was introduced to the public in America by agents of the above company."

After the discovery of Torbanite, (a richer source of "kerosene" and liquid hydrocarbons than coal), in Scotland, this company imported large quantities for the manufacture of kerosene.

Davies further comments that the oil first produced from torbanite by Dr. James Young in 1851 was locally known as "paraffin oil." This oil gave the start to the use of mineral oil lamps in England. This was a cost effective substitute for whale oil.

Torbanite was discovered in NSW probably as early as 1802 and certainly as early as 1824 by French expeditions to Australia and published in reports by them in 1807, 1825 and 1839. Once the technology for extracting the kerosene (paraffin) from torbanite was perfected, the torbanite deposits in NSW became valuable resources. Carne, Joseph Edmund. *The Kerosene Shale Deposits of NSW*, 1903, Part1 p.1.

The historical context of the Kerosene Shale industry is important to understand both its rise and demise. At the time around the civilized world inventions of all kinds were happening. Although the switch to mineral oil for lighting and as a fuel was a quantum advance, it paled to insignificance with everything else. Four examples tell of the magnitude of this revolution.

- The electric light, soon to be a direct competitor to oil lamps, was invented in 1879 by Thomas Alva Edison.
- An automobile powered by his own 4 stroke cycle gasoline engine was built in Mannheim, Germany by Karl Benz in 1885.
- Samuel Langley created the first heavier-than-air, gasoline-powered engine, which actually flew. His 'aerodrome', was powered by a 53 horsepower 5-cylinder radial engine that later crashed into the Potomac River on December 1903 a few days before the better known and publicised Wright Brothers successful historic flight.
- During the development of the combustion engine inventors quickly identified that fuels based on hydrocarbons were the most suitable, and with the growth in popularity of the automobile a rapidly expanding industry was created almost overnight.

The rush was on, not only to locate the necessary reserves of oil, but also to refine and improve the quality. The first iterations of petrol were based on coal tar distillates and distillation of crude oil, the latter being used to power the first four-stroke cycle spark-ignition engine in 1884.

At the time, petrol was considered an undesirable by-product from the manufacture of kerosene, the latter being used extensively for lighting and other commercial and domestic purposes. As the proliferation of cars grew during the first few decades of the twentieth century, demand for petrol would see its profile as a fuel source rise, quickly surpassing the once mighty kerosene.

The story of Airly Town and Torbane is typical of shale mining towns. Following discovery there was an initial period of frenetic activity until the deposit was exhausted. The miners,

and their families left and the town collapsed. Anything of value was removed, often to another mining site.

The Lithgow Mercury dated 18th October 1895 paints a picture of the developments in an article titled - "Mining Near Capertee."

A good deal of interest is just at present being shown in the mining development in the Capertee district. A well-known resident informs us that there are now about 40 men working at Genowlan, which is some eight miles from the station. They are sending shale away in carts every day and have quite a big stock in the railway yard. At King's mine – about 8 miles from the station – there are some seven or eight men at work, mostly of a prospecting character. At the Crown Ridge¹⁶, the number employed has been increased during the week and the output is being carted to Capertee Station for trucking. Much interest is also taken in the developments near Glen Alice, by the Capertee Shale Mining Company. It will be remembered that the bill¹⁷ to connect this property by means of a tramway, with the railway, was recently objected to in the Assembly. Subsequently, M Land invited Messrs Sleath and Watson, MP's to see the place for themselves, and their visit seems to satisfy them that the scheme was a legitimate one. The company have recently applied for fresh leases, and are at present driving a tunnel to open the ground.

A good deal of money has been spent in proving this valuable property, and a good deal more must necessarily be expended before the mineral can be placed on the market. En passant, it is stated that the NSW Shale and Oil Company have acquired an interest in one of the mines in the district; if so, however they have not yet done any work on it. Taken altogether, there is no doubt that Capertee will soon be the centre of probably the largest shale interest in the Colony.

Two separate villages mushroomed near the mines – Airly in the confines of a very tight valley and seemingly on top of the mines, and Torbane a short distance away on a railway siding off the Main Western Line. Some 200 miners worked on the project¹⁸. An access tunnel was driven through the mountain and a tramway brought the shale to Torbane where a bank of 40 retorts was used to extract the liquid hydrocarbons from the shale.

Between 1896 and 1903 more than 140,000 tons of shale was mined. However, by 1903 the shale deposits were becoming depleted and production declined steadily. By 1912 mining in the area ceased. A revival venture in 1924 mounted by the Torquay and Anglesea Oil Co. was a failure.

Cresting the rise and crossing the Airly Gap into the narrow gully between Mount Airly and Genowlan Mountain, I always experience the sensation of trespassing on ghosts. This is reinforced by a study of the second edition Glen Alice, 1:25000 topographic map. It shows faintly the 100 or so subdivisions, streets and layout of what was 'Airly Town.' Airly Town was born in the 1880s, officially surveyed in 1897 and was a ghost town by 1920.

¹⁶ Current name, Blackmans Crown

¹⁷ A Bill for an Act of Parliament.

¹⁸ Research shows that there were two principal companies operating at Airly. Each developed its own infrastructure. The so called 'south' operation used a complex tramway/haul way system around the southern end of Mount Airly, and through a high level tunnel to deliver mined material to Torbane for either retorting or freighting by rail. The northern or 'New Hartley Mine' initially used a sophisticated but unreliable haul way over the mountain but later drove a tunnel right through the mountain to deliver the torbanite directly to the retorts at Torbane.

In Jefferys, Bruce, *The Story of Capertee*, 1982, p. 99. Some idea of the frenzied pace of life and activity at the time is captured.

"The gully was crowded enough by the shale mine workings with tramways, boilers, steam engines and the mass of ancillary equipment and stores needed for a mine employing more than 200 men but these 200 men brought their families and built a village using every imaginable description of housing. Caves were tunnelled from the cliffs. Loose sandstone was formed into rock huts. Giant rocks were used as the roof while a dwelling was excavated underneath. And all the time the space in the narrow gully forced the builders into more outrageous positions."

"And the houses, the shops and even the sly grog shop fitted, as best they could on what was left of the steep slope... in this somewhat surreal situation a school housing 120 pupils was built, and in one modest clearing at the centre of the valley there was a hotel, store and even a small common area where livestock were allowed."

Newnes, Wolgan Valley.

In 1873, the Wolgan Kerosene Shale seam was opened up by Campbell Mitchell and his two employees, P. Conlan and W. Bale. The shale was moved by horse and dray to the railhead. The Wolgan Seam and the adjoining Capertee Seam proved to not only be the richest in Australia, but the whole world¹⁹. When the news reached London as to how rich the seams were, a group of investors headed by Sir George Newnes, head of one of Britain's largest publishing companies, were soon forthcoming with the capital to transform the discovery into a major mining and industrial enterprise.

Assay tests showed a yield of 160 gallons²⁰ per ton compared to averages of 25 gallons per ton in Scotland and 60 gallons per ton in the USA. The deposit was estimated to contain reserves of up to 20 million tons. It was "Black Gold."

The following time line plots the story of Newnes and Glen Davis- two towns whose short history is inextricably intertwined.

Year	Newnes	Glen Davis
1873	Campbell Mitchell opens up the Wolgan shale seam	
1905	Commonwealth Oil Corporation (COC) establishes Newnes	
1906-1907	Wolgan Valley Railway built from Newnes Junction to Newnes	
1911	June - Newnes Oil Refinery comes on stream	
1911	October- refinery beset with technical and labour problems	
1911	December - COC in receivership	
1912	COC - sale of assets to John Fell & Co	

¹⁹ Hutton questions the validity of these assertions. Selective sampling may have been practiced.

²⁰ 1 gallon = 4.55 litres; 1 ton = 1,016 kgs

1915	Formation of the Australian Coal and Shale Employees Union	
1913	John Fell revives Newnes – demand assisted by WWI.	
1917	Mined shale supplies down 45% inadequate to keep the retorts operating – miners demand wage increase 50% – competition from imports	
1919	John Fell surrenders leases - COC restructured. Fell becomes paid Manager- agreement to share profits 50/50 between Fell and COC	
1919-1920	Major industrial strike	
1922	Increased costs and cheap imports forces COC to offer the Newnes Oil Works to the employees. The offer is rejected	
1923	Cessation of oil shale production. 370 workers dismissed	
1926	COC ceased operations at Newnes; weekly Wolgan Valley Rail service discontinued	
1928	Telephone service discontinued	
1932	Commonwealth Government acquires the leases at Newnes and hands them over to a private company operated by R. A. Tregowan & C.O. Chambers; last Shay loco driven out of the valley	Plans outlined to mine shale at (Glen Davis) in the Capertee Valley
1933	Newnes Hotel and bakery only businesses left in Newnes	
1933	Newnes Investigation Committee formed	
1934	The new R. A. Tregowan & C.O. Chambers venture fails	
1937	National Oil Company (NOC) formed; enter George Davis as 1/3 partner; NSW Government 1/3; and Commonwealth Government 1/3	Decision by NOC to build a new refinery & town at Glen Davis
1937	Newnes industrial complex demolished as part of the Glen Davis project	
1939	Outbreak of WWII	Remaining equipment from Newnes transferred to Glen Davis as new equipment not available from overseas
1939	Wolgan Valley Railway abandoned: 4" diameter pipeline built over the range from Glen Davis to Newnes and onto Newnes Junction	
1940		Glen Davis Hotel opened

1941		Shopping Centre started
1943	Wolgan Valley Railway torn up and the steel rails shipped overseas	
1946		Glen Davis proclaimed as a town. Population, 2,500
1949		Connection to Fish River Water Supply
1952		Closure of Glen Davis due to cheap oil imports and inability to produce at world parity prices; Dickson Primer appointed by the Commonwealth Government to dispose of all the assets.
1962		Closure of Glen Davis School
1986	Flood undermines Newnes Hotel	
1987	Relocation of the Newnes Hotel	
1989	Newnes Hotel Liquor license sold	
2001		Geographic Names Board strips Glen Davis of its postcode and. It is now designates it as a suburb of Lithgow. 11 th July 1997.

So what went wrong? There is no identifiable single causative factor, however there were a number of significant contributing factors that impacted sequentially, and at times concurrently, that led to the demise of a once valuable but inefficient industry.

- Despite many claims to the contrary Dr Adrian Hutton advises, *"The Newnes and Glen Davis torbanites were probably no richer than the torbanites from any other NSW deposit. He writes, "The highest assay for a sample I am aware of, including samples from Glen Davis and Newnes, is more than 1000 litres per tonne for a sample from Marangaroo. The assays for many Joadja samples are for the seconds grade shale as the highest grade was exported for gasification. The grade of torbanite varies with the algae composition – the more algae the higher the grade. Whereas at Joadja the shale was split into two lots, first and seconds, at Glen Davis (certainly WWII era) and at Newnes the shale was retorted as 'run of mine', that is, as it came. It is pretty common for the top and bottom of the seam to be lower grade than the middle. Some samples of the Alpha torbanite from Queensland assays at more than 700 litres per tonne. The original oil shale mined in Scotland was a torbanite but this soon ran out and they mined a lower grade and a different type of shale; hence the 20 gal per ton values often quoted. Only the original Scottish oil shale can be compared to the torbanite from Australia"*.
- The retorting equipment initially installed at Newnes was not capable of handling the relatively rich raw feedstock, and consequently an excessive amount of time was spent in cleaning and maintenance. When John Fell installed more efficient, retorting equipment the miners could not maintain the supply of shale.
- Because the retorting equipment was inefficient, the maintenance process was frequent, dirty, hot and very dangerous. The practices employed would not be allowed today. The labour force rightly felt exploited for working under such conditions. As a

result, it not only unionised but also fell under the influence of the extreme left and became increasingly intransigent and militant.

- Management response was equally stubborn and prolonged strikes became the norm. 'Dargs'²¹ on production were widely used by the workforce as a crude negotiating weapon.
- Following peace at the end of WWII, the need for Australia to be independent in petroleum production was no longer necessary or supported by the Commonwealth Government via the taxpayer, and the local industry was forced to compete against cheaper foreign supplies.
- Recoverable high quality shale was almost worked out. Little investment appeared to have been made into exploration for new deposits.
- Once the protection afforded by subsidy and /or tariffs, (underwritten by the Australian taxpayer to ensure supplies during WWII) was removed the ultimate arbiter was the relative cost of competitive fuels on the world market.

The demise of the industry was inevitable. The consequences for the miners and the shale oil dependent towns were catastrophic.

In the remote event, that shale oil is again considered as a valuable resource, attention in Australia would most likely be on the Queensland deposits near Gladstone (Rundle and Stuart deposits) and near Proserpine (Condor). Sub economic deposits of Torbanite occur at Marrangaroo, Blackmans Crown and on the eastern escarpment of Genowlan. The ruins of an ill-conceived attempt at commercial retorting operations can still be seen at Blackmans Crown. The Marrangaroo operations are now subsumed by coal mining operations.

5 The Newnes Hotel

²¹ Darg = a process of restricting or controlling the amount of work or production to be done in a day.

In 1907, the same year that the Wolgan Valley Railway was completed between Newnes Junction, east of Clarence on the Main Western Line and Newnes, the Newnes Hotel opened its doors. Two years earlier, the Commonwealth Oil Corporation had formally commenced establishing Newnes as an industrial enterprise, to mine and process Torbanite to make petroleum based products.

The hotel was one of the earliest private buildings erected in what was to become a thriving settlement. Research shows that the site was on part of a block, originally a conditional purchase to William McBeath. It changed hands several times before it was purchased by John Alexander Stammers Jones, then owner of Lithgow's Zig Zag Brewery. With both the shale mines and works undergoing rapid development and the Wolgan Valley Railway nearing completion, there was no shortage of thirsts to be slaked amongst the miners and construction workers.

The hotel was originally named after its owner as the Stammer's Hotel, but as it was the only one in town, it soon became known as the 'Newnes Hotel', a misnomer still perpetuated today but for a sadly different reason. Such was the value and volume of trade that Jones commissioned a Katoomba firm of architects to design a grand, three storey hotel, which was never constructed due to the economic collapse of the town when C.O.C. went into receivership in 1912 and the miners, workers and their families left.

The location of the hotel between the Wolgan Road and the bank of the Wolgan River left it vulnerable to flooding. As Allan Watson, the proprietor/ operator of the kiosk within the old hotel building, stated²²,

"Over the year's great floods damaged several parts of the property. In the early 1950s, a flood swept away a small building at the rear of the hotel that had been used as a dormitory. Another flood in 1978 badly damaged the old Billiard Hall, adjacent to the hotel and that building was subsequently demolished".

In that flood, the Wolgan River also 'relocated itself' and washed away nearly all the back yard behind the main building. Nature was not done with threatening floods and at the start of the Bank Holiday weekend in August 1986, heavy rains caused the Wolgan River to rise to an unprecedented height until the floodwater was over the window - sills and the raging water nearly swept the whole building away.

The damage revealed after the flood showed a further change in the direction of the river and terminal undermining of the rear of the building. The back verandah had been swept away. Stirling Butchard, the then licensee and owner wanted to move the building intact, however that concept posed some difficulties, which would necessitate dismantling and re-erecting the building in sections.

A group of people long associated with the pub formed a group "Friends of the Newnes Hotel" and proposed moving the building by dismantling and re-erecting it on a new floor in a less vulnerable position. These people donated their time, money and labour to the task.

On 24th, 25th and 27th July 1987 some 200 men, women and children worked, removing the roof, dismantling the walls and carrying them to the new site. When the building was

²² Personal communication, 24th December 2009.

finished, the old piano was carted up and the best party that Newnes had seen in 80 years ensued.

The old pub in a new location is not quite as it used to be on the old site, being set back from the road with a timber verandah rather than sited hard up against the road with a concrete footpath. The bar, which is effectively now a shop counter is little changed and it is still possible to enjoy that old world feeling as you lean against it. In some respects, it would be nice to have a cold beer in hand but those days are gone and you have to imagine that.

In 1988 the liquor license for the hotel was sold and the building stripped of all its original porcelain handled beer siphons and its elegant Dewars Scotch Whisky mirror.²³ Although operating with a full hotel licence, the hotel had operated much like a drink- in bottle shop so most matters of public health were not a problem. However, licence regulations and the authorities were and are inflexible and the licence had to be sold before it was cancelled. The hotel pulled and sold its last beer in October 1988.

The tabulation that follows is a record of the land ownership of 40 acres, Portion 9, Parish of Gindantherie, County of Cook, Newnes. It was this parcel of land that was granted a publican's license, from 1st June 1908 – October 1988. The building currently functions as the office for Newnes Hotel Cabins, a general store, kiosk, information office and museum. This acreage was one of the first areas to be surveyed and occupied in Newnes and is still significant. (Note, the name Newnes did not officially exist prior to 1908).

Date	Owner	Licencee	Comments	Reference
28 th January 1869	William McBeath		McBeath held a Conditional Purchase (lease) on what was described as Lot A on the Wolgan River, Portion 9.	Survey Plan C402-1507. Survey dated 11 th May 1869. Conditional Purchase Register Book, CP271-69
11 th January 1870			The 40 acres was advertised for sale.	Survey Plan C402-1507.
12 th March 1870			Auction sale at Hartley, no sale. Hartley was the Land District for this region.	Survey Plan C402-1507.
14 th March 1870	Edwin Barton		Applied to purchase at Hartley for 40 pounds. Edwin Barton, civil engineer, married Georgina Lyon Wolgan Walker in 1865. Georgina was James Walker's daughter. Walker in 1865. Edwin purchased a number of Portions of land on the Wolgan on behalf of Thomas Walker and Charles Sidey	Certificate of Title. Vol. 105; Fol. 173. Certificate of Title. Vol. 97; Fol. 170, 171. Vol. 99; Fol. 133.
14 th July 1870	Thomas Walker and Charles Sidey.		Thomas Walker's uncle was James Walker who was one of the earliest land holders in the Wolgan Valley c.1824. Charles Sidey prior to 1870 resided at Marrangaroo and married Allison Walker, James Walker's daughter in 1854.	Certificate of Title. Vol. 105; Fol. 173. From Stockyards to Streets by John Leslie. NSW BDM's.

²³ Allan Watson reports that the famous mirror and the porcelain handled beer siphons are still held but locked away as a security measure. "We bring out one set of pumps on high days and holidays." (personal communication December 2009).

23 rd February 1882	John Lawrence Brown and Henry Houghton Burton Bradley		John Brown's (1841-1919) father Andrew came to Australia on the same ship as James Walker in 1823 and went on to own nearly 4000ac of land in the Lithgow area. He was also the overseer for James Walker's properties. Henry Bradley (1845-1918). Lawyer by profession; particularly interested in spiders; keen horticulturalist; president, Board of Trustees, Australian Museum 1913-18.	Certificate of Title. Vol. 111; Fol. 120. Web search, 'Bright Sparcs' Henry Bradley.
6 th July 1907	James Walker Barton		James (1866-1914) was the son of Edwin and Georgina Barton.	Certificate of Title. Vol. 111; Fol. 120.
21 st August 1907	John Alexander Stammers Jones		John Jones (1870-1933) owned the Zig Zag Brewery at Lithgow, selling it in 1928. His main reason for purchasing the land was to establish a hotel for the new village of Newnes and the adjacent oil shale works. The hotel had plans for a grand three story structure.	Australian Dictionary of Biography. State Records. No Publican's Licenses where issued in Newnes prior to 1 st June 1908.
1 st June 1908 – 1913	John Alexander Stammers Jones	Sarah Goodare The hotel was known as, 'Stammer's Hotel'	Sarah Goodare (1866-1946) was John Jones sister. She was the licensee of the Hydora House Hotel, Blackheath 1 st July 1900 to 1 st July 1907 the name had changed to the Hydora Hotel in 1906. Sarah than held the licence for Stammer's Hotel, Newnes. In 1912 the works at Newnes closed following the collapse of C.O.C.	NSW BDMs Rego No. 16503/1866. NSW State Records, Publican's Licenses Returns, 1907-1910 NSW Government Gazettes, 1911, p. 4716; 1912, p. 5251; 1913, p. 5337.
1914-1922	John Alexander Stammers Jones. His address was recorded as Oakley Park, Lithgow.	William Sydney Cripps The hotel was known as, 'Stammer's Hotel'.	Sarah Jones had married Alfred Goodare 1 st December 1888, divorced in 1902, re-marries William Sydney Cripps in 1914. William then becomes the licensee. He also operated the dance hall and billiard saloon in Newnes	SMH 29 th May 1902, p. 4, petition for divorce. NSW Government Gazettes, 1914, p. 5171; 1915, p. 5004. Hartley Licensing District.
18 th September 1922	John Alexander Stammers Jones	Thomas (Tom) Arthur The hotel was known as, 'Stammers Hotel'	The card index showed the name as, Stammers Hotel.	NSW State Records, Publican's Licenses Returns, Card Index; 3/7884.
24 th December 1935	Vidie Harris Jones, Jack Harris Jones and Nina Eva Vida Jones. Third share ownerships.	Thomas (Tom) Arthur	When John Jones died the ownership was transferred to his wife Nina (1882-1966), daughter Vidie (b1912) and his son Jack (1913-1939). The above gave an encumbrance to the brewer, Tooth & Co. Ltd on the 18 th September 1936.	Certificate of Title. Vol. 4734; Fol. 110, 111, 112.

c.1938		William (Bill) Littlejohn The hotel was known as, 'Stammers Hotel'	One story has Littlejohn from early 1930s and electoral roll confirms. It is thought he may have been Arthur's barman.	
1940		James (Jim) Lancelot Bird	c.1895-1978	
6 th February 1942	Nina Eva Vida Jones and Vidie Harris Clarke. Half share ownership.	James (Jim) Lancelot Bird The hotel was known as, 'Stammers Hotel'	Nina's son Jack was killed in an aircraft accident at Mascot in 1939. Vidie had married William Branthwaite Clarke (he was the great grandson of Rev. William Branthwaite Clarke) on the 18 th September 1936.	Certificate of Title. Vol. 5302; Fol. 201, 202.
1946		Leslie G.S. Perry The hotel was known as, 'Stammers Hotel'	b. 1893	NSW Country Directory 1951. Also lists Killick Bros & Co., Grocers and Storekeepers at Newnes.
c.1950		James (Jim) Gale		
22 nd April 1969	Vidie Harris Clark	James (Jim) Gale	Last of the Jones / Clarke's to own as Vidie's mother Nina had died on the 2nd March 1966. Vidie died 23 rd March 2003.	Certificate of Title. Vol. 11084; Fol. 86. SMH 26 th March 2003.
20 th January 1976	Kelvin James Gale	James (Jim) Gale	James Gale's son Kelvin (known as Kel) died 7 th March 1986 at Wallerawang.	Certificate of Title. Vol. 11084; Fol. 86. Lithgow Mercury 10 th March 1986.
12 th July 1978	Peter Charles Stephens	Peter Charles Stephens		Certificate of Title. Vol. 11084; Fol. 86.
3 rd September 1984	Stirling Bernard Butchard and Barbara Denise Butchard	Stirling Bernard Butchard	First trading weekend for the Butchards was Easter 1984	Certificate of Title. Vol. 11084; Fol. 86.
October 1988		Stirling Bernard Butchard	Last drinks and hotel de-licensed. The licence was subsequently sold and later transferred to Terry Hills in Sydney	Note: Officially the hotel was known as Stammers Hotel, locally it was known as either the Wolgan Pub or the Newnes Hotel. Ref Joe Bird son of previous licensee Jim Bird.
22 nd April 2001	Thomas Ebersoll and Helen Anne Drury.		The former hotel now functions as a general store, information office, kiosk and museum. ²⁴	Lot 9. Deposited Plan 751639. Current Certificate of Title.

²⁴ Following the sale of the licence, the former hotel has functioned as a kiosk, open at weekends, with Allan Watson as the proprietor. The former hotel is now owned by Thomas Ebersoll and Helen Drury. Thomas sometimes has the kiosk open during the week.

6 The Inca Highway

Love a good thriller? I do. Escapist literature can transport you to other worlds. Your imagination can run riot and you are always sure of a return unscathed to mundane reality. Bushwalking, however is not a spectator sport and being sure of a safe return is not guaranteed. I throw these random thoughts around, as I muse on planning a walk to the “Inca Highway”²⁵. No, not the one in the High Andes of Peru, but one that has a mention on a hand drawn map, and is located somewhere in wild country between Glen Davis and Newnes in Central Western NSW.

Such an exotic name conjures up images of pagan gods, sacrifices, precarious tracks clinging to mountainsides in inaccessible places and unsolved mysteries. Well, in May 2012, Bush Club Walks Secretary, and leader of walks into history, John Cooper was scheduled to lead a walk of discovery in search of this fabled trail. An unfortunate injury put John out of action, so with his blessing I took up the challenge.

Two weeks earlier, I had led a group up and along the rim edge of the western cliffs of Green Gully, some 2km to the west, so I was very much aware of the difficulties of the terrain where no one speaks of distances, just elapsed time. Deliberately, we made a very early start from Newnes, and to cut to the chase, the group was finished morning tea at 1000 at Pagoda Lookout, high above the Wolgan River.

The watershed divide between the Wolgan River and the Capertee River was reached at 1015. Photos of brackets, wires and insulators, evidence of the former 11,000 kV power line between Newnes and Glen Davis were taken so that we now had photos of both the former power and telephone lines.

The next section of the walk route from the Wolgan-Capertee divide used a canyons track that follows the main Wolgan-Capertee dividing ridge, generally trending north and then NE. We left this pad at GR 454 281, at 1053. Off track, exploratory walking started now. The ridge shown clearly on the topographic map by a few, simple, 20m contours, was anything but simple. It is heavily dissected as it meanders its way between multiple tributaries to the west into Green Gully and equally complex tributaries to the east that feed into Newnes Canyon and Wallaby Creek.²⁶

Before making the decision to follow the base of the top cliff line, rather than the crest, we took the opportunity to visit the cliff edge a hundred metres east, and photograph the amazing array of pagodas and ravines that are a feature of this landscape. The way forward we chose was a tortuous one, involving many minor ups and downs, views of magic weathered caves,

²⁵ A cave and constructed pathway situated on the Wolgan / Capertee Divide with old internal infrastructure was seen by a bushwalking party led by Barry Higgins on the 3rd October 1977. Barry had likened it to the cliff trails of the South American Inca people and hence so named. Ref: Track notes from Wilf Hilder collection held by Steve Imrie. David Warren Noble also on this walk later added the name Inca Pathway on his sketch map of the area.

A Bush Club walk on the 19th May 2012 to this location resulted in a much more extensive find and research results.

The Newnes Investigation Committee had employed Surveyor Reginald Henry Pocock, who in 1933 compiled contour surveys for works and township sites (future Glen Davis) and also trial lines for a railway and/or aerial ropeway if required. Pocock also recorded that the survey party used a cave to sleep in to avoid the steep walking daily to and from camp.

Mount Morgan Topo Map, cave 459 292. Extensive dry stone walling extends from this cave for about 300m in a generally northerly direction. Ref: Pocock, R. H. Every Day a Picnic. A Surveyors Story. Reproduced within, Stateworks, January / February 1987, pp.28-32.

²⁶ Names appearing on an annotated map from Geoff Jones, Copy Michael Keats collection

and around every corner the promise of yet another stunning view north over the Capertee Valley. These views were enhanced even more by a stop at spot height 873, GR 453 295, and several smaller but very attractive isolated pinnacles.

Stopping at GR 454 291, we spent considerable time, as the sweeping panorama was just so magnificent. This view had everything you could want to see of the Capertee Valley, plus the waves of ranges north across the Wollemi National Park. It also provides one of the best viewing points to enjoy the stately profile of Mount Iris. Away to the north west was the beckoning top of Glen Trig, shown on the map less than a kilometre away, on the ground possibly several hours away. It is that sort of terrain.

At this point, we needed to negotiate a very narrow watershed that separates a dry tributary of Green Gully from a non perennial gully flowing south into Wallaby Creek and Newnes Canyon. To achieve this we needed to lose about 30m in altitude and skirt around the base of an elongated pagoda complex. This was a slow progress as the downside was a steep slope to oblivion while the upside was a pagoda wall with protrusions that required some focused concentration to negotiate. When there was time to look up the views were magic.

Half an hour later after rounding yet another amazing pagoda, a member of the group gave a shout that he had seen something that looked like the evidence we had been searching for. The group pace quickened and, then, through the trees there it was. We could see a dry overhang with its very low, fringing, dry, unweathered stone wall that matched perfectly the website image we had carried with us of the 'Inca Highway'.

Very soon, the group had pushed through the intervening scrub and we stood on the made trail. Wow! This was indeed a magic moment. Here in the middle of nowhere was a cut and prepared trail, which up to now had been a phantasm to be pursued. Once we had our minds under control, it was time to go exploring this amazing piece of industrial archaeology.

In the main overhang section was a crudely constructed, elevated rock hearth complete with charcoal and adjoining retaining walls. An improvised anvil, consisting of a piece of railway line, was attached to a cut timber support with steel nails. Cut forked sticks, now riddled with borer holes, were set up to support working tools. A short length of steel tube, about 45cm long was lying on the hearth. No other tools or metal artefacts were observed.

We now set about following the trail north. What we found was an amazing investment of human activity in constructing retaining walls up to 3m high, a bridle path over a metre wide that we could follow for more than 350m, and rising sharply up a cliff face where it seemed to terminate at a very steep gully, GR 459 294. Here it became frustrating as time was going to limit our further exploration. We had taken nearly four hours to reach this place and it would take close to that amount of time to return. It was now 1230. Daylight would fail about 1700, and well before then the temperature would plummet. We needed to commence our return journey by 1300.

There was no way we could contemplate investing time to visit Glen Trig, however we were absolutely stoked with our discovery. Lunch was a somewhat rushed affair but returning safely to the vehicles before dark was more important.

One of the greatest views of the rock retaining walls of the trail was taken on the exit walk. Knowing what we were looking for we were able to stop at a strategic pagoda and look back

at the sun illuminated cliffs, and trace the built bridle track stone retaining wall as it climbed the cliff face. It is only a short section of perhaps 50m, but the photo is an absolute treasure.

The party returned safely. The real sleuthing now was underway. Emails went out to the myriad people who know so much about so many subjects. These included Stephen Imrie, bushwalker and industrial archaeologist, Mark Langdon train buff and historian, Dave Dash an engineer with a keen interest in old roads and trails, John Cooper a leader of bushwalks into history, Leonie Knapman, social historian and author of books on Glen Davis, and many, many more explorers and seekers of historical knowledge.

The harvest was a rich one. As the suggestions and clues started to come in, I started to piece together a few. From Mark Langdon, the name of the surveyor, R.H. Pocock who, on behalf of the Newnes Investigation Committee, was responsible for exploring and suggesting two possible routes for an aerial ropeway to convey the ore, (kerosene shale) from Glen Davis to Newnes.

From Dave Dash, many items arrived. Initially he drew a profile of a hypothetical aerial ropeway from Glen Davis to Newnes, and plotted it on the 1:25000 topographical map. It aligned perfectly with the observed stone walls we found, Next he located where surveyor Pocock's papers were filed - in the State Library of Queensland, and subsequently he forwarded an extract from 'Stateworks', January – February 1987, pp. 28-32, that included the following paragraph that answers some of the outstanding questions,

"We settled down to work and made contour surveys of large areas for works and township sites (Glen Davis), and also ran a couple of trial lines across the tops to Newnes, for aerial ropeways if required. It was heavy work and we slept in a cave part of the time to avoid the steep walking daily to and from camp..."

After this information was circulated, Stephen Imrie made contact advising that some years ago he had stumbled across the makings of a track near the base of the cliffs south of Glen Davis that disappeared into a canyon. Allan Wells, an experienced bushwalker sent in information about two passes up through the cliffs from Glen Davis that went to Glen Trig, a high point near the retaining walls.

With so much additional information, there was a keenness to return to the area and determine whether we could pick up the Glen Davis end of the "Inca Highway". As it happened, I needed to lead a walk from Glen Davis for another project. It was easy to arrange our commitments so as to camp at Glen Davis and have the benefit of a full day of walking and exploring the cliffs to see whether we could link up what was already known of the "Inca Highway" from the Glen Davis end.

Weather conditions were cold, very cold, during the three day stay. Day 1, it was minus 1 degree at Glen Davis. Fortunately, there was no wind. The first night the temperature dropped to minus four. Days, two and three were similarly cold.

Before retiring the night before, we agreed 0800 as a reasonable time to start. Sunrise was nominally 0640, but effectively much later in camp due to the height of the mountains surrounding Glen Davis. The day dawned slowly as a blanket of white mist enveloped the valley. We almost met our time target and hit the track at 0802. Direction information from Stephen Imrie was carried with us and referred to on several key occasions.

At 0806, GR 464 311, we came across the remains of a stonewalled levelled area, together with one of the steel saddles used as a support for the four inch petrol pipe line that was constructed over 60km from the Glen Davis refinery to Newnes Junction on the Main Western Railway line. The low stonewalls would have been the foundation for a major building, possibly a monitoring station for checking flow through the line.

By 0833 we had started serious climbing and at 0849 reached GR 464 306. The vertical component of our progress increased and slowed our pace. At 0849, we had reached GR 464 306. There was a lot more climbing to do and at 0906, we stopped at a long overhang about a metre high, but more than 5m deep, which extended for more than 20m, GR 462 305. Here we made a fundamental error and headed west when we should have headed east. A reference to Stephen Imrie's notes caused us to back track and head east into a delightful, tree and fern filled ravine. This was entered at 0929, GR 463 305.

This ravine, or small valley, has a floor that maintains a constant grade. It was relatively easy to negotiate after our earlier climbing. The biggest issue was the ferns. These were so dense seeing your own feet was difficult. Towards its elevated, south western end, and headwaters of the ravine, the rate of grade accelerates as it nears the cliff edge. A bit of a scramble is required to reach the edge and gain the stunning views over the Capertee Valley.

Although only 0946, it was decided to have morning tea and really enjoy the view, some 350m above the height at camp. We faced west so we could enjoy the profiles of Mount Canobla and Mount Gungdangaroo. At 1010, it was time to resume climbing as we still had 150m more elevation to gain and a lot of very challenging terrain to conquer.

To reach our objective we needed to once more head east, and subject ourselves to some exposure as the pagoda bedecked tops were largely without vegetation. Fortunately, the 'risers' of the 'steps' of the pagodas were not very far apart and our safety was never in question. When there was time to look, the views north east were magnificent, not only of the distant mountains, but also the nearer topography that shows the extreme dissection of the terrain and the multiple ridges that intervene between any two points. It was no wonder our progress took time.

At 1036, we reached GR 461 301. Here, Brian went up an almost vertical slot to check out the way ahead. From 25m above us he called directions around the nose of the next point, describing the way as, 'an easy step up.' From the top I looked down and let a play of emotions take place, we were at 800m, and the world below was just a very distant place. I was floating on a cloud. I was also wondering later on just how we would go descending...

Now on the tops, we could make better progress, for a while at least, and so headed towards the known north end of the Inca Highway. Interestingly, we crossed one of the highest points on this ridge alignment, 819m, GR 461 299. Here were the remains of a cairn, possibly the site one of the key support towers, suggested by Surveyor Pocock for the aerial ropeway.

We continued our journey south, passing through GR 460 995 at 1130. We were now very sure that the known northern end of the constructed works of the Inca Highway were not too far away. Certainly, those of us who had walked the old bridle track from the Newnes end, 19th May 2012, were now seeing familiar landmarks. With Brian in the lead, we began descending a narrow, twisting defile that would have easily accommodated the bridle track.

At 1137, we came across some hard evidence, a large piece of sandstone that had the unmistakable mark of a blasting shot hole. The nature of the rock surrounding confirmed that this was indeed a man modified pass, location, GR 459 296, height above sea level, 787m. With renewed energy, we pushed on and soon there was evidence of the placed rock edges of the Inca Highway.

We were ecstatic! We had achieved the prime objective of the mission, to find hard evidence of the northern end extension of the Inca Highway. What is now required is to obtain extracts from Surveyor Pocock's field note books, if these still exist. A formal enquiry has been initiated.

At 1150, GR 459 294 we were walking the section of the Inca Highway visited 19th May 2012. Given that it had taken us close to four hours to reach this spot, it was decided to have an early lunch in the cave, GR 458 292. I also ruled out any attempt on Glen Trig or a major different route back to Glen Davis. The issues of daylight hours and cold were uppermost in my mind. At 1230, the return journey began. Most of the descent was a repeat of the ascent path in reverse. There were however, some interesting deviations. In terms of time lines, we reached GR 459 296 at 1249, GR 463 305 at 1424 and camp at 1536.

This same area also features a significant stonewall, about 60m long and 1m high. The purpose of the structure is unknown. It is possibly related to the petrol pipeline operations.

7 The Petrol Pipeline from Glen Davis to Newnes Junction

The published literature about Glen Davis and Newnes is voluminous and several more texts are reportedly in production dealing with new facets of this amazing phase in Australian industrial and social history. One of the major omissions in all these works is any in depth study of the vital link between the production of petrol at Glen Davis and its delivery to Newnes Junction. The story of construction and operation of the pipeline is the subject of this chronology.

Walking the alignment of the route from Newnes to Newnes Junction (or vice versa), little evidence can be found on the ground of the existence of the former pipeline. However, some remaining vestiges of this once vital umbilical link can still be found by walking along the Pipeline Track between Newnes and Glen Davis. It is these residual artifacts, which led to our desire to uncover the story of how the line was built, operated and maintained.

Research into records held by the National Archives²⁷ has enabled this story to be told. Given the exigencies of the time, WWII, the paper trail is remarkably coherent.

We pick up the story starting with a cable from Managing Director Mr. George Davis (later Sir George) to Alfred Fisher, dated 11th April 1939.

“ FISHER. WE ARE CONSIDERING POSSIBILITY CONVEYING 10,000,000 GALLONS GASOLINE PER ANNUM BY PIPE LINE FOR 30 MILES OR POSSIBLY 75 MILES OVER VERY ROUGH MOUNTAINOUS STONY COUNTRY FROM 1200 FEET ABOVE SEA LEVEL TO 200 FEET AT DESTINATION AND CROSSING COUNTRY PERHAPS 2,000 FEET AT THE HIGHEST POINTS. PLEASE INVESTIGATE ENGLISH AMERICAN PRINCIPLES. ADVISE US BY AIR MAIL CONCERNING SIZE AND QUALITY OF PIPE JOINT PROVISIONS FOR EXPANSION TYPE PUMPS APPROXIMATE COST PER MILE AND GENERALLY.”

Fisher, on 13th April 1939 responded, inter alia,

“Assuming you want this information as soon as possible, I have made some preliminary investigations...it is very difficult to give close approximations without having a profile of the country over which the line is to be laid, and very difficult when you give such wide figures as 30 miles or possibly 75 miles... I have checked up with other pipelines in America and have assumed a certain profile for Australia, taking the mean distance of 50 miles.

Regarding the line itself, modern practice is now for welded pipeline which has superseded screw joints of several years ago. Taking the basis of 50 miles as above with a maximum elevation of 2,000 feet, delivery of 10 million gallons per annum could be made through a 3" line for the first 30 miles dropping down to a 2" line for the remaining 20 miles. The discharge pressure of the pump would need to be approximately 1150 p.s.i.”

The letter continues with technical data about pumps and pipe specification. There is also a long section about expansion joints before the section on costs. Fisher writes,

²⁷ Reference National Archives of Australia reference C320, SAB 24.

"3 inch pipe is estimated to cost £350 per mile, and 2" £200 per mile for the pipe alone. The cost of welding was estimated at £65 per mile for 3" and £50 per mile for 2", assuming pipe lengths of 40'".

After considerable debate the board of National Oil determined to source pipe from Stewarts & Lloyds Ltd., in Sydney. Amongst other matters Stewarts and Lloyds were asked to comment on data supplied by others as to the correctness of the specification for the pipeline, including delivery capacity, extraneous stresses on the line, conduction of static electricity and anchorage points. In commenting on internal pipe diameter, Stewarts and Lloyds strongly recommended that the line be 4" diameter for its full length. They also opined that the proposed pump specified was on the small side. This was in November 1939.

The Chief Surveyor, Henry Ramsay in a memo dated 13th February 1940 documents some of the issues that needed to be addressed. Some of the more salient points made were: -

"The total length of the pipe as measured by me is 30 ½ miles. This distance however is measured horizontally, whilst in practice the line will follow the contour of the country. This together with the fact that the route is subject to deviation necessitates ordering pipe in excess of the measured distance. I recommend that 32 miles be ordered and delivered as follows: -

- *Newnes Junction – 20 miles (to be strung along route)*
- *Wallerawang - 7 miles (to be taken to Newnes and strung along railway line to 27 mile mark)*
- *Capertee 5 miles (to be taken to Glen Davis and strung along route to the saddle*

I suggest that the construction begin from the Newnes Junction end to enable the workman to become familiar with the Thermit welding process on the comparatively easy sections.

Anchors. The line has been so designed that anchors will be placed at approximately half-mile intervals. The final positions and the design of these anchors should rest with the field engineer. Expansion joints have not been deemed necessary, as expansion will be taken up between anchors.

Trestling. In several places, trestling is necessary to overcome pockets. I suggest that the rails from the old railway could be cut in suitable lengths and used for this purpose²⁸. Hardwood trestles are not desirable because of bushfires and it appears that the use of rails would be just as economical.

²⁸ Note the remaining trestles located on the Pipeline Track between Newnes and Glen Davis are constructed of 2 inch diameter steel pipe.

Valves. A series of stop valves and non-return valves will be necessary in case of breaks in the line. The design allows for a non-return valve at approximately every mile and stop valves at selected points but not exceeding every 3 miles.

Support. With the exception of approximately 2 miles where the route passes through the forest reserve, it is suggested that the pipe be supported on blocks.

Progress. It is anticipated that approximately half a mile of pipe can be laid in a day on the easy section. The section from Newnes to Glen Davis is very rough and the cost per mile will far exceed that of the Newnes Junction end and the rate of progress will be slower."

The Chief Surveyor's recommendations did not go unchallenged, and on 15th September, Mr. Reynolds, who was employed to carry out the work saw fit to make a statement to his boss about some practical issues.

"As the company will be contemplating putting an hydraulic test on the pipeline I feel it is my duty to report that at present there is insufficient anchorage and restrainers. In the last few miles of welding which I have completed, anchorage and trestles have been put in at the necessary positions. This is in very rough country and the anchors are needed to prevent creeping. Along the 7-mile stretch from Dean (sic) towards Newnes Junction there are no anchors or restrainers and I would suggest that, as there are a great number of curves etc, that I go back and put the necessary anchors in position. Through the forest, a distance of 2 ½ miles the line is underground, even with this the line should have at least three points of anchorage, one at each end and one in the centre. From the forest to Newnes Junction there are many hills and valleys, and the line in its present run is creeping through expansion and contraction. When a line is going to be subjected to a high pressure - it must have something to hold onto and in set position, as it will snake most anywhere being a small diameter pipe. I can attend to this anchorage position myself, but I must have your OK to go on with it. The cost of same would not be great - I have taken the initiative and am putting in necessary anchorage from the gorge to Dean (sic) - a distance of 5 miles."

A secondary but equally important statement is included in the same memo. Reynolds writes

"At present I am using flying foxes to fleet pipes down mountainside. When the line is to be taken up the Newnes side towards Glen Davis, it will be necessary to fox the pipes and materials up the mountainside and I ask that an electric friction winch be made available, transformer be supplied as there will be three distinct fleetings on the Newnes side and three on the Glen Davis side. Hand winches are obsolete for this type of fleeting and too costly in labour. A friction winch used on a good fox will save much time, delay and labour. I sincerely ask you to consider this particular question. Please advise."

The records are silent on the outcome of the matters.

A Departmental Memorandum, dated 13th December 1940 from the Administration Manager, M.R. Blair, to one of the directors, Mr. A. E. Cooper provides an insight into many aspects of the project. The document is reproduced unedited.

"Mr. Ramsay and myself rode over to where Reynolds is constructing the pipeline between Newnes and Glen Davis, last Friday the 6th. On Monday, Mr. Ramsay rode over again to check the measurements, which will be used in this report. I have now to report the following.

On Monday, Mr. Reynolds had constructed the line within 1686' of the south side of the "saddle". He then had to do approximately 1900' across the "saddle" and a further 1200' down the "saddle" and along the bottom a certain distance, which will use up his total of 237 pipes that were in a bunch at Point A on the enclosed blueprint.²⁹ He stated on Friday that this would take him three weeks from that date, which should mean the 27th December, but as the work will be closed over Xmas for 5 days, this should mean that it will be completed by approximately 3rd January. On Friday he had cleared to Point B and it was agreed that he share his moulds, namely 24 each, matches and clamps, 5 each, his crucibles namely 28 each, with us to help us on. We have ordered additional crucibles and moulds. The Thermit I have been informed is practically ordered for the job except for a drum or two which we do not intend to order until the last possible moment, as we do not wish to have any great quantity of this on hand. He also arranged for us to have four of his Welders and we returned him four Labourers. With regard to horses. He has kept one horse and let us have the balance.

With regard to this end. This report will be brought up to date, viz, to 13th December.

From the front fence to point F. there is approximately 132 pipes of which 86 are strung³⁰ and laid, viz, from the tennis court to F. From F. to E. there are approximately 380 pipes, which with the exception of a few are strung. From E. to D. there are 550 pipes, which we are yet to string. The clearing has been done to half way between F. and E.

With regard to the stringing between E. and D. For the moment we are carrying on with three horses but are endeavouring to get rigged up two sets of flying foxes to assist in this matter as we realize that some of the country is impossible for horses, but we do not anticipate holding the welding gang up.

Regarding time to complete. There are approximately 92 welds to the fence. At 40 welds per day this will mean 24 days welding but when we get into the very rugged country our average is sure to drop, that is going on what has happened at Newnes and as we have some awkward country. Assuming we can keep an average of 30 welds per day, it would mean 32 days. Twenty-four days should bring us to 7th January and 32 days should bring us to 15th January; that is allowing for no work between 25th and 29th December and working on

²⁹ Blue print not available.

³⁰ 'Stringing' pipes is to join them together.

Saturdays and Sundays. This figure is a very conservative one and it will be our ambition to fulfill it.

Arrangements have been made at this end as follows. Mr. Ramsay to act as a sort of Clerk of Works and Duthie to be the Foreman and we to carry on until we meet Reynolds, or in the case of Reynolds cutting out first as he should do, that Duthie will hand over this gang and leave Reynolds to finish the balance.

I might also mention that nothing definite has been done or time given as to the testing of the pipeline from Newnes to Newnes Junction and when it will be commenced. Also, what arrangements are being made regarding the testing between Newnes and Glen Davis? With regard to the hook up of the Pump at Glen Davis, this matter is being discussed with Mr. Morgan and he last intimated that we will be able to Thermit weld right up to within a few lengths of the pump as we will be going more than 50' away from any tank or building in which inflammable spirit is kept.

Further to the testing of this pipeline, I would like to discuss what arrangements are being made in regard to valves or breathers in the line so as to avoid any air locks that might occur during the filling of the line. Also I am unable to obtain information regarding the capacity of the pump that will be used for testing this line and the length of time it would take to fill same. There is approximately 40,000 gallons of water needed to test from Newnes to Newnes Junction.

Mr. Frith informs me that the power will be available at Newnes next Friday 20th December."

The testing of the line is foreshadowed in a letter from the Refinery Superintendent, Mr. T.L. Lumley, who wrote to Sir George Davis on 24th February 1941. Lumley wrote, inter alia,

"Most of the material has been received which is necessary to complete the Glen Davis pipeline pump installation and with no further interruptions I anticipate we shall be able to start testing the line around March 17. This date is based on a previous estimate of the three weeks time required for oxy-acetylene welding³¹. We should be able to flush out, test and drain the line of water in a week. This would permit the start of petrol through the line about March 24. With continuous pumping and no interruptions caused by leaks or mechanical difficulties, the pumping should be completed in approximately eleven days.

I am sorry that it will be impracticable to have the refinery operating during the visit of Lord Wakehurst, and I feel that it is most unfortunate that we shall not be in a position to afford the pleasure of having Lady Wakehurst start the Pipe Line Pump. It is barely possible that we could be in a position with the Pipe Line Pump for Lady Wakehurst to press the switch for starting the water through the line."

³¹ There is no record showing when a change was made from Thermit welding to oxy-acetylene welding.

A hand written, single sheet memo, unsigned and undated was found in a file. It contains a wealth of statistics and extraneous matters about the pipeline, some of which are at variance with the facts. Included here are some that are not documented elsewhere.

- Laying began 1939
- Laying completed end of 1940
- Cost of laying £54,000
- Painted 1942 – 1947
- Cost of painting - £58 per mile. Paint say £2 per mile
- Date for painting again 1952 (or earlier)
- When full holds 49350 gallons of petrol at 1000 psi at pump
- When full holds 49350 gallons of water at 1250 psi at pump
- Operating pressures are controlled to
 - Water 1600 psi
 - Petrol 16-1700 psi (capacity at that rate is 3450 gallons per hour)
- Patrolled by S. Grimshaw (Glen Davis to Deane), Richards (Clarence Depot to Deane). Grimshaw resides at Newnes in company house rent-free. Richards resides in Clarence in own house.

Remarkably, there is a record of some preventative maintenance of the pipeline. Details of the content of a “tender document” are set out below. The tender was let by National Oil Proprietary limited and was for ‘Repainting etc. 30 miles 600 yards of 3½” O.D. Mild Steel Pipe running from Glen Davis to Newnes Junction. The terms were,

- 1 Pipe to be uncovered and lifted to convenient height for painting
- 2 Pipe to be wire brushed and scraped to remove all rust
- 3 Pipe to be given two coats of paint – first coat to be thoroughly dry before second is applied
- 4 Pipe line to be re-buried to original cover
- 5 Contractor to take all necessary precautions to protect line from damage – if the line is damaged due to negligence the contractor will be responsible
- 6 Contractor to supply all tools, e.g. paint brushes, wire scraper, picks, shovels etc
- 7 Contractor to carry all necessary insurances
- 8 National Oil Pty Ltd to supply paint and deliver same at following points – Glen Davis, Newnes, Deane and Newnes Junction
- 9 All work to be done to the satisfaction of the Company’s authorized representative
- 10 Company to pay progress payments on work executed, but reserve the right to retain 10% of the total progress amounts until the contract is complete.

Contract price per mile..... £58

Contractors Signature.....G. Beckham

Finishing date.....--/--/48

	1 ton Oaten Chaff	£16-5-0
	1 bag (3 ½) unreadable	£ 1-7-1
	1 bag Bran	13-9
Delivered		£18-5-10

"Service to foam engine	30/- from petty cash"
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"enclosing for your information, a statement covering the data required with regard to our pipeline installed for the transfer of petrol from Glen Davis to our Newnes Junction Depot."

(a)	Length	30 miles, 575 yards
	Inside diameter	Three (3) inches
	Wall thickness	.31 and .22
	Material	Mild steel
	Joints	Thermit welded
		Pressure 1550 lbs sq. in. delivering 55 g.p.m.

- (b) Line runs through private and Crown lands
- (c) Mining Purposes Lease
- (d) Excise Officers control starting and cessation of pumping and daily check quantity leaving Glen Davis and quantity arriving at Newnes Junction
- (e) Two Company Officers are continually engaged in patrolling the line and are in constant touch with terminal ends by a private telephone line, which

75

closely follows the petrol pipeline. Any drops on pressure gauges are immediately investigated.

The reference to a telephone line "which closely follows" the pipeline is of interest to observant bushwalkers who have noticed insulators and other artefacts at various points along the route. We now have confirming evidence in the form of correspondence between National Oil and a Mr. J. Luchetti, Newnes via Lidsdale about this line.

On 7th June 1949, Mr. Luchetti addressed a letter to Mr. Ramsay, Manager, National Oil as follows,

"I have spoken to your caretaker here, Mr. S. Grimshaw re your Company's telephone line between Glen Davis and Newnes. It is in a bad state of repair. Mr Grimshaw informed me that you may consider a tender for the replacement of poles on this line.

In the event of this tender being unacceptable I am prepared to carry out this work on a wage basis. In either case I am prepared to make an immediate start subject to your approval."

The 'tender' as devised by Luchetti reads

Tender for replacement of all telephone poles on the Glen Davis to Newnes Junction Line

Timber: Yellow Box, Stringy Bark, Red Box, Iron Bark of previous diameter and height. All poles to be sealed and treated with Creosote white ant repellent

Holes: All holes to be 4 feet 6 inches in depth

Spacing: the present spacing of 35 to 36 poles per mile to be adhered to.

Installation: All insulators to be fitted and present lines affixed

Price: £15:15: 0 per mile.

Payment: Payment on the satisfactory completion of each (3) three miles

Luchetti was not one to let such an opportunity pass and when there was no reply within a year, he wrote again (5th July 1950)

"In the event that your telephone communication between Glen Davis and Newnes Junction is kept open you will be finding it necessary in the near future to replace poles on this line. Your line between the old works at Newnes and Deane Siding are in a particularly bad state of repair.

If it is your Company's intention to replace these poles I would very pleased to submit a quote for the work.

I would be pleased if you could inform me if such is your intention so that I may make a tentative arrangement for additional labour."

There must have been a bit of staff turnover at National Oil and the reply to Luchetti dated 18th July 1950 was written by C. J. Norcross (Production Superintendent) on behalf of S. Christie, Managing Director. In part the letter reads

"We acknowledge receipt of your letter of the 5th July and note that you are interested in tendering for the reconditioning of the Newnes telephone line, including the replacement of poles

I intend to inspect the line as soon as possible and should a decision be made to carry out reconditioning work by contract, I will advise you accordingly."

The records are silent as to what happened to Mr. Luchetti's proposition.

Finally the Commonwealth of Australia Year Book; No. 53, 1967, p. 787 succinctly, in two paragraphs tells the whole Glen Davis story from the time the Commonwealth became involved to the closure of the works.

"In 1937 negotiations were completed between the Commonwealth and NSW Governments and the National Oil Company Pty Ltd by which the latter company undertook to develop the shale oil industry in the Newnes – Capertee district. The Commonwealth Government agreed to protect the industry by exempting from excise, up to 10 million gallons annually the company output of petrol for a period of 25 years. Production of petrol from crude oil commenced at Glen Davis near Newnes in 1940.

In January 1951, the Commonwealth Government announced that in view of the continuing uneconomic operation of the project, its small contribution to Australian Petroleum supplies, the doubtful prospect of raising production to a considerably higher figure and the urgent need for miners in the black coal industry it would close down the works completely as soon as possible. In September 1951, the Government appointed a receiver in National Oil Pty Ltd, the company, which has operated this project. Operations were continued on a restricted basis but ceased entirely on 30th May 1952. A total quantity of 26,034,403 gallons of petrol had been produced at the time of closing the plant."

The records in the National Archive in Sydney are silent on the matter of the decommissioning of the pipeline and subsequent sale and disposal of the infrastructure.

Appendix

Copy of a memorandum from Secretary to Cabinet to The Secretary, Department of Supply & Shipping dated 22nd June 1943. Agendum No. 442: Shale Oil Industry – Glen Davis and Baerami Fields

I desire to acknowledge the receipt of your memorandum of 18th June 1943, No. M5/1, regarding a Cabinet Agendum dated 1st February, 1943 by the Minister for Supply and Shipping on the above subject, and to inform you that the decision of Cabinet in this matter was conveyed to the Treasurer and the Minister for Supply and Shipping on 3rd February.

The decision of Cabinet was that £500,000 should be made available in accordance with Recommendation No.1, namely, that the present scheme at Glen Davis involving the production of from 9,000,000 – 10,000,000 gallons of petrol per annum be brought to completion as early as practicable; this involving the provision of an additional £1.2 million (£1.8 million having been provided already).

Cabinet decided also that a resolution be prepared and submitted to the Parliamentary Standing Committee on Public Works requesting that body to go into the whole question of production of Shale Oil.

7 The War of the Wires – The Newnes Telephone Service(s)

In Taylor, G. J. Newnes, History of a Blue Mountains Oil-Shale Town there is a reference to the telephone service on page 34, "The post office was moved to a building next to Mr Tweedie's store, Mr Tweedie being appointed allowance post master, on 9th November 1915. However people found complaint with the new position. A letter written in 1917 stated 'in its present position, when using the telephone the whole people of the town knows your business because standing on the street every word can be easily heard, and next door is a hop beer shop and a billiards saloon.'

Page 43 of the same text records, 'the population of Newnes was virtually deprived of communications with the outside world. The town's telephone services having been removed in 1928...' On page 51 the text quotes the Sydney Morning Herald, 16th July 1938, p.13, col. 7; Titled Ghost Line, by N.M. Goddard "... Telegraph poles have fallen and the lines lie broken and twisted..."

On checking the text of "The Wolgan Valley Railway – Its Construction" by Henry Deane, there is a single reference on page 23.

"A separate telephone line has been provided for railway working and in accordance with the conditions laid down in the lease, namely that traffic is to be conducted with the approval of the Chief Commissioner, steps have been taken to install the staff and ticket system."

Since Brian and I started walking this area, it has been our practice to document any evidence of the former telephone systems. The following paragraphs are taken from a six separate reports from 2004 to 2010.

"The return journey was made eventful by the discovery of a whole range of insulator fragments at intervals along a distance of about 300m together with a threaded 'coach screw in' support bracket for insulators carrying a telegraph line. These finds lock in well to other similar finds on previous walks including rotting support poles and wires down an alignment into Constance Gorge, together with others along the cliff line east and north of Constance Gorge. It is yet to be proven but I am of the opinion that one of the two telephone services between Newnes (and later Glen Davis) and Newnes Junction on the Great Western Railway Line followed this route, crossing Constance Gorge. It is significant that David Noble on his 1988, "Wolgan Canyons Sketch Map" shows old ladders on the eastern side opposite the logical crossing point. These ladders would have served as service access to the telephone line."

"After lunch we enjoyed about 25 minutes of open forest walking to link up with the now accepted exit route, at approx GR 440 219. The track is an easy grade all the way and zig-zags back and forth. As we approached the major cliff line, Melissa called out that she had sighted 'some bones.' These proved to be pieces of an insulator. Interestingly as we ascended more pieces were found, some complete with galvanised fittings that would have screwed into trees or posts."

"As the final ascent was reached more insulators were sighted and a look over the cliff showed a section of the old line complete with wires and insulators screwed into trees

some 30m below. Took photos and also had a good look down the continuity of Constance Gorge to Zobels Gully. It would make sense that this would be the remains of the telephone line service between Deanes Junction and Newnes to signal to train drivers about train movements".

"Later, on the crest of a pagoda on the ridge (approx GR 439 219) we came across a fallen post with insulators, dual service wires and anchor guy wires. I re-erected the post and some guy wires to take a photograph. This is a little piece of history. It is amazing that this post installation and all its attachments have survived so many decades of weather and bushfires."

"I reflected on the 3rd January this year, 2009, on a walk led by John Cooper to Tiger Snake Canyon, I recalled during our exit walk via Constance Gorge, finding evidence of an old telephone system that probably was part of the communications network for the Wolgan Valley Railway, or maybe for the post office at Newnes. Below is an extract from the report.

"As we climbed the last few metres we all noted a broken porcelain insulator complete with a galvanised mounting bracket. A small mystery. What was it doing here? Scouting about for another perfect picture of the cliff line, including rock lilies in full bloom, I found another. Later on in course of the walk up to the top more insulators were discovered complete with heavy -duty wire. There appeared to be an alignment in their position as though there had been a communication line down into Constance Gorge. I speculated on an installation connected with the Shale Mining operation at Newnes".

"The hot walk back to the car some 4km to the south then got underway. Had an interesting find at GR 436 205, an insulator fragment, again very possibly from one of the telephone lines to Newnes. I will have to research my reports of this area and plot the sightings of telephone lines. It may be possible to reconstruct possible alignments of the service that includes sightings east of Zobels Gully on the cliffs west of Constance Gorge (also on the cliffs) and fragments found on trees on the Old Coach Road. A walk with a few people fanned out over a 50m width should discover more clues."

"Soon after began to notice evidence of an old telephone line³³ – piles of rocks that would have supported the rather flimsy and improvised 'telegraph' posts, broken insulators and a threaded shaped galvanised steel insulator bracket, (GR 435 208 for the bracket). During the course of the walk, more evidence was noted, particularly on open rock platforms where collapsed rock piles indicated where they were used to support the telegraph posts for the line.

"At 1300 the scrub gave way to an extensive rock shelf, GR 444 230. Also, we came across a large pile of rocks that had to be man assembled. Was it an Aboriginal site? If it was then this was a special discovery. Finding several more such piles raised doubts in my mind and then the finding of a piece of a broken insulator meant we had found another section of the old telephone line to Newnes.

³³ It is known that a separate telephone line to the Wolgan Valley Railway line was constructed to Newnes. There is evidence that the line followed the ridge crest of Constance Point and crossed over Constance Gorge at the watershed before continuing north along the Island Mountain ridge and down into Newnes.

A day was set aside to work in the National Archives at Villawood. The following notes are a distillation of that research plus other materials from my own library.

Surveyor, John Haydon Cardew, in early 1906 completed a trial survey for the Wolgan Valley Railway Line. This surveyed line, whilst being a direct route, required the construction of a steep rope incline between the railway terminus proper on Island Mountain and the Newnes No.1 Line Tunnel. Subsequently Engineer Henry Deane, wrote of this option,

"For the connection between the top of the spur and the valley, it had been proposed to construct a rope incline. The terminus of the railway proper would thus have been at a high level, about 1200 feet above the Wolgan River³⁴".

Although Cardew's survey line was abandoned because of the additional handling involved, it did provide the most direct route and therefore suitable for a telephone service. The author's have corroborating photographic evidence that this route was used for the Newnes – Newnes Junction telephone service. This evidence ranges from an almost complete telegraph pole with insulators and wires attached to insulator fragments, brackets and rock piles along the route that once supported telegraph poles on hard rock surfaces.

The story behind the field evidence has been uncovered from records in the National Archives³⁵. The telephone line from Newnes to Newnes Junction was erected by the Commonwealth Oil Corporation, circa 1907, concurrent with the construction of the Wolgan Valley Railway line. The telegraph poles initially carried only the private lines of the Corporation.

In 1912, the Commonwealth Oil Corporation went into receivership and the business was taken over by John Fell & Co. On the 9 August 1915, an operating agreement was signed between John Fell & Co (JFC) and the Postmaster Generals Department (PMG). According to the agreement, the existing telephone poles between Newnes and Newnes Junction would carry the PMG wires in addition to the private lines. The PMG would pay JFC one pound (£1.) per mile per annum for the use of the poles. The maintenance of the poles would be the responsibility of JFC, however the PMG would maintain their wires and insulators at their own cost.

JFC closed operations in Newnes in 1923 and the town, industry and commerce declined. By 1931, the telephone lines had fallen into disrepair, and their maintenance was in the hands of the Shale Oil Development Committee (SODC) that had eventually taken over the works from JFC. The SODC's mandate was to put the shale oil works back into production. The repair of the telephone lines between Newnes and Newnes Junction was one of the important services that required attention to enable the successful redevelopment. However, the PMG Department had been negligent in their responsibility to maintain their portion of the wires³⁶.

It was under these circumstances that a virtual warfare developed over the maintenance of the telephone lines between the SODC based in Newnes and the PMG Head Office in Sydney.

³⁴ Jones Incline is shown as 1,200 feet and Cardew's Incline as 1,400 feet.

³⁵ Shale Oil Development Committee papers, 1915-1932, National Archives of Australia, A637, S32. 9th August 1931, pp 42-45

³⁶ Op. Cit. 20th July 1931, p.45

On 20 July 1931, the Committee Secretary, D. J. Davies wrote to the Postmaster General's Department in Lithgow,

'...the Department wires are at present all over the ground and it is quite evident that their weight in the past proved too great a strain for the poles.'

It is clear that Mr. Davies was using a bit of exaggeration in order to build a case as it is unclear how much more strain a few extra wires would exert on the poles that must carry the SODC private lines anyway.

Davies then comes straight to the clincher,

'If it is the intention of the Department to continue attaching their lines to these poles, then my Board considers that the Department should materially assist in the cost of repairing the line. We ask that this matter be considered as early as possible and a reply given, as it is our intention to proceed immediately with the repair of our own line by the use of light poles sufficiently strong to only carry our own line.'

In other words, 'pay up or else lose your lines'. The letter stirred things up as its receipt was acknowledged by the PMG Lithgow office the following day and the matter was immediately, referred to the Divisional Engineer 'for attention'³⁷.

However, the Postmaster General's Sydney office had other ideas. The letter of reply dated 5 August 1931, states³⁸:

'...it is not this Department's intention to recondition the trunk line between Newnes and Newnes Junction. The cost would be excessive and needlessly undertaken, in view of the fact that the existing arrangement of utilising Lithgow 160 private service for the limited telephone needs of Newnes is reasonably meeting requirements. Any necessary steps will be taken to dismantle and recover the trunk line, which is the property of this Department.'

SODC immediately got on with the job of repairing the telephone line without PMG assistance. On 9 August 1931, 4 days after receiving the PMG letter of refusal, Davies sent a reply to the PMG office in Sydney stating³⁹,

'My Board already has men actively engaged in replacing the necessary poles.'

He was also keen to point out once more that the

'present work done is to replace with poles only sufficiently strong to carry the private lines. Doubtless you are aware of the great wind stresses which this line carries through its unique position. Hence it will not be possible to allow the Department to install their additional lines on the poles now being erected.'

Davies must have been in a similar position as he continued in the same letter,

³⁷ Op. cit. July 1931 p. 44

³⁸ Op. cit 5th August 1931, p. 43.

³⁹ Op. cit 9th August 1931, p. 39

'In your letter you speak of the existing arrangement of utilising the Lithgow 160 private service...but my Board has no knowledge of any...arrangement.'

Obviously concerned about the level of telephone service with the present arrangement, he concluded,⁴⁰

'As this Committee proposes restarting the mine and works on a trial to establish the economics of the industry, and there will thus be a large number of men in the Valley, we are anxious to see that some arrangement exists whereby their urgent telephone needs will be met.'

At the same time as proceeding with the works on the telephone line, Davies sought advice from a local works employee, T.V. Wilson, about the situation. The advice came in the form of a letter. The letter seems to contain a great deal of useful insider advice about dealing with the PMG. Davies' reply to this letter also mentioned Wilson's son as the person employed by SODC to cart the timber for the poles. Wilson had also enclosed with this advice a copy of the contract of 1915 between the PMG and John Fell & Co. The reason Wilson was so familiar with the workings of the PMG office is apparent upon the examination of another source.

The reply from the PMG of 13 August 1931 admitted that indeed⁴¹

'there is no agreement between this Department and any second party for the use of the service Lithgow 160'.

It continued,

'Mr Wilson, an officer attached to the Works at Newnes, acts also in the capacity of Allowance Postmaster and has used his service, Lithgow 160, to meet the very restricted telephone needs of the Newnes residents.'

It is evident that Lithgow 160 was simply a SODC Works telephone number of Wilson who also happened to act in the capacity of the local Postmaster for the PMG. Mr Wilson was using the SODC line for the business of the PMG as he was an employee of both!

This is confirmed by an angry Mr E. S. Miller, Works Supervisor, at Newnes. This is documented in his letter dated 21 October 1931, referenced in full later.

In the opinion of the PMG, the telephone needs of Newnes residents were 'very restricted', therefore a single phone will do Newnes residents just fine particularly as

'the expenditure of a sum estimated at between two and three thousand pounds in providing standard trunk facilities cannot be justified.'

⁴⁰ Op. cit. pp. 40, 41, 36:

⁴¹ Op. cit. pp. 35 (13th August 1931)

However, that version of reality of Sydney based PMG officials, was far from the situation on the ground at Newnes. The SODC in an effort to revive the shale works operation had more and more people coming to stay in the Valley every week. Within two months⁴²,

'the very restricted telephone needs of the Newnes residents' have grown to such an extent that the situation became unbearable'.

Miller, described it thus:

'The district is rather far-flung, and with urgent telegrams arriving; no fulltime official at the post office; it has so often been necessary to send a clerk – sometimes to the post office distant 1.5 miles from our works office, sometimes to deliver the telegram to the addressee – that our own office matters have thereby been seriously handicapped.'

Then, as often happens in life, no matter what inconveniences there were for the business and the public, it was a personal insult from the PMG that became the last straw. The private phone listing of the Works Supervisor E. S. Miller was excluded from the PMG's annual Country Telephone Directory because Miller's confirmation was sent one day too late (it was actually received two days after the entries closing date).

The letter to Miller from the PMG of 23 October 1931 has survived and is a cold bureaucratic missive telling him that

'any inconvenience which may be experienced by you is regretted.'

At that time, the telephone was a key means of communication, particularly in the country areas. Miller hit the roof! On the 29th October, he told the Postmaster at Lithgow (by phone?) that

'it could no longer be possible to accept and dispatch telegrams for the residents of Newnes township and district over our private line (Lithgow 160)'.

This was followed by a brief written advice. On the 31 October, Miller sent a long and angry letter to the Deputy Director, Posts & Telegraphs in Sydney

On Thursday 29th instant the Postmaster, Lithgow, was advised that it could no longer be possible to accept and dispatch telegrams for the residents of Newnes township and district over our private line (Lithgow 160), and as this will involve great hardship on the business and private community here, the facts leading to the decision are recounted for your information.

The number of telegrams arriving, and telephone calls made by the public, during the past few weeks has caused such interference with the routine of our office work that the service can no longer be given gratuitously. The district is rather far-flung, and with urgent telegrams arriving; no fulltime official at the post office; it has so often been necessary to send a clerk – sometimes to the post office distant 1.5 miles from our works

⁴² Op. cit. pp. 22-23 (21 October 1931)

office, sometimes to deliver the telegram to the addressee – that our own office matters have thereby been seriously handicapped.

The line Lithgow 160 passes for 34 miles from your Departmental wires at Newnes Junction to Newnes, and this line is solely maintained by us. Years ago an agreement existed whereby your Department paid a rental for the use of poles and erected thereon two departmental wires to Newnes Post Office, but this has long lapsed.

When the Shale Oil Development Committee Limited took over this plant it was apparent that some hundreds of pounds expenditure was necessary to replace over 200 poles and repair our line over the 34 miles, and as your department wires were down on the ground for miles a letter was written asking your co-operation and financial assistance towards the work. To this a reply was received, regretting that your Department could not spend any money, and requesting the continuance of the custom whereby all telegrams were received and sent over our private line without a penny contribution by your Department.

Further, the post office building at Newnes – one of smart appearance, with size and convenience – is the property of the works here, yet for many years your Department has paid no rental. Again, a telephone installed therein, and connected with our works system, is not your property, altho' used for convenience of Dept. business, without contribution of any rental by the Dept.

These, and numerous other concessions, have been enjoyed by your dept., yet your Sydney Officials seem strangely adverse to assisting us in any way. A sample of this attitude may be instanced in the recent letter (23 Oct) received by the writer from VE Butler for Deputy Direc. Posts & Telegraphs, wherein that gentleman gives the information that although my letter arrived only a day after the 'official' closing of notices for alterations in the Nov. 1931 issue of the directories (and in the letter the urgency of the request was stressed), your Department could not waive even so formal a point. 'and no action would be taken by the Department until the November 1932 issue.' It is thereby quite apparent that serious business inconvenience to us for a mere 12 months is a matter treated lightly.

Whilst the Sydney Officials take the attitude complained of, the local Lithgow Departmental Officials have invariably shown every consideration and courtesy, and both from the postmaster and his staff the works management here acknowledges every possible assistance.

Yours faithfully

*ES Miller
Supervising Authority*

On the same day, Miller sent a letter to his Sydney boss, D. J. Davies, advising him of his decision to discontinue supporting the PMG service. It then said⁴³,

'Mr Wilson, who has now given up the postmasters job (Wilson resigned or probably was told by Miller to resign on the 28 October, in the middle of the upheaval), entirely concurred

⁴³ Op. cit. p. 21 (31 October 1931)

in the action outlined.' I don't think poor Wilson who had been 'working for the enemy' had much of a chance of keeping both jobs, given the circumstances of the past few days.

In defence of his action, Miller adds,

'...at a meeting held in the Township a motion was passed urging that some action be taken to force the hand of the Postal Authorities. Two representatives of the business community here were deputed to come and see me, and they also concur in the letter I have sent to the Postal people.

As Mr. Chifley (i.e. Ben Chifley, the future Prime Minister and the local MP at the time) is also to be approached and requested to push the postal authorities I have sent him a copy of my letter, with some personal explanations.'

A number of meetings were held during November 1931 between the SODC and the PMG, trying to determine the way forward. Finally, a proposal was sent by the PMG to SODC on 9 December. It stated⁴⁴,

'Apart from the acute shortage of funds for trunk line construction work, there is also the question of the stability of the industry at Newnes, entailing as it does maintenance of present numbers and possible development of the community, or the less happy alternative of evacuation. Until there is some reassurance concerning this matter, heavy expenditure on telephone facilities would not be warranted.'

In the meantime, the PMG compromise proposal was to utilise a second circuit over the existing physical wire (Lithgow 160 service), to carry the additional traffic⁴⁵.

'It should be understood that the proposed circuit would not be physical and would not entail the erection of additional wires along the route.'

Unfortunately, after the burst of economic activity in the beginning of the year, the hopes of Newnes revival were proving to be short lived. This was due both to the shortage of capital and the world depression at the time. A handwritten note by D. J. Davies, on the margin of a formal letter to the PMG of 18 December referred to the PMG telephone service proposal and stated⁴⁶,

'Newnes office recommends that nothing should be done in this matter until definite plans of future ownership of Newnes are determined.'

By early 1932, SODC was in negotiation with the Commonwealth Government and a private company regarding the future of Newnes leases. On 16 January 1932, a second letter arrived from the PMG enquiring about the telephone decision. On the margins, there is a later handwritten note by Davies stating again that

⁴⁴ Op. cit. p.17 (9th December 1931)

⁴⁵ Op. cit. p.11, 16 January 1932:

⁴⁶ Op. cit. p.16, 18 December 1931:

'no arrangements should be made with PMG Department pending decision re intended control of Newnes.'

On 30 June 1932, the Newnes Works were indeed handed over to a private company operated by Messrs Treganowan and Chambers under the name 'Australian National Shale Oil Company'. That company survived for a short time only until 1934 when the works again closed.

On 27 July 1934, the following short article appeared in the Sydney Morning Herald:

'TELEPHONE SERVICE SOUGHT

An agitation has begun at Newnes for a public telephone service. The only telephone in the Wolgan Valley is a private one, located at the oil shale works about a mile from the village.'

This confirms that there was no further progress in the matter by that time.

On 7th September 1938, another article appeared in the Sydney Morning Herald that mentioned a new planned boost to the oil production and that 'Glen Alice is to be linked with Wolgan Valley by telephone, and later a cable is to be laid to the site of mining operations'. These plans did not come to fruition.

No further information regarding the future of the Newnes telephone service is known. Presumably, it fell into disrepair with the decline of the township and its population.

A Sydney Morning Herald article of 16th July 1938 (quoted in G. J. Taylor's book it is dated 5th March 1937 but I have found the original item dated 1938) titled 'Ghost-Line Wolgan Valley Railway. 'Death in the Bush' by N. M. Goddard states,

'The railway had its telephone and telegraph lines for traffic operation...Today, ...telegraph poles have fallen and the lines lie broken and twisted...'

It is not clear whether the above telephone service(s) were the only ones in operation.

9 The Glen Davis Water Supply

Just as the Wolgan Valley Railway changed the landscape and the social and economic fabric of the Wolgan Valley, so also did the construction of the water supply pipeline from the Fish River Dam to Glen Davis, impact on the Capertee Valley and the amenity of Glen Davis.

The board of the National Oil Company explored a number of options to secure the water needed to operate the refinery operation at Glen Davis before the Fish River Scheme, championed by the Commonwealth Government became a reality. One of the documented options that never eventuated was known as the Wollangambe Creek Scheme. To this end, the board engaged a firm of consulting engineers who, in 1939, produced the following hypothetical profile of a water supply dam on the Wollangambe Creek (now the Wollangambe River), near Mount Wilson.

<i>Source</i>	<i>The Wollangambe Creek, behind Mount Wilson</i>
<i>Catchment area</i>	<i>30 sq. miles</i>
<i>Ordinary water flow</i>	<i>1,000,000 gallons per day</i>
<i>Present storage</i>	<i>Nil, except for pools in creek, about 1,000,000 gallons</i>
<i>Proposed dam</i>	<i>110 ft. high, storage 1,700,000,000 gallons</i>
<i>Method of supply: Pumping 1250ft to balance tanks on Watertrough Hill and gravitating thence to Hartley Vale Railway Station whence one branch of the gravitation proceeds to the Blue Mountains area, and the western branch proceeds to Glen Davis, via Lithgow, Wallerawang, Portland, and Cullen Bullen.</i>	
<i>Pipe line sizes and capacities of balance tanks, pumps, etc, based on peak draw off of 120 gallons per head per day, local municipal supplies to be utilized for remainder of peak loads. Supply assumes for Glen Davis 1,000,000 gallons per day.</i>	
<i>Estimated cost:</i>	<i>£600,000</i>

Time of operation: Provided all materials were made available when required, and permission given to let contracts quickly, it is considered that by constructing coffer dams upstream of the proposed site, and the minimum flow of the creek would be collected and distributed to Glen Davis in twelve months from commencement, and in the meantime the permanent dam could be constructed downstream.

The covering letter from the consultants reveals that this proposal received serious consideration and involved the NSW Department of Public Works, the interested local councils and NSW Railways. The NSW Railways had, when approached about the proposition prior to the outbreak of WWII in 1939, offered to supply the required electric energy for the scheme, provided it was taken 'off-peak'. The quoted price was 0.4 pence per unit. The viability of the Wollangambe Creek Scheme was dependent on this cheap energy.

In January 1942, when the need to have a guaranteed water supply for the Glen Davis refinery was a critical infrastructure issue, NSW Railways were unable to sustain the 1939

offer- all surplus energy generation having been 'sold' to the munitions industries in Lithgow – an equally vital requirement.

In declining to support the earlier offer, NSW Railways went further in advising that unless it was a matter of dire emergency, and ordered by the Commonwealth Government to do so, then they could possibly transfer 50 kV over the transmission line from Sydney. The consulting engineer in commenting on this situation pointed out that a minimum of 60kV was required for the full scheme to be economical.

The board of National Oil determined not to pursue this option. Had the work proceeded in 1939, the landscape west of Mount Wilson would be a very different place today.

To understand why the Fish River Water Supply Scheme and associated pipeline was built, some brief history is in order. A useful starting point is 23rd October 1943. On that day, an official ceremony took place on the banks of the Fish River, near Oberon marking the commencement of construction of what is known as the Fish River Water Supply.

The scheme came about because of the convergence of long term water demands with the dramatic events of international affairs of the time – WWII - and the threat of disruption of Australia's petroleum supplies from overseas. Glen Davis shale oil represented the then only known possible source for Australia to produce its own liquid hydrocarbons. The plant as designed required 1 million gallons of water per day quite apart from the needs of the town population.

The petty politics of the scheme with its multiple end user demands encompassed all three tiers of Government, the biggest brouhaha being who would pay for what. In the end, the Commonwealth Government (Australian Taxpayers) stumped up with the lions share as the strategic necessity to have sufficient water to operate the Glen Davis shale works – then trading as the National Oil Company. Quite apart from the construction of the dam and pipeline, the Commonwealth Government was a one third stakeholder in National Oil, the ill fated successor to the Commonwealth Oil Company, which had failed many years earlier.

The vision to build a dam on the Fish River to secure water supplies possibly may lie in a succession of engineers reports commencing in the late 1930s, starting with Reginald Thomas Hole, Local Public Works District Engineer (March 1939), Gerald Haskins of Haskins, Davey and Gutteridge, consulting engineers engaged by Oberon Shire Council (May 1939) and Stephen Jones, Public Works Department (1941). Each of these issued reports in favour of constructing the dam, however with different objectives. The real visionary credit for building a dam should probably go to Mr. Moloney from the Oberon Post Office, who saw the potential a lot earlier.

The Haskins Report recognized that the site had the potential to go well beyond just meeting the water needs of the residents of the Oberon Shire. This report went through a number of iterations and emerged as a Public Works Department report attributed to Stephen Jones. This version envisaged pipelines to supply water to Wallerawang, Lithgow, Portland and Glen Davis. In 1941 it was estimated the Dam would cost £161,544 and the pipeline network £300,000.

Early in 1942, the Commonwealth Minister for Supply and Shipping, John Beasley reiterated the gravity of the situation facing Australia and advised the Parliament,

"The need for petrol from indigenous Australian sources is such, however, that the Government feels impelled to proceed with the reconstruction and completion of the Glen Davis enterprise, in spite of the heavy expenditure to be faced ... The urgent need for increasing local supplies has been impressed upon me recently [February 1942] by a Mission sent to Australia from Washington by the (USA) Board of Economic Warfare."

The subsequent collapse of Malaya, the surrender of Singapore and the Japanese bombing of Australian towns added to the sense of urgency and strengthened the case for the Fish River Water Supply Scheme.

Despite these exigencies the collective governments still haggled and bickered about who was to pay, meanwhile costs continued to rise. Even before the project commenced costs had effectively doubled. There was little room for Canberra to move. A War Cabinet Minute records,

"The scheme is essential to the development of the Glen Davis shale oil enterprise and if the latter is to be proceeded with, there appeared no option but to accept the increased liability."

Canberra was interested in the Fish River Water Scheme solely because of the Glen Davis project, which, in turn was only important because of the war. Work finally commenced on 29th June 1943⁴⁷.

It is worth quoting from McLachlan, Robin. Let's have Water. A History of the Fish River Water Supply, 1997.

'As early as December 1944, only after 18 months, the Commonwealth Government was becoming aware that the Glen Davis shale oil project was an expensive, economically unviable and increasingly unnecessary project. But as often happens with governments it was easier to continue than to admit a mistake. The end of the war weakened the strategic argument for Glen Davis; the return of cheap oil from overseas sources eliminated any economic rationale for its continuation. In the early 1950s, the Liberal government in Canberra finally closed down the shale oil project. All up, including National Oil Company trading losses and the Commonwealth share of the Fish River Water Supply, the Glen Davis project was estimated to have cost taxpayers some £4 million.'

Importantly the water pipeline would never have been funded by the Commonwealth if not for the Glen Davis Project, and the perceived role it had for securing Australia's fuel supplies in the crisis times of WWII. The water pipeline to Glen Davis is still fully operational even though the principal customer is now Mount Piper Power Station, not the Glen Davis Oil Refinery as originally envisaged.

Bushwalkers today encounter the pipeline at a number of 'pressure reducing stations', notably at Baal Bone Gap and Canobla Gap. It is a marvel of civil engineering that with the construction of a 1.1km long tunnel near Hampton the water supply is delivered all the way to Glen Davis by gravity. The length of the pipeline from Oberon to Glen Davis is 104.1

⁴⁷ The difference between this date and the 23rd October 1943 was to provide for some work to be seen by the visiting dignitaries.

kilometres. The line reduces progressively from Oberon where it is 500mm diameter, to Glen Davis where the last kilometre is 100mm diameter.

The Glen Davis Reservoir is 4.5ML capacity⁴⁸, originally constructed to meet the needs of the refinery as well as the town. Arguably, the residents of Glen Davis enjoy the most expensive water supply in Australia.

⁴⁸ The National Archives (reference National Archives of Australia C320, SAB24) in Sydney also record a win for the National Oil Company's request for an increase in the size of the service reservoir to be built at Glen Davis. In a letter dated 6th June 1944, Mr. A. V. Smith, Secretary of the Department of Supply and Shipping wrote to the Managing Director of National Oil in very formal terms. "In reference to your letter of 3rd ultimo, submitting the proposal to expend an additional £12,000 in providing a 1,000,000 gallon water storage reservoir in lieu of the 350,000 gallon one originally provided for in the estimates, I can now advise that Ministerial approval to proceed with the work in accordance with your recommendation has been conceded. This additional sum of £12,000 it is to be noted, will increase the National Oil Pty Ltd. Commitments for water supply to an estimated amount of £325,229."

10 The Dam and Pump House on Bungleboori Creek

Staggering isn't it. Did you know there was a time when all three levels of Government in Australia, and NSW in particular all co-operated, and furthermore, acted in the best interests of the citizens at large?

In 1942, such a rare event happened - location, Lithgow. Several major events aligned to make such co-operation essential. Eastern Australia was in the grip of severe drought; Australia was involved in WWII; Lithgow was a crucial industrial hub manufacturing weapons and munitions for the allied forces and the Federal Treasurer of the day was one Joseph Benedict Chifley⁴⁹, Bathurst born and bred. The issue was water supply.

Even more staggering to us today is that Ministers and senior public servants at all levels were not afraid to make decisions and to actually do something. The undertakings given and executed in this story are breathtaking as the Lithgow Municipal Council Minutes testify.

There was no pussyfooting around waiting for interminable reports, no complex tendering process and no political point scoring. It was a halcyon time when elected representatives served the people.

How did this discovery emerge from the dusty archives? It arose from a Bush Club walk led by John Cooper on 6th March 2009. The walk was a circuit that included a visit to the so-called "Shay Dam" on the Bungleboori Creek in the Newnes State Forest. The bushwalking folklore was that this dam was a water source for the Shay locomotives plying the Wolgan Valley Railway line hauling oil and other products refined at the Commonwealth Oil Corporation works at Newnes.

Following this walk and inconsistencies between observed facts and folklore I was determined to find out as much information as possible about this dam, pump house and associated infrastructure on and above the Bungleboori Creek.

Australian Railways Historical Society (NSW Division)

Inquiries were made of Ian Dixon, and David Wynter, Resources Section, the ARHS NSW Division to verify whether there was any known connection between the Clarence – Newnes Railway and the dam and associated infrastructure on the Bungleboori Creek. Extract copies of papers referred to me by Mark Langdon and others were obtained and studied. None of these sources established a relationship between the dam on the Bungleboori Creek and the former Wolgan Valley Railway.

New South Wales Government: Dams Safety Committee

Inquiries were made of this body, the Dams Safety Committee, a NSW government statutory authority created under the Dams Safety Act. Its role (among other things) is to "formulate measures to ensure the safety of dams" and to "maintain a surveillance of prescribed dams" (Dam Safety Act 1978). A "prescribed dam" is one listed in Schedule 1 of the Act. In other words, the Committee has a general responsibility to ensure the safety of all dams, and a

⁴⁹ Joseph Benedict (Ben) Chifley was a Bathurst man born 22 September 1885 at Bathurst and lived in Bathurst until his death in 1951. Chifley House, at 10 Busby Street where he and his wife Elizabeth lived is a popular tourist attraction.

special responsibility regarding prescribed dams. Patrick James, Sydney Bushwalkers referred me to this useful source.

Norm Himsley, Executive Engineer, of the Committee advised no dam on the Bungleboori Creek was ever registered. As far as the Committee was concerned, this dam did not exist.

Henry Deane, Project Engineer, Clarence – Newnes Railway⁵⁰ on water supply for the Shay locomotives

“Considerable difficulty was experienced in obtaining a water supply at or near this part of the line, as the latter follows the top of the spur. A fair supply was eventually obtained at about a mile from Deane Station, where a swamp exists. The gully here has been dammed, and an excavation added to hold a good supply of water. The reservoir thus formed is 200 feet below the level of the engine tank at Deane, and the water has to be pumped up. The plant erected for this purpose is as follows: At the station (Deanes) there is an 8 horse power Cundell Oil Engine, driving by means of a belt, a Siemens Dynamo, which produces current at 500 volts. At the dam, there is a three-throw pump, direct driven by an electric motor. Between the engine house and pump, current is conveyed by copper cables, and there is another pair of wires by means of which, with the aid of a starting switch in the engine house, the pump can be set in motion.

In this way, the pump can be started without the necessity of any man visiting the pump. Labour is thus saved, and the water in the tanks can be replenished without delay. At both station and dam, the machinery is housed in a small building. A line of 3 inch pipes conveys the water from the pump to the engine tank.

In connection with the water supply, an elevated stage has been erected carrying six 400 gallon tanks as at the Junction⁵¹, and there is also a coal stage to carry 50 tons of coal.

Engine sheds have been provided at the Junction, and near the bottom of the steep incline. At the first of these, water is obtained by pumping at the second by gravity. Triangles for turning the engines are provided at both places.”

An examination of the physical evidence at the Bungleboori Creek site, and indeed even the site location are inconsistent with Henry Deane’s paper.

Deanes Siding site visit

A site visit was organised to the former ‘Deanes Siding’ on 22nd April 2009. The most obvious items were examined first – at GR 426 136, 3 of the original 6 x 400 gallon tanks. The remains of these cubic, riveted steel tanks are now located on the western side of the road. There is no remaining evidence of the ‘elevated stage’ they once stood on. The tanks have been severely damaged, probably when moved by heavy equipment but are still identifiable with some of the flange fittings undamaged. A brass buss bar with copper wires attached was also discovered.

⁵⁰ Extracted from a paper by Henry Deane to the Sydney University Engineering Society on 21st September 1910 about water supply for the railway.

⁵¹ Deanes Junction

We recrossed the Glowworm Tunnel Road and commenced a thorough search of the area, still shown as a faint outline on the current Lithgow 1: 25,000 topographic map. From a detailed plan of this area (Portion ML5) from the archives of the NSW Department of Mines, approved 7th December 1907, we knew that in the northwest corner of the approved area there may be evidence of the former motor house and tanks, and near the centre some evidence may still exist of two buildings designated as stores.

Our searching resulted in somewhat meagre finds. The most useful being parts of a heavy duty white porcelain insulator that were probably used to support the electric cables from the motor house to the pump house. These were photographed. Other useful finds included footings for the stores buildings and several kiln fired bricks.

Setting a bearing to correspond with the approved alignment of the pipeline (as per the survey plan) we commenced walking NNE downhill towards the former pump house site. Three of us spread out over a range of about 30m, criss-crossing back and forth as we progressed. Our hope was to find some remains of footings or other supporting structures that may have carried the pipe a flange or other object that would confirm the previous existence of the former pipeline.

The activity was totally unsuccessful. Not one item was found. We can only conclude that when the line was dismantled every valuable item was removed. We did have one success right at the very end of the alignment, just before the 'tank' (excavated dam) and site of the former pump house. A gleaming white object focussed my attention. I went over to it and discovered an almost complete white porcelain insulator about 6 inches high, and next to it a very early design small white glass jar, GR 433 146.

Following this find we moved into the area for a much closer look at what else may be around. Nothing. At least we had confirmation that we were on the alignment and that this was near where the power line and pipeline were built. Another 20m on so and we intersected with the old access road.

Immediately opposite the tank a cleared and levelled area was inspected. There was evidence of building footings, a doorstep and bricks, GR 434 147. Was this the site of the former pump house? - Hard to be certain. An examination was undertaken of the creek, and as described, it had been excavated to create a deep pool about 10m x 20m in size. On the eastern bank a crude stonewall probably supported the suction spear point for the pipeline pump. This is the site described by Deane.

Further Inquiry

Brian Fox, Senior Cartographer, Land and Property Management Authority at Bathurst provided the following information about the dam on the Bungleboori Creek.

- On the Lithgow 1: 25,000 topographic map it has the text, old dam wall on Bungleboori Creek.
- The parish map which covers this area is the Parish of Clwydd; County of Cook.
- The parish map has reference notes as to any additions to this map. The dam wall refers, Lithgow Water Supply. Gazetted 8th November 1946. 4.114ha
- From the dam running in a SSW direction to the Old Bells Line of Road is an easement for water supply pipeline. Gazetted 6th February 1948.

- In the same line as above an easement was gazetted 6th February 1948 for a Transmission Line, halfway up this spur. Gazetted 8th November 1946 Booster Station, 910.5m2.
- From the top of the spur the easement meets ML4. The notes for Mining Surveys indicate ML4 being reserved for railway and pipeline.

Lithgow Local Studies Library

Kay Shirt, Local Studies Librarian, Lithgow Library was of immeasurable assistance in furthering the inquiry. Two main sources were accessed – an historic 16mm film (circa 1942) of the dam and infrastructure (now on DVD) and extracts from the Lithgow Municipal Council Minutes.

Fellow bushwalker and graphic artist, Steve Murray accompanied me to the library and sketched selected still shots from the film. Application was made and granted to the film archive to copy and reproduce several interesting frames.

The protracted drought of the 1940s affected many towns. Lithgow was regarded as a special case as it was the manufacturing base for weapons and ammunition for Australian troops. It was crucial that nothing interrupted the round the clock operations of the Lithgow Small Arms Factory. The Lithgow Municipal Council minutes convey the sense of urgency involved.

1 Minutes 12th January 1942 – Water and Sewerage Committee

“To again consider and report upon the question of instituting emergency measures in the event of a total failure of the Lithgow Water Supply, and to specifically consider alternate sources of supply, such as the water available in the old workings of the disused collieries, Paddy’s Creek⁵², Newnes Junction and Farmers Creek.

The committee reported that on Sunday 4th January 1942, accompanied by the Mayor, and a number of Aldermen and Officers of the Council, an inspection of Paddys Creek was made. The committee was impressed with the volume of clear, spring water available in this creek.

A report from the engineer disclosed that at the present time, approximately 300,000 gallons of water per day is available from this site; that it would be necessary to erect a small weir and to pump the water from Paddys Creek into the top dam at Farmers Creek, a lift of approximately 600 feet. Two schemes are submitted, one providing for pumping 300,000 gallons per day through a 6” rising main. Estimated cost £8,000. The second providing for pumping of up to 750,000 gallons per day through a 9” rising main, at an estimated cost of £12,000. It is estimated that either scheme could be completed within 6 weeks...”

The Mayor reported that in company with the Town Clerk and Engineer, he had visited Sydney on Friday 9th January 1942, and he had met the Minister for Public Works and placed

⁵² Paddys Creek flows into Bungleboori Creek 1km downstream of the dam. The Council minutes incorrectly refer to Bungleboori Creek as Paddys Creek.

the full details of the Bungleboori Creek water scheme before him, and had emphasised the critical condition of the water storage position at Lithgow. The Minister for Public Works adopted a sympathetic attitude towards the scheme, and immediately arranged for a visit of one of his officers to Lithgow on Monday and the Officer had visited Lithgow on this day as promised.

Officers of the Department of the Interior⁵³ had also been contacted in regard to the supply of materials, and with their assistance, the deputation was assured of the supply of all necessary materials, which would enable the immediate commencement of the work.

Contact was also made with the Department of Railways, and their officers had given assurance that they would undertake the construction of the electricity power transmission line on behalf of Council, and supply all materials and fittings incidental thereto. Officers of the Department had on this day, Monday, carried out a survey of the route, and they had since informed him, the Mayor, that they could complete the work within approximately four weeks from the date of commencement.

On Sunday, 10th January 1942, he (the Mayor) had contacted the Federal Treasurer, Mr J. B. Chifley, with regard to the Federal Government contributing towards the cost of the work and the authority of the Federal Government to provide the necessary finance... (In conjunction with the State Government, funding was approved the following Wednesday⁵⁴).

The deal was done on a motion of Alderman Roberts who moved

"that the reports from the Water and Sewerage Committee and the Mayor and the recommendations contained therein, be received and adopted by the Council; that the Council approve of an immediate commencement of the work, and that the matter of arranging details in regard to financing the scheme be left in the hands of the Mayor and Town Clerk to finalise. Alderman Tougher seconded. CARRIED."

2 From the minutes of Council meeting on 10th August 1942.

Received a report from the Water and Sewerage Committee on the height of the wall to be erected at Bungleboori Augmentation Water Supply Scheme and also upon the position of water supply generally.

Significant elements of the resolution adopted at the meeting are recorded as follows

- the storage capacity when full will be 2 ½ million gallons of water which will be sufficient to allow the pumps to operate for four days or more without attention.
- the extra cost of lifting the wall another 10 feet estimated to cost approximately £1,000. The extra cost is not considered justifiable as this is considered only as an augmentation supply and it is hoped that shortly after the cessation of hostilities the Fish River Scheme will be commenced.

⁵³ A Commonwealth Government Department

⁵⁴ Authors paraphrase of several paragraphs

- it is also considered the Bungleboori supply is a pumping scheme not a storage scheme.
- the whole of the work has been completed except for odd jobs that require attention and the bringing away of plant... there has also been installed three pumps, two of 600 foot nominal head in parallel and one booster pump of nominal 100 foot head. These are capable of pumping 750,000 gallons per day and the pumps are well housed.

The decommissioning date of the Bungleboori installation has not been ascertained but probably coincided with the commissioning of the Fish River Dam and pipeline.

11 Gold, Diamonds and other economic minerals

Whilst the Mount Airly is known historically for the mining of Torbanite (Kerosene Shale), Genowlan Mountain is also known for gold and diamonds. Carne, Joseph. *Geology and Mineral Resources of the Western Coalfield*. 1908, p.125,

"Mount Morundurey, Sheet 14, Parish Morundurey, County Roxburgh, a small patch of Olivine-basalt overlying drift has been found on the summit of this Hawkesbury Sandstone Mountain east of the village of Airly, and near Airly Turret. Gold has been worked in the drift, which constitutes part of an old drainage channel; probably a continuation of that noticed under the basalt of Black Mountain⁵⁵ at the north end of Airly Mount."

Carne makes no mention of diamonds being associated with the gold in the drift.

It is interesting to note that during the boom years of Airly as a Kerosene Shale mining town, some miners used their spare time and energy prospecting in the local area for gold. They had success in the most unlikely of places—on top of the Genowlan Mountain plateau some 300m above the valley floor.

What the prospectors came across was a classic 'deep lead.' Deep leads are formed when a basalt flow covers an ancient stream bed, locking in any pockets of heavy metals or gems until they are discovered by man or eroded away by time.

In the 1960s, local Mount Airly identity, Col Ribaux started working on the Genowlan Mountain deposit, initially as a hobby and subsequently as a business. A listed public company, Arrawatta Holdings Limited purchased a major share in the operation and introduced significant capital enabling an increase in the scale of operations. The deposit was soon worked out and the venture folded. The site today is somewhat forlorn.

In personal discussions on 10th April 2007, Col explained that at the peak of production he was earning the equivalent of a "new Holden Car each month."

'Col's former place,' *Airly Mountain* is an amazing array of mining and associated paraphernalia, old machinery and 'potentially useful stuff' to construct and engineer items for meeting the day to day needs of a solo- managed mining operation, with a house somewhere in the centre. To most observers it would be a pile of junk. To Col it is a vast resource that with oxy torch and welder he can solve almost any engineering problem.

Conversing with Col, he presented as a genuine, friendly, slowly spoken, no - nonsense guy; his conversation is larded with a generous amount of Australian vernacular when emphasis is needed. Our conversation was practical. We needed advice on road conditions, what we could

⁵⁵ Also known as Black Corner. Neither name appears on current topographic maps

do and not do on the property, which mines we could visit, where drinking water was readily available and so much more.

When it came to discussion on diamonds and diamond mining, a battered old photo album was produced. In it were pictures of some of the best stones from the several mining sites that Col has worked on the Genowlan Plateau over the years. The pictures were amazing. Uncut stones of 3-5 carats were displayed, each with full notation about weight, size, colour, crystal determination and more. I was privileged to be able to photograph a few for the records.

Visiting 'The mine in the sky,' as it is affectionately known, is a unique experience. The following is extracted from my track notes for 11th April 2007,

"At 0900 we burst upon the scene of Col's 'Gold Mine in the Sky', graphically illustrated in 'The Story of Capertee,' compiled by Bruce Jeffries, page 66. Here time did not matter as we prowled around the old buildings, examined some of Col's hybridised machinery and had a go at trying to find a diamond in the discarded washings. I think we found some very nice clear quartz and that is about it!"

Leaving the gold (and diamond) mine in the sky, pushed north up the old road past heterogeneous collections of disembowelled machinery items and experiments tried and discarded, evidence of Col's ingenuity."

The inclusion of some of Bruce Jeffries notes are desirable to complete the picture of the former mining operation. He writes,

"A huge bulldozer removed the ancient lava seal, and the gravel was processed through a large washing plant. As an idea of the difficulties involved, the water needed for washing process was pumped from the floor of the valley several hundred metres below."

The commercial fate of the mine in the sky was determined by the price of gold, and a temporary collapse in the price saw the adventure cease as a commercial operation. It is noteworthy that the presence of diamonds attracted the interest of mining giant CRA (now Rio Tinto), their aim, to find the ultimate source of the diamonds. They were singularly unsuccessful and given the nature of the surrounding terrain today it is highly likely that the diamonds and gold on Mount Airly are the last vestiges of what might have been a gold and diamond province several million years ago.

Other gold deposits. Carne, Joseph, Geology and Mineral Resources of the Western Coalfield, 1908, p. 249,

"Gold has been won from Nuggety Creek in the Capertee Valley... and it is more than likely that the principal streams and their tributaries, forming the drainage system of that valley, will be found to contain payable patches of re-concentrated gold, particularly in proximity to 'bars' and 'crevices' in the stream channels."

As far as is known there has been no attempt to commercially mine such deposits.

Torbanite. The discovery of Torbanite (Kerosene Shale) deposits at Airly, Torbane, Newnes and Glen Davis in the late nineteenth and early twentieth centuries and their subsequent exploitation have impacted on the surrounding environment and left a legacy of early industrial archaeology making for questioning interest by bushwalkers.

Researching accounts of how the extraction processes worked and the consequent extensive pollution of the air, the water and the environment generally, we can only speculate on how many species of plants and animals have been lost or at least compromised.

Coal. A foretaste of what is happening today can be found in a map of the “Western Coalfields, Shewing (sic) the Colliery Holdings etc, NSW” and signed by the Chief Mining Surveyor, Richard Hind Cambage and dated 9th November 1906. At a scale 1 inch to the mile, this very large sheet covers the area from Mount Mouin in the Jamison Valley to Glen Alice in the Capertee Valley.

Amongst other data, the map shows and tabulates the names of all active collieries including those along the western escarpment. In 1906, the level of exploitation of the coal resource was primitive in comparison to what is taking place at present. Deep underneath the surface of the entire Gardens of Stone National Park are vast reserves of high quality coal. Along the western edge of the area where the pagodas exhibit some of their finest examples, is also where many of the rich coal seams are close to the surface.

At Ben Bullen (Tyldesley Hill) the rape of the landscape is tragic. I have visited several areas where pagodas are split from top to bottom. Cracks tens of centimeters wide are frequent. Tell-tale reflectors glued to rocks for monitoring of collapses and movements can be seen everywhere. I am not sure for what purpose – the damage is done and it is irreversible.

A similar rape scene is now starting to be played out at Airly⁵⁶ where it is inevitable that, despite protestations to the contrary, classic geomorphology will be toppled, water courses captured and more species lost. Bushwalking colleague Bob Whiting sent me this advice following a walk report of mine lamenting the future;

“I spoke yesterday with a representative of Airly Coal, which is owned by Centennial Coal, which is the same company that owns the Clarence Colliery. Bob reports he was told: The Airly Mine has not been developed up till now because it was not economic to do so. They are now spending 100 million dollars to get the mine going. Currently 180 men are working to do this. It is scheduled to be operating in the first quarter of next year (2010)⁵⁷. Coal production is planned to be 1.8 million to 2 million tonnes per year for about 25 years. They (Centennial Coal) own at least 2500 hectares of land in the area including in Airly Gap. There is also some Crown Land (perhaps on top of Airly Mountain) Airly Coal is negotiating with NPWS to have the area (on top) declared a Nature Reserve managed by NPWS. The mine is on the west of the mountain near where Torbane village was and it will be very busy in this area.

⁵⁶ The Airly coal mine was put on a ‘care and maintenance’ basis in January 2013. This action is a political one to gain more leverage for much larger open cut mines.

⁵⁷ The mine is now operational.

Similar stories apply to coal mines located at Clarence in the south, Springvale, Lidsdale, (Newcom), Cullen Bullen (Invincible⁵⁸ and Tyldseley Hill), Baal Bone Gap (Baal Bone)⁵⁹ and now at Airly.

Limestone. Carne also makes brief reference to a deposit of limestone at Blue Rock. Fortunately the outcrop is sub- economic and remains untouched. Blue Rock is a unique flora and fauna area. Walk 1.13 in Book 1 sets out more information.

⁵⁸ The Invincible coal mine was put on a 'care and maintainace' basis in March 2013. This action is a political one to gain more leverage for much larger open cut mines.

⁵⁹ The Ball Bone coal mine was put on a 'care and maintainace' basis in March 2013. This action is a political one to gain more leverage for much larger open cut mines.

12 Forestry on the Newnes Plateau

Foresters have had their eyes on exploiting the Newnes Plateau for establishing *Pinus* sp. plantations for a lot longer than most realise. The Sydney Morning Herald 31st December 1918; p. 5; col. 5, carried the following story.

*“Forestry – Bathurst. – The movement for re afforestation in the West, primarily with a view to the guaranteeing of supplies of timber for fruit cases and butter boxes is taking definite shape. The Department of Agriculture has indicated its fullest sympathy and the Forestry Department has instituted inquiries relating to the most suitable areas. Mr. A. R. Samuels, District forester of Dubbo, in addition to inspecting areas around Bathurst, has had a look at the mountain heights overlooking the Wolgan Valley and the township of Newnes for the purpose of selecting about 5000 acres for the planting of *Pinus insignis*. He came to a decision regarding the locality for the plantation and it is understood that no time will be wasted in advancing the matter further. The Bathurst and Orange Districts will have plantations later on.”*

As history has shown, quite a few years elapsed before plantations were established on the plateau.

In 2010 the Newnes State Forest of over 30,000 acres⁶⁰ occupies the bulk of the Newnes Plateau located to the northeast of Lithgow. The northern boundary of this plateau is defined by abrupt cliff lines falling to the talus slopes of the Wolgan Valley. The eastern boundary fades to a complex mass of gorges. The forest area is bordered in the west by the spectacular Wolgan Valley, in the north and east by the deeply incised canyons and ravines of the Blue Mountains and Wollemi National Parks, while the southern boundary of the forest lies within the plateau to the north of the Main Great Western Railway. The plateau is the largest in the Blue Mountains area above 1,000m.⁶¹

The Newnes State Forest is designated as Forest No. 748. Three major forestry activities are undertaken 1 - Exotic species plantation (*Pinus radiata*), 2 – extraction of *Eucalyptus* spp. for mine pit props and 3 –the production of hardwood saw logs⁶².

⁶⁰Newnes State Forest Number 748 dedicated 21/5/1920 approx 30,000 acres. (12,150ha).

No. 1 Extension dedicated 24/3/1921 approx 500 acres (202.5ha) north west section of Afforestation camp.

No. 2 Extension dedicated 7/7/1922 approx 2600 acres (1,053ha) area south of Mount Horne.

No. 3 Extension dedicated 8/4/1932 approx 88 acres (35.6ha) area west of Mount Horne.

Proclamation Newnes Afforestation Camp gazetted 6/1/1967 approx 3100 acres 1,255.5ha) within Newnes SF.

No. 4 Extension dedicated 12/3/1976 approx 16,000 hectares.

Birds Rock Flora Reserve No. 126. gazetted 23/9/1988 approx 415 hectares.

Prisons Act 1952 Proclamation gazetted 26/7/1991 the prison area to be known as the Young Offenders Correctional Centre.

Snow Gum Flora Reserve No. 166 gazetted 22/7/1994 approx 102 hectares.

Revocation 30/11/1994 of part No. 4 Extension approx 2,700 hectares.

Revocation 22/12/1995 of part of original dedication (21/5/1920) approx 3,500 hectares.

Prisons Act 1952 Proclamation gazetted 23/8/1996 cancellation of the Proclamation of the Young Offenders Correctional Centre 26/7/1991.

No. 5 Extension dedicated 23/4/2004 approx 145 hectares.

Additional minor exclusions to Newnes SF 148 are recorded but difficult to describe here in eg, Lithgow Water Supply land, Maddocks Line of road and the location of the eastern boundary of the forest was realigned in agreement between Forests NSW and NPWS on 29th January 1985.

⁶¹ An Environmental Impact Statement on Forestry in Newnes State Forest, Macquarie University Centre for Environmental Studies, undated. Page 1

⁶² Objective 1, Op cit. above.

The first plantings of *P. radiata* were established in 1921 but were discontinued in 1935 because of unsatisfactory growth rates on the poorer sandstone soils of the Newnes Plateau. Subsequently research has shown that satisfactory growth rates can be achieved with the use of fertilizers and that is now standard procedure at the time of planting⁶³.

An Environmental Impact Statement on Forestry in Newnes State Forest document, records that the construct of its EIS was unusual,

"Not only was the Forestry Commission of NSW dissuaded by political and legal factors from providing access to its accumulation of background data, it would not disclose its management proposals. It was therefore necessary for us to construct a hypothetical management plan, which we believe lies within the range of the Commissions proposals. Should it be however, that there has been a misconception in some respect, there should be little loss in applicability because all of the relevant forestry alternatives have been considered."

Initial proposals by the Forestry Commission of NSW to extend pine plantations in the Newnes State Forest generated an adverse response from Lithgow Coal Miners concerned at the loss of mine timber supply (pit props). The responsible Minister of the day, Mr. Alan Robert Lindsay Gordon agreed to a public enquiry that became known as the Lithgow Enquiry.

The product of the enquiry, a 'Development Plan' was publicly displayed in Lithgow and in Forestry Commission offices, and called for submissions to be tendered by 31st October 1979. The plan outlined separate areas for hardwood and softwood production as well as their bearing on other regional plantations and proposed associated industries (Extracted from a letter from the Minister to the National Parks Association of NSW 5th March 1980).

Although the plan was accepted by the Minister, there has been no publicity of any modification to the projected increase in area of pine plantations, and the controversy has continued. In short no party was satisfied with the enquiry outcome. The Lithgow District Trades and Labour Council expressed the view that many of the points it made had not been addressed, and went further to accuse the Minister of supporting "Many other organisations viewpoints" (Lithgow Mercury 13th March 1980.)

The National Parks Association of NSW and the Total Environment Centre were also opposed to the expansion of the pine plantation at Newnes and questioned the wisdom of such general expansion in view of an alleged shortage of hardwoods and an oversupply of softwoods. These groups and the Australian Conservation Foundation also considered that the Forestry Commission was not adhering to its agreement to undertake an EIS in accordance with the Act. They also expressed concern at the absence of consideration given to nature conservation and the effect of the proposal on neighbouring wilderness areas.

In so far as Mine Timber was concerned, areas suitable for the production of small round wood (predominately *E. oreades* for pit props) were determined and the Commission agreed to avoid clearance of such areas to allow continued supply of pit props.

⁶³ History of Forestry in NSW 1788 – 1988, T. C. Grant p. 191

The enquiry affirmed that the longstanding logging of larger hardwood trees, particularly those of the gullies would continue at the estimated current rate of 1,000 m³ /year. The only sawmill drawing such supplies from Newnes State Forest is located at Clarence. The traditional source of saw logs has been the large trees of the gullies but in the near future, the large amount of clearing for other developments will probably provide the bulk of the supply.

It is worthy of note that listed in the History of Forestry in NSW 1788 – 1988, appendix 2. Special Value Resources, under 'Trees of outstanding Size', is listed a coachwood, 1.09m DBHOB⁶⁴ and 38m in height located in Annie Rowan Creek. Significantly, all of Annie Rowan Creek is now deep within the Wollemi National Park.

Within the Newnes State Forest are two Flora Reserves– Birds Rock Flora Reserve, No. 126, and the Snow Gum Flora Reserve, No. 166. Because of their significance each of these reserves is described in some detail.

The Birds Rock Reserve, Plan of Management approved 8th August 1988⁶⁵. The reserve is located about 16km NNE of the city of Lithgow and lies immediately to the south and east of the Birds Rock Trig Station at 1179m. It is roughly elliptical in shape and is bounded at the western end by old tracks. In the east the topography is generally much more difficult and the boundary is delimited only by the ridge system. The total area is about 415ha.

Effectively the reserve occupies the whole of the catchment of Birds Rock Creek, which rises in the vicinity of Birds Rock Trig and flows easterly for about 3.5km to its junction with Carne Creek. From west to east the creek valley steepens and becomes more convoluted and entrenched between sheer cliffs about 50m high near the junction with Carne Creek. Towards Carne Creek, there is a good development of pagoda formations making for very beautiful scenery. (For a graphic description see walk number 7.20, walked 19th January 2007)

The reserve is made up of four broad physiographic units

- 1 Plateau (western section of the reserve)
- 2 Catchment slopes (upper and lower slopes)
- 3 Colluvial terraces (toeslopes and stream bed of Birds Rock Creek)
- 4 Rocky outcrops/heath land (exposed areas of rock in the eastern section of the reserve)

The vegetation. Most of the reserve carries a relatively open dry sclerophyll forest with heights rarely exceeding 25m and often much less, and with a xeromorphic understorey. In the gorge of the lower part of Birds Rock Creek a taller wet sclerophyll forest has developed, while in the eastern part of the reserve, above the cliffs, variations in soil depth and fertility have produced a vegetation complex ranging from low forest through more open woodland to scrub and heath.

As is common on the sandstone soils, species composition shows considerable variation, but the main area of dry sclerophyll forest can mostly be regarded as Silvertop Ash (*Eucalyptus sieberi*) and the Sydney Peppermint (*E. piperita*). Other species commonly encountered include Blaxland's Stringybark (often on local areas of better soil) and Brittle Gum. Blue Mountains Ash is also locally common, usually as the clear dominant in the stands and

⁶⁴ DBHOB translates as Diameter at breast height, outside bark.

⁶⁵ The following notes are taken from the official Plan of Management for the Birds Rock Flora Reserve issued by the NSW Forestry Commission

producing stands of up to 30m in height. Throughout these dry sclerophyll forest stands there is typically an open understorey 1-2m high, often with a well developed ground cover in which prostrate shrubs are conspicuous.

The wet sclerophyll forest stands, occurring on the deep colluvium of the sheltered gullies, carries taller stands dominated by Brown Barrel (*E. fastigata*). Closer study of these rather inaccessible gully sites is like to reveal the presence of other eucalypts, and possibly some rainforest species growing in the understorey.

The vegetation complex present above the cliffs in the east carries many of the species present elsewhere in the reserve, such as Sydney Peppermint and Silvertop Ash in the more sheltered sites. Scribbly Gum and Brittle Gum become more common on the more exposed sites, and maybe reduces to mallee habit as conditions become more adverse or even lost entirely from the stand to leave areas of low heath (often dominated by Dwarf She-oak or bare rock

Past use of the reserve has been minor. Apart from one old track in the northeast of the reserve there are no roads or tracks other than those that delineate the boundary, although there is evidence of very old logging tracks most of which have revegetated but are still discernable to bushwalkers.

No harvesting operations have occurred within the reserve since the 1960s. The few remaining stumps suggest that a sawlog harvesting operation was the last commercial use, almost certainly undertaken by Coate's Sawmill of Lithgow. This mill surrendered its licence in 1971.

Most of the area now included in the reserve was originally accepted for preservation in 1966, with the preserved area being extended to include the whole catchment of Birds Rock Creek following the dedication of extension 4 to Newnes State Forest in 1976: this extension allowed the northern part of the catchment to be included.

Snow Gum Flora Reserve. Plan of Management approved 3rd July 1994⁶⁶. The reserve is located on the Newnes Plateau, 7km north of the City of Lithgow. The reserve is bounded in the south by Marrangaroo Creek and in the east by part of the Lithgow Water Supply Catchment. Drainage lines, rough tracks, or compass bearings delimit perimeter boundaries to the north and west. The "Lost City", an area noted for its magnificent pagoda formations adjoins the reserve on the south eastern boundary and is co incident with the gazetted Lithgow Water Supply area.

The reserve occupies part of the Marrangaroo Creek, which meanders in a south westerly direction for approximately 14km to its junction with the Coxs River. Contained within the reserve is an area of 4.5ha, also appropriated for Lithgow's water storage in 1921. This is no longer in use for storage purposes. Excluding this area, the reserve covers 102ha.

The reserve exhibits the steep and broken terrain that is common at the edge of the Newnes Plateau, with elevations ranging from 980m on Marrangaroo Creek to 1140m in the north east of the reserve. The terrain is characterised by ridgelines, with significant quantities of exposed sheet rock, terminating abruptly in cliffs. Cliffs within the reserve, up to 40m in

⁶⁶ The following notes are taken from the official Plan of Management for the Snow Gum Flora Reserve issued by the NSW Forestry Commission.

height were formed by the gradual entrenchment of a tributary of Marrangaroo Creek as it flowed towards its confluence. This tributary bisects the reserve. Interesting and elegant pagodas (erosion residuals) are relatively common making this a very attractive area.

Three main physiographic units that have distinctive soil-vegetation assemblages can be discerned within the reserve.

- 1 Plateau and upper slopes (northern section of the reserve)
- 2 Dissected plateau, ridges and slopes
- 3 Colluvial lower slopes

Vegetation. The predominant characteristic of the reserve is the extensive areas of heath interspersed with mallee stands. The mallee stands become more prevalent as soil depth increases and exposure decreases. The heath/mallee communities grade into a relatively open dry sclerophyll forest, with a xeromorphic understorey, in the northern part of the reserve, the stand height of which can reach upwards of 20m as site quality improves. A taller wet sclerophyll forest has developed in the gorge formed by the tributary of Marrangaroo Creek.

The heath/mallee community that occupies the exposed ridge tops occurs on very shallow, low fertility soils that were derived from siliceous sandstones. This closed community of small xeromorphic shrubs, largely dominated by Dwarf She-oak is overlaid with the fragmented distribution of the dwarf eucalypts, the most significant of which is the Dwarf Snow Gum (*Eucalyptus gregsoniana*). Other associated eucalypts are Whip-stick Ash, hard leaved Scribbly Gum, Snow Gum (*Eucalyptus pauciflora*) and *E. mannifera* ssp. *gullickii*. The common heath species, which, in association with Dwarf She-oak, make up the understorey through the mallee stands, are *Isopogon anemonifolius*, *Acacia hamiltoniana*, *Boronia microphylla* and *Banksia marginata*.

The dry sclerophyll forest, which occurs on the more sheltered sandstone soils in the north of the reserve, can mostly be regarded as Blue Mountain Ash type. Although a clear dominant blue mountain ash is found in association with Black Ash (*E. sieberi*), Blaxland's Stringy Bark (*E. blaxlandii*), Sydney Peppermint (*E. piperita*), Brittle Gum (*E. mannifera* ssp. *maculosa*) and Scribbly Gum, which regains its tree habit on more favoured sites. A large component of the dry sclerophyll forest is essentially blue mountain ash regrowth due to the opening up of the forest by logging. Remnant trees can still exceed 30m in height. The open understorey is comprised of xeromorphic shrubs with a height of 2-3m such as *Boronia microphylla*, *Banksia marginata*, *Hakea propinqua* and *Isopogon anemonifolius*.

The colluvial soils of the gorge and gullies support the wet sclerophyll forest that is dominated by Brown Barrell (*E. fastigata*) and Mountain Gum (*E. dalrympleana*) with a stand height of up to 30m. Blue Mountain Ash is also present further up the slope on the drier sites. The moister, more sheltered sites provide an understorey with a higher mesic component.

The reserve exhibits varying degrees of past use. There are several rough tracks that enter the reserve. Some were constructed to provide access to the Lithgow Water Supply, but more recently to allow for the removal of a small amount of miscellaneous timber. The majority of the reserve is relatively undisturbed.

Harvesting operations within the reserve have been infrequent and confined to those areas in the north that carry regrowth stands of Blue Mountain Ash. The most recent harvesting

activities have been a mining timber operation in 1983 and a follow up saw-log operation in 1984.

The area was suggested for preservation in December 1984 and the proposal was accepted in February 1985.

13 The Newnes Afforestation Camp

In 1911, the Prisons Department (now Corrective Services NSW) investigated a forestry scheme adopted in New Zealand for the employment of low security prisoners. A trial project was commenced at Tuncurry on the NSW north coast, in November 1913.

At Tuncurry, four officers supervised 20 prisoners who commenced work by fencing, levelling, planting grass, grubbing, well sinking and tending vegetables. Tree planting was commenced in 1914. Tuncurry became a benchmark facility and the number of such afforestation camps was gradually increased.

The Newnes Forestry Camp (also known as Newnes Afforestation Camp and or the Newnes Prison Farm) opened 26th June 1968 with 80 inmates. It closed 10th September 1982.

The former site is located about 400m west of the Glowworm Tunnel Road in the Newnes State Forest about 20km from Lithgow and adjacent to the Twelve Mile Pine Plantation. It is shown on the first edition of the Cullen Bullen 1: 25,000, topographic map at approximately, GR 432 046. The complex occupied a significant area with some facilities for supervisory staff being up to 400m north of the main cluster of buildings.

The minimum security inmates worked in the surrounding State Forest by day, and after working hours had a well equipped home away from home complete with a sports stadium, basketball courts and other facilities. The facilities were all built and maintained by the inmates and included bowling greens (later converted to basketball and tennis courts), playing fields, a swimming pool and a lake.

The kangaroos from the nearby bush became part of the 'camp family' and, so tame that they could be fed by hand. It was such a cushy way of 'doing time' that it was a wonder anyone would want to escape. But escape they did, with a good deal of regularity in the harsh winter months, usually hoofing it through the bush to steal a car from the Oakey Park-Morts Estate area on the eastern outskirts of Lithgow.

The official reason for closure of the camp on 10th September 1982 was that it was surplus to requirements and many of the inmates were transferred to the even colder comfort of afforestation camps at Shooters Hill, (Oberon) and Kirkconnell, (east of Bathurst). Unofficially it was claimed that the closure was simply a cost cutting measure influenced by the costs of servicing the establishment from Lithgow.

The camp was then reincarnated, and from December 1985 until January 1991 operated as The Newnes Young Offenders Correctional Centre under the auspices of the Department of Sport and Recreation. In this time the Department conducted a range of camps for children, families and senior citizens. Activities included abseiling, archery, canoeing, bushwalking and swimming.

On 16th August 1991, the site was officially commissioned as the Newnes Young Offenders Correctional Centre by the then Minister for Justice, the Honourable Terry Griffiths. The NSW Department of Corrective Services ran this scheme until its closure on 9th March 1993.

In 1994, the centre was taken over by the Youth Insearch Foundation for rehabilitation programs for young people referred by the Courts. Later still, it was used as a retreat for

school excursions and for senior citizens groups until being finally closed down in 2001 by the owners, State Forests, NSW.

In July 2003, the State Member for Bathurst, Gerard Martin and State Forests managing director Peter Duncan jointly announced the lease of the site to a company called Resident Manager Pty Ltd to redevelop and operate the site as 'five star' cabin accommodation and conference centre.

The deal collapsed after it was discovered that excessive costs would be involved in meeting minimum requirements for fire protection, replacement of vandalised fittings and asbestos removal.

Casual visitors to the Newnes Forest area, unfamiliar with the history of the region, must wonder at unexpected relics encountered in the bushland. What little now remains of the old afforestation camp is a sad indictment of Government wastage and of opportunities lost. The Newnes Afforestation Camp was regarded as a showplace of the NSW prisons system when it opened to fanfare and public relations hype back in 1968.

The site, when visited on 22nd April 2009 was a scene of desolation. The bulldozed remains of the last buildings form a mini mountain of builders rubbish with scattered PC items and worse spread over a wide area.

Some of the elaborate garden edging, steps and graceful stonewalls together with the water basin of a garden fountain remain. Nearby the tiled floor of the former kitchen area can be identified. Two of the kangaroos long used to being hand fed came up to greet us.

The circular form of the former playing field is still identifiable. As we drove out the currently in use, less than attractive squats of feral bikkies were horribly conspicuous.

14 The Deadly Secret of Marrangaroo

The story of Australia's involvement in Chemical Warfare from 1914 to 1945 is meticulously documented in Plunkett, Geoff. *Chemical Warfare in Australia*, 2007. So what, you may question. How does this fact concern bushwalking near the Gardens of Stone National Park? If you had asked me the question before 14th April 2008, I would have said, "probably not at all."

On that day Steve Murray and I literally walked into one of Australia's most secret and sinister defence establishments. This is a true account of how two bushwalkers became embroiled in a saga involving Australia's Chemical Warfare history of WWII. It is a story of plot and intrigue, of denial and panic, of duck shoving and detective work...

Back in the "Plotting and Scheming Department," a.k.a. my bushwalking office, when crafting walks for The Bush Club 2008 autumn program, I pulled out a copy of the latest, (2006) 1:25,000 topographic map of Lithgow. It is a benchmark effort by the Department of Lands Bathurst, and reflects state of the art cartography. Amongst other iconic localities it includes a reference to the "Lost City" – top pagoda country. What fascinated me was the knotted complexity of contours in several discrete groups that lay to the west.

Planned to be a party of 4, one pulled out and one did not show. Steve and I determined not to waste the opportunity so after checking the safety gear we were into it. We parked the vehicle at GR 357 005. It was a little later than usual when we started walking, as there were more than a few dead trees to move and/ or saw through. I guessed we should have twigged to something. This trail does not have many visitors.

As we drove in there was, on the eastern side at GR 358 005 an old track that seemed a promising prospect to descend into the canyon system. It was a bracing 9 degrees – ideal walking conditions. We clambered down to about GR 358 007. The pagodas were fantastic and the creek was accessible. It was however so scrubby that we turned to each other and said 'no way' and hauled ourselves back up the side of the canyon and headed a bit further south.

We found a fine ramp alongside the base of a line of pagodas, which went down, and down, and down. No GPS reading was possible, but GR 360 004 would be close. The last bit of the ramp seemed to end in a 4m drop but it was partially obscured by ferns. It did not look promising, however after some scouting among the greenery a way down was found that did not even require a tape assist. It was perfect.

Once down, a whole new world was revealed - a huge, magic, dry cave with a soft sandy floor. One of the largest I have seen. The ceiling was a good 2m above the floor. Both were flat and gave the cave the appearance of a real room. A wall of tree ferns some 30m in length curtained the opening. Not in your dreams would you imagine a cave like this one. Lots of pictures and then it was time to move outside into a world of pagodas.

Then it was down into the creek with some scrub bashing on the way. Generally, walking/wading in the creek was the easiest option. Most of the time the water was only ankle deep and after about ten minutes you did not feel the cold water – you did not feel anything!

Had morning tea at GR 360 998 on a rock next to a notched stump where in times past timber getters had cut magnificent specimens of red stringy bark (*Eucalyptus macrorhyncha*, ssp. *macrorhyncha*). The notches, stark testimony to the loggers who stood precariously on boards as they wielded axes or two handed saws.

We observed both styles. The average felled tree had a girth in excess of 1m at head height. What disappointed us most was the number of huge trees that had been felled and then left to rot because they were hollow inside. The further we progressed down the ravine/gully the more numerous were the cut stumps. Rusting, plaited steel cable ends, presumably from haul ropes were also found.

At 1143 crossed the Marrangaroo Creek at GR 358 991 and then picked up an old road that, on the map winds its way up Marrangaroo Creek for over 5km. After observing the high cliffs to the north started walking down the road. Imagine our surprise when we came across a collection of rusting steel boxes. These were not just any old boxes. There were 40 of them. These were ammunition type boxes some 100 x 50 x 25cm in size. Each had a panel inside about half way with 6 regular 100mm diameter holes. Each hole could have supported one 25 pound artillery shell.

We kept on observing and noting. The closure for each container had a rubber seal and two large locking screws to hold it all in place. Two rectangular handles allowed for ease of carrying between two troops. Each box was dated 1943.

It was then we saw the sign. It said clearly for anyone approaching **up** the valley – “Contamination Area – Keep Out.” It was quite clear that the authorities never envisaged anyone entering the valley the way we had come. We took lots of photos and had a good look around. Even though the area looked untouched, it had been cleared (or fired?) a long time ago. A collapsed and rusted, 5,000 gallon water tank and some other steel items were noted.

Without thought we kept heading down the road. I wanted to follow the map and cross the Marrangaroo Creek and explore another fascinating ravine on the western side of where the vehicle was parked. 1205 came across a major road junction, GR 353 992. There was evidence of recent heavy machinery use. Crossed the Marrangaroo Creek (here it was dirty with what appeared to be a red brown algae).

The road continued and showed evidence of recent earthworks. After about 400m it was deliberately blocked to vehicles by a large felled tree. We clambered over it and kept on the road. I picked up an odd piece of threaded plastic with a stainless steel swivel with a sign on it “do not fill.” I decided to do the right thing and remove it from the bush. It did not belong here. It was litter. Then I picked up a piece of iron. It also had thread work and was horribly distorted. It was a bomb fragment. Further on I picked up a piece of what I thought was a firing pin. Photographed these pieces and left them.

Came around a bend to be confronted by a pair of pad locked gates, barbed wire and many signs – all blank facing our side. We crossed over the gate and then all was revealed.

The main sign said, “Danger Military Range Boundary - Live Firing Do Not Enter,” Other signs said, “Laser Hazard” and “Live Bombs.” The most frequent sign proclaimed, “Australian Government Land -Trespassing on this land is prohibited, Commonwealth Crimes Act, 1914 –1973, Section 89.” The ultimate message was a crisp, new red flag flying

on a pole. There was absolutely no indication coming from the east side that we were infringing the law. **There is no indication on the topographic map that this range exists. All that the map advises is that the area is part of the Newnes State Forest.**

We were flabbergasted, so much so that we forgot to get a GPS reading. After finding more spent ordnance up the road we went back and took a reading at the gate, GR 349 000. What an adventure! Pushed on to the point where the road crossed a tributary of the Marrangaroo Creek. More surprises. Came across a pile of khaki painted metal cylinders that could have easily held Howitzer shells (105mm?). The cylinders were 110mm or so in diameter and about 1000mm long. They were stuck in the creek at odd angles. We also spied pieces of pressed metal used for forming air- strips or roads over sandy ground, rusting food containers and much more.

Returned to the track that now showed signs of being used by the motorbike fraternity. Along the way we picked up, noted and replaced pieces of spent ordnance, even though we were outside the firing range boundary fence.

The track was a good one, and wound its way up a truly spectacular valley with great pagodas and increasing cliffs. At GR 350 007 pulled off the track onto a pagoda to have lunch. The views are special and once the edge was off our hunger we started almost inevitably to go looking for ways up, and ways down – pagodas get to you like that.

What we did find was by now no surprise - a part of an exploded shell about 2m away on a pagoda. It was part of a shell casing, twisted and deformed by the force of the explosion. We were by now over 2km from the firing range gate. Either someone is very incompetent with a 25 pounder gun or the fallout area is a lot bigger than the authorities realise, or....

At 1350, back on the bike track. As I predicted to Steve, it joined up with the road we had driven out on at GR 352 010. We were back at the vehicle at 1405.

As it was early and I was by now very curious about this whole area, we drove back along the Beecroft Fire Trail and parked at GR 341 013. It was no surprise to find that the map does not show a road out along the ridge marked with a contour height 1140, (approximate GR is 341 004). It was by now more than chilly and trying hard to rain. The urge to know was strong so we headed out along what appear to be very recent forestry roads for harvesting old growth forest until we reached GR 339 996. This is where the motorbike track exits from the creek crossing with the Howitzer shell cases. According to the map, an old track leads out to the end of the ridge for another 800m or so.

We decided that we did not need to either go down into the creek or out to the point. Both trips would be miserable (and possibly dangerous) in the current conditions. The walk back to the vehicle was fast – the incentive was to make the journey to Bilpin and grab a hot chocolate before *The Pines* closed at 1700. It tastes really good as you wrap your hands around the hot mug and let the aroma of chocolate infuse your being.

Back at home I just had to pursue the mysteries arising from the walk. Where had we been? Why were the topographic maps, even back to 1936 (the club library has a full set) not showing any land reserved for defence purposes? What did the Defence Department have to hide? Did Forests NSW know that their workers or contractors could disturb and explode old

ordnance? How extensive is the area where unexploded ordnance could still be about? These and dozens more questions needed answers.

My first line of enquiry was to the Map section of the Department of Lands. How come, I questioned, is it that the latest 2006, second edition, 1:25000 topographic map of Lithgow could fail to show such a significant site as a live bombing range? It appears that the Crown (a.k.a. the Commonwealth Department of Defence in this case) has no obligation to disclose land it has appropriated for any purpose to the State or any other authorities- transparency in Government?

Stephen Peacock, HR/Business Services Manager, Land & Joint Systems, Thales Australia (formerly known as the Lithgow Small Arms Factory) was kind enough to confirm I had stumbled across a Defence Facility and referred me to M. St. C. Mark Walton, Non- Defence Training Area Manager, Joint Operations Support Staff, NSW. We had an interesting discussion about how vandals knocked off fencing and signage and he indicated the possibility of providing me with a map showing the approximate boundaries of the Bombing Range...

Colleague and fellow bushwalker Brian Fox sent an extract of part of the Lithgow Sheet as a cadastral plan showing Lot 10/DP87273. This is apparently land reserved to the Commonwealth Government. When plotted out onto the topographic sheet the northern boundary is about 2km south of where the range is. More subterfuge? More questions!

An unlikely break though came from another member of The Bush Club, Tony Mitchell who has a friend interested in old trains... The May 2008 issue of Australian Railway History has an article on the old tunnels at Glenbrook and at Marrangaroo, west of Lithgow.

Surprise! Both localities were used to store mustard gas and other chemical weapons that the Australian Government in contravention of the Geneva Convention had imported from England and the United States of America in the form of bombs in the early part of World War II.

When the Japanese midget submarines attacked Sydney Harbour the attack caused such a panic at the Marrangaroo depot ... which housed a lot of munitions not just mustard gas, ... received instructions "to evacuate all the munitions from the depot and hide them in the rough country behind."

And that is very rough country indeed ... evidently at times the trucks transporting the munitions into that country had to be winched up steep inclines. Such was the rush to clear everything out of the depot that no one kept accurate records of where various loads of munitions were dumped and years later when it came time to recover the hidden bombs etc. not everything could be found. Quite a few of the chemical warfare weapons were never recovered because no one could remember where they had been hidden.

So some bombs may still be out there and the area where the munitions depot once stood has become much more populated than it once was. Secrecy all around! Now I wanted to know where the tunnels are!

There is more. Cameron Dobson, Acting Regional Manager, Forests NSW, provided a map and asked me to identify the area of interest. In turn, my questions to him were, when did this

section of Crown Land become State Forest? Is he aware of the Bombing Range? Are his workers and contractors safe?

Even more fortuitous is the release of Plunkett, Geoff. *Chemical Warfare in Australia*, 2007. The book of some 700+ pages raises rafts of questions. Frustratingly, but not unexpectedly it does not include any useful detailed maps. It does have great pictures, particularly of the hoax town that was built near Marrangaroo to try to disguise activities. The book includes hair-raising accounts of handling chemical weapons and disturbing, graphic pictures of the damage that mustard gas does to the human body and did to Australian soldiers.

On 19th June 2008, Kevin Cuthbertson, E.O.D., Department of Defence, made contact. He was helpful and suggested I make direct contact with the caretaker of the defence facility at Marrangaroo, Neil Hutchinson. If a visit did not resolve my questions, I was to call him back and arrange a walk through the facility with him, retracing the walk that Steve and I did along the old road.

I raised with Cuthbertson the issue of trail bike riders creating tracks in an area that is liberally scattered with spent ordnance, and possibly ageing unexploded ordnance as well, outside the apparent hazard zone. His response was almost one of despair implying that dealing with trail bike riders was beyond his capacity (or the law) to enforce. I wonder what happens when someone is seriously injured or worse ... who will be running for cover?

I met with Neil Hutchinson, 27th May 2008 on site near the famous hoax town *Ryans Hotel*. True to their word the army released to me a map overlaid on the current Lithgow topographic map showing the legal boundaries, of what must be regarded as a sensitive no go walking area. In the interests of bushwalker safety this map is published with this story and some telling pictures.

Subsequent to the exposure experience being publicised in *The Bushwalker*, The Roads and Traffic Authority of NSW forced the Department of Defence to declare its ownership of the land with "significant levels of unexploded ordnance and contamination", when options for re-routing the Great Western Highway through Marrangaroo were being canvassed.

The panic disposal process of the illegal horde of Phosgene Bombs the 1940s is still haunting us. The Daily Telegraph September 22nd 2008 reported,

"A horde of deadly chemical weapons untouched for 60 years has been uncovered just 100m from unsuspecting residents."

"Imported during WWII as part of a top secret program, dozens of 250-pound (113kg) bombs containing deadly phosgene were buried less than 100m from private properties at Marrangaroo, near Lithgow."

"The bombs were only rediscovered after 84 year old retired chemical weapons armourer Geoff Burn blew the whistle, identifying the site on an aerial map."

"We dug this big trench to hold about 32 bombs, so it was pretty extensive, and just buried them in there," Mr Burn said. They didn't tell us why they were being buried, but I am certain they were still full of phosgene gas."

"The Department of Defence confirmed the claim, recovering several empty bombs before engaging specialist contractors capable of safely removing the remaining weapons."

I just wonder how many more events in this saga are yet to unfold.

On 19th December 2009 I was leader of a group seeking to locate the Newnes Forest Mustard Gas Disposal Site which is blatantly shown on the Wallerawang 1:100,000 topographic sheet. The site is near Mount Horne, GR 243844E 6300902N on the current 1:25,000 Topographic Map.

A cursory examination of the site where destruction by burning of Chemical Warfare Stocks was supposedly completed on 14th March 1946⁶⁷ looked quite benign. It was not until we started fanning out and checking each square metre of ground that the residual artefacts became apparent.

A study of illustrations in Plunkett, Geoff. Chemical Warfare in Australia, 2007 has enabled identification of some of the items discovered and recorded on the day. Definitely identifiable were 'caps' from crated 65lb bombs that were essentially a square kerosene can that burst on impact⁶⁸. Also readily identifiable were the hexagonal bar 'ends' of incendiaries⁶⁹ that aided in intensifying the fire.

A metal hoop from a bulk mustard gas storage drum was photographed, as well as various sheet metal components including metal - sheathed boxes and carrying handles. Many bungs (or closures), presumably from bulk storage drums were also photographed. There were sufficient remains from one bomb canister to more or less reconstruct it, as it would have looked prior to destruction.

What of the efficacy of the clean up of the site? On 28th April 1949 the Secretary of the Forestry Commission of NSW wrote to the Officer Commanding, Maintenance Headquarters, Albert Park Barracks, Melbourne Victoria,

"We have been advised by the O.C. H.Q., Eastern Area, Bradfield Park NSW to communicate with you concerning the Mustard Gas Dump at Newnes State Forest in the Blue Mountains area of this State. Although the O.C. of the RAAF Depot at Marrangaroo reported that the dump was destroyed in 1946, such destruction was incomplete and an employee of this Commission was injured through coming into contact with Mustard Gas. I would be pleased if you would have this dump investigated with a view to having the decontaminating operations completed."

⁶⁷ As documented, Plunkett, Geoff. Chemical Warfare in Australia, 2007, p.630.

Wilf Hilder from his archives of the Warragamba Walking Club, provided an extract from The Sydney Bushwalker, December 1967, that contains a very interesting article penned by one, Ramon U'Brien, recording a 3-day walk 10th -12th November 1967. "The road, which, would be no problem for any car out to about GR 280739 (Wallerawang 1:100,000 sheet), where there is a steep eroded section, continues along the centre of the ridge between the two Bungleboori Creek Arms. After a couple of miles of this we passed a great collection of drums, old bomb tail fins, and some chemical, which smelled like carbide. This was spread over about a 100 yard circle and in the centre was a crater, as though a large explosion had occurred there."

If this record is factual and I have no doubt that it is, then official statements that the area had been 'cleaned up' on 14th March 1946 are incorrect or there was a further dump that had not been destroyed.

⁶⁸ op. cit. picture and notes page 15

⁶⁹ op. cit. picture and notes page xviii

According to copies of documents I hold from the Australian War Memorial the final clean up of the site was 'completed' (my edit) as recently as 1984.

Add in map extract and selected pictures – see MK white ring file and photo album

15 Declaration of the Gardens of Stone as a National Park

The boundaries of the Gardens of Stone National Park as it is in 2010 still falls way short of the original concept and many significant areas are still vulnerable to exploitation and loss for future generations. The story of the fight so far to make the Gardens of Stone National Park a reality is well documented in Mosley, Geoff. *Battle for the Bush*, 1999. Geoff has graciously given permission for the following extract (part of pages 147 –149) to be reproduced.

"The restriction of mining in existing national parks from 1980 gave the Mines Department and the coal industries a much greater interest in protecting potential coal mining areas against park dedication. One casualty of this was the Newnes Plateau which had been included in the 1932 proposal and additional land to the west of Newnes which was the subject of a number of separate park proposals which finally became referred to as the 'Gardens of Stone.'

In 1966-68 the National Trust of Australia (NSW) proposed a small Pinnacles State Park near Lidsdale at the western edge of the plateau (Setchell, 1968) the name being taken from the fantastic shapes and columns on the plateau edge, otherwise known as 'pagodas'. The Mines Department objections to the new park were based not only on the coal resources of Newnes Plateau but also on oil shale, gold and diamonds in the north western section around Mounts Airly and Genowlan. Added to these objections were those of the Forestry Commission since acceptance of the proposal would mean the loss of State forests. A pine plantation had been established in the Newnes State Forest between the wars but there had been no planting over the last few decades.

Unfazed by these obstacles Stephen Lord in 1984 produced a proposal for the NPA for a southern western extension of Wollemi including a corridor to the Pantoney's Crown Nature Reserve (3,230 hectares), which had been established in 1977.

In September 1985 the Colo and Colong Committees and the Federation of Bushwalking Clubs joined forces to build on the NPA submission and present a major submission to Premier Wran for the inclusion of Newnes Plateau and the south west pagoda lands in the Wollemi National Park (Falconer and Blackwell, 1985). The name the Committee gave the 38,280 hectare proposal was 'Gardens of Stone'. A good name is indeed an asset for any campaign,

There was dramatic evidence available of the damage being caused by coal mining in the form of cliff collapses and land slides in the Lambs Creek area of the 1968 Pinnacles State Park proposal. The realization that the objections from the Mines Department relating to the coal field in the southern portion of the proposal were blocking the entire park proposal (including the northern section which contained no coal mines) resulted in the Colo Committee changing the proposal to a 18,300 hectare national park in the north free from existing mining leases. For the southern area, including the Newnes Plateau, a Regional Environmental Plan was proposed which would widen the environmental protection around cliffs in which the destructive long-wall mining technique was banned.

The hope that the Department of Mineral Resources might be sufficiently uninterested in the northern section to surrender it for a park was given a sharp jolt in 1991 when Novacoal, a subsidiary of CRA⁷⁰, applied for a coal mining lease in the Mount Airly area and announced plans to extract 71 million tonnes of coal with minimum protection zone around cliffs to prevent surface subsidence. The proposed coal mine was rejected early in 1992 when the Chief Mining Warden, after a hearing in Katoomba, found that the Company's environmental studies were inadequate. After a Planning Inquiry in 1993, Commissioner Simpson agreed that the pagoda-rich formations of the Airly Mesa may be damaged but said this was the price of economically utilising the coal resource. He recommended a lease not be granted until the Department of Mineral Resources was satisfied mining would not affect external cliffs and significant land form features. The Total Environment Centre had estimated that the mining proposal would affect about a third of the reduced Gardens of Stone proposal. Doubt was raised over whether the environment including the high cliffs, 'pagodas' and 'beehives' could be protected with the environmental protection measures approved by the Department of Mineral Resources.

In September 1990, the ALP⁷¹ in opposition promised that, in Government the Gardens of Stone would be reserved as a national park as part of a ten year programme. This commitment was denied by the ALP Member for Bathurst, Mick Clough, (NPA Journal 37 [1], February 1993). In 1993 the independent Member of Parliament Clover Moore moved to table a private members bill for an 18,030 hectare Gardens of Stone National Park and for a surrounding investigation area of about 25,000 hectares to be covered by a moratorium – the complicated boundary of the ten parcels of land in the park proposal having been determined by Colong Foundation/TEC⁷² officer Keith Muir. It was estimated that only about 4,000 hectares of the proposal (including Mount Airly) contained any coal resources.

Clover Moore's proposal had the support of the Blue Mountains City Council from April 1993 but not the Lithgow City Council, a town more closely associated with coal mining. Because it was also strongly opposed by the coal mining unions, the ALP would not give its support for the proposed bill.

Since legislation was therefore certain to be defeated, Moore had to be content with press publicity for her proposal and did not table the bill.

During 1993, intensive lobbying was conducted by the conservation groups, spearheaded by the Colong Foundation. An attempt by the Foundation during 1994 to link the proposal with Independent MP Peter McDonald's National Parks and Wildlife (New Areas and Miscellaneous Provisions) Amendment Bill was again frustrated by the Labour Party Opposition.

In November 1994, as a state election approached, the Fahey Government, with the support of Clover Moore, established the 17,780 hectare Gardens of Stone National Park, including 6,433 hectares of revoked State Forest. Again Labour moved into opposition mode, claiming that the legislation would cost jobs. Excluded from the park were the Mt Airly and Genowlan Mountain Mesas and the Rocky Creek Canyon area. Genowlan Mountain contains some of the most outstanding pagodas in the region. The

⁷⁰ Now Rio Tinto.

⁷¹ Australian Labour Party, a NSW political party

⁷² Total Environment Centre

Airly Mesa and Airly Turret remain threatened by Novacoal's mining lease (later sold to Centennial Coal) and the Forestry Commission represented that it had continuing interests in the Rocky Creek area.

To the Colong Foundation, the new park was only 'Stage 1' and in December 1995 its persistence paid off with the addition of the 3,600 hectares of Rocky Creek Canyon area to the Park.⁷³ Later, Pantoney's Crown Nature Reserve was absorbed into the Park. The connection between the Gardens of Stone and Wollemi National Park had been further consolidated but the Airly – Genowlan area still awaited salvation from mining threats. The Newnes Plateau section of the Greater Blue Mountains National Park proposal to the south of the Gardens of Stone also remained unprotected.

By early 1999, the mining companies had not extracted any coal at the lease which covers the Mt Airly and Airly Turret areas but new botanical discoveries had shown how important the Airly – Genowlan area is for rare and threatened plants in addition to its landforms. This realisation sparked a new protection campaign in 1998 led by the Colo Committee (Washington, 1998). Under the banner of 'Save the Three Hundred Sisters' the campaign called for; the establishment of a Crown reserve for the preservation of flora and fauna over the whole area; for the Genowlan Mountain and Genowlan Point areas (not included in the mining lease) to be added to the Gardens of Stone National Park; and for the carrying out of a new EIS⁷⁴ to reappraise the situation following the plant discoveries and changes in the plans for the transport of the coal from rail to road."

Geoff's account covers the period to 1999.

Currently The Gardens of Stone National Park consists of three separate areas comprising a total area of 15,080ha of varied terrain from limestone outcrops to sandstone escarpments. The park extends east from the Castlereagh Highway between Cullen Bullen and Capertee, its eastern most boundary the Wollemi National Park. To the north, the park boundary is Glen Davis Road and farmland in the Capertee Valley (Map 1).

A timeline on the initial formation, and gradual expansion of the Gardens of Stone National Park, has been provided by Tim Hager of the Information & Assessment Section, Metropolitan Branch of the NPWS.

1. The park was established on 30/11/94, with an initial area of 11,780 hectares, comprising:

- * Capertee State Forest
- * The northern most part of Ben Bullen and Wolgan State Forests
- * Crown Land near Rowans Hole
- * Crown Land between Crown Creek and the Red Rocks
- * Crown Land at Donkey Mountain
- * The northern most part of Newnes State Forest

2. On 22/12/1995, the Pantoneys Crown Nature Reserve was re-categorised as part of Gardens of Stone National Park. This addition was 3,230 hectares, increasing the reserve to 15,010 hectares.

⁷³ Note this area was actually added to the Wollemi National Park – not the Gardens of Stone National Park (advice from Tim Hager NPWS personal correspondence 8th March 2010).

⁷⁴ Environmental Impact Statement.

3. On 11/8/2006, the government purchased private land along Crown Creek that was added to Gardens of Stone National Park. This addition was 70 hectares (The Blue Rocks), increasing the reserve to 15,080 hectares.
4. Of significance is another transfer that occurred on 22/12/95, when the size of the Wollemi National Park was increased by the transfer of The Rocky Creek section of Newnes State Forest. This addition was 3,600 hectares.
5. The Gardens of Stone National Park is still “incomplete in the form as originally conceived”. The area championed by the authors for additions to the National Park is even larger.

For historical completeness the following extract is quoted from the proposal prepared by The Colong Foundation for Wilderness in conjunction with the Blue Mountains Conservation Society and the Colo Committee, and published in October 2005 as “The Gardens of Stone Park Proposal - Stage Two.” The extract is reproduced with permission from the Colong Foundation for Wilderness Ltd., following a board meeting held 11th March 2010.

This proposal sought to extend Gardens of Stone National Park to include parts of the Western Escarpment, the Airly- Genowlan Mesa, Newnes Plateau together with ancillary lands. This proposal is presented in several divisions that take into account various legal niceties about possible title and status according to land use.

Genowlan Mountain (1,680 hectares)

The Genowlan Mountain lies north of the Glen Davis Road east of the village of Capertee. It far surpasses that famous rocky Katoomba promontory, known as the Three Sisters! There are literally hundreds of pagodas standing on this mountain – a home to 300 Sisters.

Notable rock formations of this area include the ‘Citadel’ and the ‘Valley of the Kings’ as well as the ‘Grotto’ with its 30m tall Brown Barrel eucalypt trees and four metre tall tree ferns. A small tertiary basalt outcrop on the plateau overlies an ancient riverbed, which adds to this mountain’s geo diversity. Miners call the gravels that form this riverbed a ‘deep lead’, an alluvial deposit that has in this case yielded gold and a small number of diamonds. The deep lead has another story to tell. It shows that this ancient land slowly evolved from a 70 million year old sandstone plateau with a rapidly flowing river with a gravel bed into a lonely mesa that stands 500m above the Capertee Valley today. This is a classic example of landscape inversion.

A planning inquiry in February 1993 recommended Genowlan Mountain be excluded from the proposed development consent and mining lease area for the Airly Colliery. In recognition of its outstanding natural, cultural and scenic values the Colong Foundation, the Blue Mountains Conservation Society and the Colo Committee again propose national park reservation for this exceptional area.

Mount Airly (2,020 hectares)

Mount Airly lies to the west of Genowlan Mountain and is separated from it by Airly Gap. Ruins from oil shale mining operations are located on the slopes of Airly Gap. Some are also to be found on the western side of Airly Mountain. These oil shale mining ruins represent some of the best of their kind and are of State significance (Mills, R. 1998) a conservation management plan to preserve these NSW Heritage registered ruins and control visitation should be developed in co-operation with Centennial Coal.

The northern end of Mount Airly (1040m) contains dramatic pagoda rock formations deemed worthy of preservation by the planning inquiry into the proposed coal mine. Reservation in a State Conservation Area would promote best practice environmental protection and presentation for this area.

Wollangambe Wilderness (2,380 hectares)

Situated in the south eastern part of Newnes State Forest and north east of the Clarence Colliery pit top, this unit of the proposal forms a broad indentation of State Forest protruding eastwards into the Blue Mountains National Park. The area is part of the identified Wollemi Wilderness and contains several shrub swamps with rare plants. A unique springfed wet sclerophyll forest of tree ferns, maiden hair fern, bracken fern, Sassafras, Peppermints and Silver top Ash can be found at the extreme eastern end of the State Forest (Byrnes, R.2000), this division of the proposal also contains several spectacular pagoda formations.

Goochs Crater, a dramatic feature located on a northern tributary of the Wollangambe River on the boundary of the national park, is just within the Blue Mountains National Park. The crater is not of volcanic origin but was formed when the encircling, overhanging sandstone cliffs collapsed to block a local drainage line and form a small wetland amphitheatre. The crater area also features a pristine upland swamp, has dramatic rock arch, a slot canyon, and large cave in a forested valley. The area is highly valued by bushwalking groups.

A deeper, more confined gully swamp adjoining Goochs Crater to the north has been subject of research on fire history dating back to the Holocene (14,000 bp). The research swamp, a closed wet heath dominated by *Baeckea*, *Epacris*, *Gleichenia*, *Grevillea*, *Gymnoschoenus*, *Leptospermum*, is surrounded by eucalypt woodland and open heath (Benson and Keith, 1990).

The study of charcoal deposits in the swamp has found that fires at the site correlate more closely with climate change than Aboriginal burning (Mooney, SD & Black, M 2004). Equally remarkable is a finding that the post European period, as flagged by the appearance of pollen from exotic pine in the top 15cm of the survey core, bears witness to charcoal accumulating at rates unprecedented in the previous ~14,200 years. These data suggest that the area has burnt more frequently since European occupation than previously.

Newnes Plateau (22,000 hectares)

This gently undulating plateau of 1,100 metres rises to 1,180 metres at Birds Rock and is the most westerly extension of the Blue Mountains Range. It joins the Great

Dividing Range near the Wolgan Trig Station. The botanical diversity and vast number of rare plants on the plateau are related to its altitude, the intricate sandstone landscape and location at the western most extremity of the Blue Mountains.

The abrupt changes in soil depth are another factor related to the area's botanical diversity. The forests of the plateau are found on deeper older soils, whereas the exposed spurs descending from the plateau support heath lands on shallow younger soils. The sharp decrease in soil depth from forest to heath is most remarkable on steep slopes. Older soils under forests suggest that forest cover, in addition to lithology and topography, may control landform evolution.

Sandy soils and deeply weathered friable sandstone have developed in the shallow drainage lines of Newnes Plateau to form swamp filled valleys that are also an expression of near-surface groundwater, relatively high rainfall, low slope and impeded runoff. The orientation of these swamps is controlled by planar cracks that are called joints and minor faults in the sandstone rock. This system of structures determines the drainage pattern on the plateau. It is in these deeply weathered sandstone areas that the quarry industry want to mine for construction sand.

Baal Bone and Long Swamp (7,800 hectares)

The 'broken stone country' of Ben Bullen and Wolgan State Forests follows the Great Dividing Range where it dramatically sweeps to the east towards the headwaters of the Coxs River at Gardiners Gap.

The Long Swamp, just south of Gardiners Gap, together with myriad tributaries south of Gardiners Gap and the swamps on Lambs and Kangaroo Creeks west of Angus Place, form the headwaters of the Coxs River. These alluvium filled, and often waterlogged swamps comprise closed- sedgeland of *Carex gaudichaudiana* and *C. fascicularis*, with herbs, grasses and occasionally Sphagnum moss. In some places with more sandy textured soils the swamps support a closed tea tree heath, while the drier swamp lands carry a grass land. Upslope from these swamps are often found graceful open forests of Ribbon Gum and Brown Barrel.

On the western side of the Great Dividing Range are the dramatic headwaters of Baal Bone Creek whose massed pagodas are reminiscent of Cambodia's forest temples as they may have appeared to their European 'discoverers' in the 19th century. Nearby on the eastern side is Cape Horn, which offers dramatic views of the escarpments of the Wolgan Valley from equally dramatic pagoda rock formations.

The Western Escarpment (4,000 hectares)

'These walls or cliffs rise ... perpendicularly above the road, and their summits, broken and fissured in various fantastic forms, exactly resemble a ruined castle crowning the brow of the sheer precipice, with here and there a stunted tree or graceful shrub growing from crevices in the dark rock.'

Meredith, Charles Mrs. Notes and Sketches of New South Wales during a residence in that Colony from 1839 to 1844, republished by Penguin Books, 1973, p. 79.

The Western Escarpment is a spectacular and dominating feature of the western Blue Mountains, consisting of an irregular series of tall sandstone cliffs associated with steep pagoda –capped spurs that traverse the Darling Causeway northwards and then run west around the River Lett Valley to Lithgow. The Western Escarpment contains pagodas, heathlands and tall escarpment forests surrounded by grassy woodlands (Eades, M, 1989).

These escarpment areas possess a very high proportion of rare plants because of the many specialized habitats and microenvironments, such as those protected from fire, exposed to strong winds and controlled by springs that emerge above impermeable shale outcrops. The escarpment areas above the cliff line are highly vulnerable to degradation by development and inappropriate fire management. The invulnerability of the escarpment is an illusion. These areas are easily degraded by overuse

Further south, the panoramic views from Hargraves Lookout on Shipley Plateau are becoming increasingly popular with tourists. The eucalypt forests below the escarpment are part of the critical ‘bush carpet’ that form the foreground of escarpment lookouts and which extend to the Coachwood rainforest at Blackheath Glen. This spectacular entrance to the Megalong Valley with high sandstone walls and dense sclerophyll forest deserves better protection.

The Western Escarpment division consists of all lands recommended for reservation in the Blue Mountains Public Lands Rationalisation Project, Stage 1 and all other Crown Lands on the Western Escarpment in the Lithgow City Council area. The proposal also includes Lot 275, DP 751650 Donald Road at Clarence, which covers 156.8 hectares of undisturbed bushland that is currently used for passive recreation, bushwalking and rock climbing. This block is for sale as a sand resource but is better suited for escarpment preservation.

16 The Wolgan Valley Resort.

Since surveyor Robert Hoddle first laid eyes on it in 1823, the Wolgan Valley has been the scene of several major transforming events in Australian history. Hoddle described arriving at the edge of the valley in the following terms.

"...we came to a deep and perpendicular ravine, running east and west. The appearance of the rock was singular and romantick (sic) and had the appearance of a Castle and Town in ruins."

Hard on the heels of Hoddle, James Walker, of the Royal marines established Wallerowang⁷⁵ station about 1822, and soon after, c1825, entered the Wolgan Valley, purchasing, 1,000ac, as an outstation of "Wallerowang".

After many years of pastoral development and some closer settlement, Torbanite, (colloquially called kerosene shale), was discovered in 1873 by Campbell Mitchell near by what was to become the settlement of Newnes. The story of the industrial behemoth, the Commonwealth Oil Corporation and its equally ill-fated successor, the National Oil Company based at Glen Davis but using some Newnes infrastructure are documented in chronography number three.

Infrastructure to support the burgeoning mining and manufacturing process at Newnes resulted in the building of the railroad engineering marvel of the Wolgan Valley Railway in 1906-7. This railway linked Newnes Junction near Clarence on the Main Western Line, to Newnes, a distance of 32 miles, (51km). Much latter during WWII the tearing up of that line and the construction of a petrol pipeline over the mountain to the north from Glen Davis where other deposits of Torbanite were being converted into petroleum products as part of a self-sufficiency drive during WWII⁷⁶.

The hundreds of families who lived in Newnes, and later in Glen Davis; the vast industrial works and the complex infrastructure that supported it all, is now just decaying ruins, the sites degrading rapidly, and the valleys returned to pastoral activity. Years of below average rainfall and continuous steep cost increases in livestock production have reduced most properties in the Wolgan Valley to 'lifestyle blocks', the owners seeking income from employment elsewhere.

In 2003, a series of meetings, held half a world away in Dubai by the Emirates Group, resulted in a decision to establish a major eco-friendly, six star, resort in Australia. After nearly a year of desk research and searching on the ground, a decision was taken in 2004 to secure several properties in the Wolgan Valley beneath those 'singular and romantick' rocks sighted by Robert Hoddle in 1823. Research shows that the holding by Emirates for the Wolgan Valley Resort comprises nine different Portions of land totaling 643.1ha. The Emirates also maintain an additional 1200ha via lease from the Crown.

The Colong Foundation and many other groups expressed opposition to the proposal, which was on a scale not seen in NSW before and with boundaries overlapping the Wollemi National Park at one point. Indeed Donkey Mountain as part of the Gardens of Stone National

⁷⁵ 'Wallerowang' is the original spelling of the phonetic pronunciation, 'Waller-o-wong' of what today is known as Wallerawang.

⁷⁶ A confidential memorandum from the Secretary to Cabinet to the Secretary, Department of Supply & Shipping dated 22nd June 1943 documents the Commonwealth Governments commitment of £4 million to the project. The full text is set out in appendix X.

Park has been encircled by the holding and stringent conditions imposed on the operators of the resort to provide walker access and maintain the integrity of the fauna and flora.

The main point of the campaign focused on a land swap by which private vegetated land was exchanged with cleared areas of National Park land in the valley floor.

This meant that some 40 hectares of National Park in the valley had been grazed for generations. The land exchange made sense and resulted in a gain of land for National Parks. However, it became a very emotional issue with headlines such as “Landgrab” and “Luxury Resort on National Park Land” appearing in the Sydney papers.

As Allan Watson of Newnes, noted, the exchange is held up in part by a claim of Native Title on parts of the National Park. Emirates had therefore applied for a 20 year lease on a part between two freehold blocks that had been a farming leasehold block prior to it being absorbed into the Wollemi National Park. It was this lease proposal (of National Park land) that the Green Movement objected to. In the end the campaign was unsuccessful and the State Government of the day approved the project.

Construction on the resort complex started on 21st November 2007. I know. I was leading a walk to climb Donkey Mountain on the day and, at the gate where we proposed to leave our vehicles, we were challenged by project officials, concerned that we might, “interfere with the guests arriving by helicopter.”

In any event our walk went ahead without incident. We had a grandstand view of the event from the top of Donkey Mountain, the three helicopters dwarfed like insects below, and marveled at the black tied waiters refilling Champagne flutes to dignitaries in the sweltering heat.

After an expenditure of more than \$125 million, and major upgrades to fencing, power supplies and the Wolgan Road, the resort was opened on 1st October 2009. The original Webb homestead has been restored to colonial elegance and guests are offered a variety of activities including horse riding, nature walks, mountain biking, helicopter tours, wildlife safaris and historical tours.

Given that the guests are paying dearly for their visit, (the daily rate is \$1490.00 per person for a minimum of three nights)⁷⁷, the tours are appropriately pitched for the market. The two hour wildlife safari, (grade easy) is described on the resort website as follows;

“An all-encompassing tour of the Wolgan Valley reserve, the journey includes wildlife spotting and a trip to the Wollemi Pine Grove; home to the world’s oldest and rarest tree, endemic to the greater Blue Mountains.

“Guests are met at the homestead, either just as the sun rises, or approximately 30 minutes before sunset. These are the best times to observe native wildlife, as most are nocturnal.”

⁷⁷ The cheapest tariff as at January 2010.

"Kangaroos, wallaroos, wallabies and a variety of smaller, lesser-known species are the focus, as are the Valley's many native Australian birds. Field Guides are also well-versed in local bush lore and history".

"The Wollemi Pine Grove (a planted one, visitors are not taken to the site deep in the Wollemi National Park) is only one of two locations where the species is known to grow in the wild⁷⁸. The delicate pine belongs to a 200 million year old plant family, previously known only from fossil records. In fact, the tree is so rare that until its rediscovery in 1994, botanists presumed it to be extinct. The find is considered to be, the botanical revelation of the 20th century."

"Evening tours allow guests to try their hand at the art of 'spotlighting', using a torch to sweep their surrounds for the glowing eyes of nocturnal creatures as they start their nightly foraging for food. Canapés accompanied by regional wines and fresh juices round off the day, as the sun disappears over the horizon".

It is now virtually impossible to visit Donkey Mountain in the Gardens of Stone National Park without being conscious of the presence of the Wolgan Valley Resort. From the southern section of the park, every view from the ends of the finger points from Cape Pinnacle to Wolgan Pinnacle off the Sunnyside Ridge in the Gardens of Stone National Park (some of the best bushwalking in the lower Gardens of Stone National Park) now includes a view of a collection of inappropriate buildings in an otherwise pristine National Park.⁷⁹

The development (lease held by Emirates) provides for up to 4 helicopter flights over the Greater Blue Mountains National Park per week creating unavoidable noise at a low level and exhaust pollution across the Blue Mountains National Park, the Wollemi National Park and the Gardens of Stone National Park. The drawing of water from Carne Creek for the water supply of the resort could have detrimental effects on the ecosystem downstream.

University of Western Sydney researchers led by lecturer Jack Wofenden, and his team as a part of a two year ecological study of the conservation area within the new Wolgan Valley.

"We were really amazed by the water quality results for the upper Carne which has its headwaters in the Gardens of Stone National Park," Mr Wofenden said.

"The conductivity results in particular are the lowest I have ever seen in any mountain stream, which is a good indicator of the pristine conditions within this system.

"I was gobsmacked. We checked it again and again and again to be sure. It's the cleanest stream I've ever seen."

⁷⁸ The plantation is not 'wild'.

⁷⁹ It is interesting to note Allan Watson's philosophical view. He writes, 'Considering that the alternative might have seen the Webb's property cut up for hobby farms, I have no problems with the resort outcome. Just take a look at the Hartley Valley today and try and convince me if that would have been a better outcome for the Wolgan; "Inappropriate buildings in an otherwise pristine National Park"? Well, given that most of it is not in national park anyway, how would you prefer inappropriate buildings all over the property if it were a valley of hobby farms?'

Author's Note. As a purist it would have been preferable for the entire valley lands to have been acquired for addition to the Gardens of Stone National Park. (Michael Keats).

The team, headed by Dr Julie Old from the School of Natural Sciences at Hawkesbury, is working to establish water quality benchmarks for the Wolgan River and Carne Creek which runs through the 3000ha property. They are also looking for platypus and conducting a number of flora and fauna studies in the area.

The research, in part, is funded by the Emirates Hotels and Resorts, and involves undergraduate students from UWS's new bachelor of animal science course.

Mr Wolfenden said the implications of the findings "establish Carne Creek as a beautiful system we should be proud of".

"There is probably aquatic fauna in the creek we haven't seen before," he said.

"It's special and we need to keep it that way."

The two year study, which started last September (2009), will track the results of the Wolgan Valley Resort and Spa's conservation plans to re-establish the site's natural habitat and indigenous species after the area's long history of agricultural activity and cattle grazing.

The State Government legislating the 'commercialising' National Parks in June 2010 can only be deleterious and further compromise surviving populations of flora and fauna. As a society, we will rue the decision taken to allow the development to occur even if it ultimately goes the same way as the failed industrial developments at Newnes and Glen Davis.

17 Coal Mining⁸⁰

The Sydney Basin is both blessed and cursed with bounty. It is blessed with some of the world's finest sandstone landforms, some of which are now protected by National Parks, however successive governments have failed miserably to listen to reason and to protect the choicest places because of bounty of a different kind – coal.

Coal, via the conduit of royalty payments is the economic saviour of NSW and as such any 'request' of the coal industry for access to this black gold over rides any reasoned argument to protect irreplaceable heritage. The reason that the original proposal for the Wollemi National Park excluded the areas now under threat was at the 'request' of the mining industry. The reality is it was no 'request' it was, and is, blackmail.

The 'black bounty' underlies the entire Sydney Basin in a sequence of seams of varying quality and thickness. A sad thing is that the cheapest points of access to this 'bounty' are at the edges of the Basin where it is closest to the surface. This same selvedge is where pagodas have developed their most advanced forms.

The Colong Foundation for Wilderness have mounted cogent argument and presented an irrefutable case for sanity to prevail. Set out below is an extract of part of that argument.

"The Katoomba and Lithgow Coal Seams under the State Conservation Area proposal have been subject to underground mining for more than 120 years. An advantage of underground mining is that the associated surface works, such as ventilation fans, can be located away from the more environmentally sensitive areas. In practice, however, the location of dams, pumping stations, powerlines, water pipes and numerous roads within the proposal area have tended to be hastily considered with little thought given to minimising the cumulative impacts of successive infrastructure installations. Some recent efforts have been made by Centennial Coal to locate new infrastructure within existing road easements, which has partly reduced the impacts. Unfortunately, these efforts to protect the environment have in part been negated by the construction of an effluent diversion pipeline through an endangered Newnes Plateau Shrub Swamp.

The problems associated with coal mining include:

- i. Mine access roads and utility easements that fragment bushland, encourage inappropriate off road vehicle use and facilitate weed infestation and foraging by feral animals.*
- ii. Soil erosion associated with mine operations and road construction, and soil slumping associated with subsidence of the land surface when the coal seam is extracted. Mine subsidence occurs when the rock strata above the colliery collapse into the void created when the coal is removed. In the Newnes Plateau area, surface subsidence can be up to two metres, but is typically in the order of one metre.*

⁸⁰ These notes are reproduced with permission, granted 6th April 2010 from "The Gardens of Stone Park Proposal - Stage Two" by Keith Muir for the Colong Foundation for Wilderness Ltd.

- iii. *Cliff collapse: surface subsidence can be associated with rock fracturing, which, when it occurs near cliff lines, induces cliff collapse and rock falls. Cracks can also transgress prominent physiographic features, such as pagodas, woodlands, heath and swamps. Such damage is capable of degrading the visual quality and ecological function of the landscape.*
- iv. *Changes to the watertable, particularly but not solely in the context of endangered upland swamps and natural springs, can cause dieback of native vegetation and subsequent loss of wildlife. The swamps can dry out and sustain serious gully erosion and be destroyed entirely, if the peaty soil burns during the next bushfire event. Establishing protection zones in key areas, including all streams and the high altitude shrub-swamps of Newnes Plateau, will reduce damage to the groundwater table. This is particularly important as these peat swamps make a fundamental contribution to the Wolgan River and its tributaries, sustaining the river during dry periods.*

Under the Threatened Species Act, 1995 the NSW Scientific Committee has listed longwall mining as a Key Threatening Process to threatened species and communities (Hughes, L. 2005(a)). Such mining has contributed to adverse effects on the Newnes Plateau upland swamps, which have been recently listed as Endangered Ecological Communities (Hughes, L 2005(b)). The adverse effects of longwall mining are best documented for swamps on the Woronora Plateau (Gibbens, 2003), that are functionally similar to those on Newnes Plateau and likely to be affected by the same adverse influences.

- v. *Dissolved and filterable salts of manganese and iron are present in waters pumped from the collieries within the park proposal. Oxidation of the effluent water by biological agents causes anoxic conditions for some distance downstream from the discharge points. Pollution of pristine streams, such as the Wolgan and Wollongambe Rivers and Bungleboori Creek is abhorrent and should be totally avoided. Mining operations currently extract about 28 ML of water per day from the groundwater resources of Newnes Plateau. This effluent water is now being diverted by Centennial Coal into the Coxs River catchment for storage in Lake Lyell and Lake Wallace. There is concern that this level of pumping will, over the protracted life of mining operations, compromise streams running from Newnes Plateau into Sydney's water supply catchment and the World Heritage Area, perhaps even to the extent that they cease flowing except after heavy rain. Should this eventuate, wholly or in part, many Newnes Plateau Shrub Swamps will die. It is unfortunate that this valuable groundwater resource is to be wasted as coolant in the coal fired Mount Piper and Wallerawang power stations. The State Government has yet to apply more stringent water conservation measures to the power industry.*
- vi. *Appropriate regulation of coal mining operations. By having regard to conservation of the area's natural and cultural values, coal mining operations can minimise their impacts on the proposed State Conservation Area. Despite nearly all the proposed State Conservation Area being subject to coal mining*

leases or interests, it is possible to reserve it to a depth restriction under section 30G of the National Parks and Wildlife Act 1974. Section 47H of the same Act provides that a state conservation area does not affect "the terms and conditions of any existing interest in respect from those lands from the Crown: or the use permitted of those lands under the interest". The recently introduced coalmine subsidence management planning process should ensure that the values of the Gardens of Stone area are protected for future generations. Under subsidence management, plans upland swamps, pagodas and cliff lines all qualify for protection from mine subsidence. Protection zones require parts of the coal seam to be retained to ensure that the surface environment does not experience environmentally unacceptable subsidence during mining operations. Using the subsidence management planning process, protection zones should be extended to apply to streams within coal leases to ensure that aquatic environments and their dependent wildlife are not destroyed. Areas requiring priority protection include Cape Horn to Mount McLean, an extremely scenic but remote watershed running off the Great Dividing Range, and the Baal Bone Creek headwaters, both in Wolgan State Forest. Similarly, the outstanding scenic beauty of the cliffs and pagodas, and the important cultural heritage of the oil shale ruins should make Mount Airly a heavily constrained area for mining, with extensive protection zones. The best mining method for Mount Airly would be partial extraction by board and pillar methods, as adopted at the Clarence Colliery. This mining method has protected Goochs Crater from damage by limiting surface movement to three centimetres.

Pollution licencing by the Environment Protection Authority and selection of the appropriate discharge points can prevent damage to pristine rivers. Clarence Colliery has established an upgraded water treatment plant for mine water so that iron and manganese are removed before discharge. Recently these discharges have been directed to Farmers Creek and should be used to improve environmental flows for the upper Cocks River rather than to enhance water supplies for power generation. The water from the Springvale Colliery is also being transferred from the mine pit to the Cocks River catchment but without adequate treatment. The in-ground placement of the waste water transfer pipe from the Springvale mine should minimise visual and wildlife impacts; however, pipeline construction has damaged sensitive upland swamps and woodland communities."

18 Sand Mining⁸¹

A draft sand mining strategy developed by the Department of Infrastructure, Planning and Natural Resources in June 2005 plans to provide Sydney with sand resources for the next 30 years and has targeted Newnes Plateau for investigation. The Department has identified a several billion tonne sand resource on the plateau that it wants to assess. Sand quarrying in indifferent surroundings is not objectionable but large-scale surface mining would be intolerable on Newnes Plateau, particularly as the industry has difficulty keeping to established environmental safeguards, such as ensuring its discharge waters are clean of sediment.

⁸¹ These notes are reproduced with permission, granted 6th April 2010 from "The Gardens of Stone Park Proposal- Stage Two" by Keith Muir for the Colong Foundation for Wilderness Ltd

Sand mining requires the complete removal of the natural environment due to clearing and wholesale quarrying of the landscape. Road works, soil erosion, steam saltation and vehicle pollution extend this destruction beyond the immediate extraction site. Three operators have consent to quarry sand on Newnes Plateau: Boral Resources, Kables Sands (Pioneer Concrete) and ROCLA Quarries. Of these, ROCLA has virtually exhausted its lease area, Kables Sands has just received a 20 metre depth extension for its existing site and Boral Resources is not operational. Approximately 310,000 tonnes of sand per year are currently being quarried from the ROCLA and Kables operations.

The environmental impacts of surface mining for sand on Newnes Plateau include:

- Visual impact on scenic amenity of the plateau and surrounding valleys;
- Dust and noise pollution from quarrying and truck movements;
- Discharge of turbid water from overflow points and filling of downstream water holes and canyons with sediment;
- Replacement of hillsides with supposedly rehabilitated deep rectangular pits (unsuitable for any future use);
- Failure to sequentially rehabilitate mined areas during quarry operations resulting in on going pollution and environmental degradation;
- Disturbance to the hydrology of the watertable, thereby inducing ecological destruction;
- Lowering of the near surface watertable causing the unique high altitude shrub swamps to dry out and be replaced by exotic pines and other trees.

Many sites around Sydney contain sand resources, and of these the Newnes Plateau on the watershed between the Greater Blue Mountains World Heritage Area and the headwaters of Sydney's water supply catchment would be one of the least suitable places for development of a sand mining district. If the mining strategy is approved a visually intrusive, polluting, noisy, dusty blight will be imposed on one of the most botanically diverse areas around Sydney. Local and state environment groups oppose surface mining within this park proposal due to the significant and non-reversible damage caused. In particular, the groups oppose the proposal by Sydney Construction

Materials for a 27 million tonne mine adjoining the World Heritage Area at Newnes Junction and the proposed sand mining site in bushland on the Western Escarpment south east of Clarence Village.

The Sydney Construction Materials proposal

Sydney Construction Materials' sand and clay mining proposal is in a Crown Reserve on a descending spur that leads to the Wollangambe River and the Wollemi Wilderness; it is sandwiched between a small village at Newnes Junction and the Blue Mountains National Park. To prevent intrusive development locating next to the World Heritage Area, the site should be added to the proposed state conservation area.

A previous sand and clay quarry proposal on the site was rejected by the Lands Department as being at odds with the preferred nature conservation and environment protection uses of the Village Reserve. The diverse bushland on the site is essentially in a pristine condition and includes two nationally endangered shrub swamps. This proposal, located close to the Wollangambe River, would have more direct impact upon the park and be more visible than any existing operation in this sensitive catchment upstream of the Wollemi Wilderness.

19 Off Road Vehicles⁸²

The Gardens of Stone State Conservation Area proposal should encourage the responsible use of vehicles by family groups, rather than promote use by high impact off road motor sports enthusiasts. The potential adverse impacts of recreational off road vehicles on natural environments include:

- vegetation damage and removal
- damage to rock formations
- soil compaction
- erosion
- rutting and gullying of 4WD management roads
- stream bank erosion
- stream saltation
- noise as many trail bike motors do not have adequate mufflers
- increased fire risks associated with use of trails
blazing of new tracks
- costly repairs to management tracks
- increase in illegal activities (collection of plants, firewood, animals and rock)
- dust generation
- damage to and fragmentation of sensitive environments
- death and displacement of native animals
- dumping of travellers wastes, rubbish dumping and other mindless vandalism, such as using trees as vehicle winch anchor points, ringbarking and killing them
- weed dispersal
- incompatibility with other users seeking quiet recreation
- endangering the lives of themselves and other park visitors
- damage to cultural heritage sites (Aboriginal sites and historic road passes)
- loss of native vegetation and scarring of the landscape

Road development is one of the key environmental impacts arising from coal exploration and mining, largely a result of constructing access lines for exploration and monitoring processes, followed by the provision of powerlines and surface infrastructure for mining and water transfer processes. The establishment of these rough 4WD exploration and utility access roads enables trail bike riders, rubbish and car dumpers, bush rock thieves, pig dog hunting enthusiasts and shooters to access otherwise remote bushland. The problem is multiplied by logging roads, numerous minor tracks used to pull a handful of logs out of the surrounding rugged bushland and by fire management roads. The latter roads are unnecessary, given the other roads in the area.

Drivers and riders of a proportion of off road vehicles, particularly trail bikes, revel in the so-called 'technical terrain' with mud, sand, 'roll overs', steep slopes, loose rocks, stream crossings and rock bars. In the last decade, off-road activity has begun to cause environmental degradation over a wide area of the Gardens of Stone.

⁸² These notes are reproduced with permission from "The Gardens of Stone Park Proposal- Stage Two" by Keith Muir for the Colong Foundation for Wilderness Ltd

While there are some 4WD clubs and associations that promote responsible driving amongst their members – being the drivers of registered vehicles by licensed drivers on designated 4WD trails - there is clearly a significant majority using the Gardens of Stone area who drive vehicles irresponsibly, may be unlicensed and/or drive unregistered vehicles. Unlicensed trail bike riders often have no regard for the damage they cause or the fact that their off road activities are illegal. There is currently very little management of these activities.

Damage to the geo-diversity of the Gardens of Stone is permanent; some flora may eventually recover but not the non-living part of the ecosystem.

Access management necessary to protect the area.

A much more precautionary approach is required or vehicle access regulation in the Gardens of Stone. To be sustainable, visitor use and enjoyment must be made compatible with the conservation objectives of the proposed conservation area. No motor vehicle should be allowed to go off road on public lands, particularly in a sensitive area like Newnes Plateau.

Bungleboori camping and rest area is located at the junction of the Old Bells Line of Road and the Glowworm Tunnel Road. Trail bike riders have spoilt the area but it has recently been rebuilt. The water tank has been smashed at least once and the area from Bungleboori to the Fifteen Mile plantation has become their exclusive playground riddled with eroding tracks. Police patrols should be increased to prevent trail bike riders driving illegally or irresponsibly.

The siting of park facilities should be away from fragile rock environments. Competitive events are not acceptable in the pagoda landscapes due to potential injury to competitors and the likelihood of damage caused by competitors stumbling over padogas.

Appropriate signage should regulate vehicle use of retained management tracks, while all unwanted tracks should be closed, actively rehabilitated and management trails gated.

The gated access on the Wolgan River link road is a step in the right direction. The plan of management for this sensitive area should limit access to pedestrians only. This short road should be closed and rehabilitated. The Wolgan River crossing serves no purpose other than to present a challenging river crossing and hill climb for 4WD vehicles. Similarly, vehicles should be prevented from driving onto the rock formations at Cape Horn.

Since the above words were written the trail bike problem in The Gardens of Stone and beyond area has become worse with new tracks appearing almost every month. The authors advocate the immediate registration of all off road vehicles as documented by recommendations 27 and 28⁸³ in the Third Report of the House of Representatives Standing Committee on Environment and Conservation, "Off Road Vehicles – impact on the

⁸³ Recommendation 27 "there should be a form of compulsory registration which enables vehicles to be registered a recreation vehicles for use only off roads", and Recommendation 28 "recreation vehicle registration should require compliance with safety standards and maximum noise limitations and the display of recreation vehicle registration plates."

Australian environment, March 1977. Regrettably this document has languished with no action being taken.

A similar enquiry into Off Road Vehicles conducted by the NSW State Pollution Control Commission that included similar recommendations, dated 23rd November 1979, has met the same fate and sensitive lands continue to be degraded at an alarming rate.

Mountain Bike Riding

The differential impact of person powered Mountain Bike Riding and unregistered powered bike riding in wilderness areas is all a matter of degree, as quite often the same 'roads' and 'tracks' are used by both groups.

It is significant that the Lithgow Visitor Information Centre produces a leaflet guide for riders that even suggests the Newnes Plateau as offering "some excellent opportunities for Cross-country Mountain Bike riding on both single track and fire trails. Topographical maps are necessary for the adventurous heading off road."

This encouragement coupled with an under resourced Forests NSW who do not police their road network in any way, but bemoan "illegal use is difficult to police⁸⁴" has created a situation that is out of control. It was bad in 1979. In 2011 the degradation is, in places irreversible.

⁸⁴ Forestry Commission officer Rasmussen giving evidence to the NSW State Pollution Control Commission, "Off-Road Vehicles Inquiry, 12th June 1979 in Nowra.

20 Wollemi International Airport?

Of all the proposed esoteric, quirky, and completely inappropriate options for land use on the Newnes Plateau, the most far fetched and bizarre must go to the idea that the Newnes Plateau should become the second International Gateway for overseas visitors arriving in Sydney.

When the question of finding some supporting evidence for this case was put to the Local Studies Unit of Lithgow Library, we fully expected to be laughed out of the door. Not so. The response was a significant dossier of material spanning a 3 year period from November 1997 to July 1999. The issue has surfaced again in 2011.

One specific location for the international size runways and supporting infrastructure that has had serious consideration in recent times is the existing 7 mile pine plantation on the Glowworm Tunnel Road, while the most outrageous puts it on Railmotor Ridge...

We had already noted that an International Airport did not even rate a mention in the listing of Management Issues detailed in the submission by the Colong Foundation for Wilderness paper on the Gardens of Stone National Park, Stage II.

In reviewing the historical material as documented in the Lithgow Mercury records, it seems that Marrangaroo (a few kilometres north west of Lithgow was considered as a site for an airport as early as 1939, (Lithgow Mercury 13th February 1939). The proposal did not get off the ground.

21 Hunting in the Newnes State Forest

Having introduced many exotic species of animals and birds for purposes of either food production or for pleasure, the early settlers had little regard for what damage escapees would have on native species or the environment. In fact, there was an active hatred of the Australian Bush so the destruction and or annihilation of species did not come to be an issue until irreversible damage was done – some 150 years or so later.

Belatedly programs were established to reduce economically damaging introduced species. The motivation was purely economic. Rabbits were competing with livestock for grass, so something had to be done and we witnessed the Myxomatosis and the Calicivirus campaigns. Neither has been one hundred percent successful and never will be; that is the sad story of just one ill conceived importation that has cost Australia billions of dollars and will continue to do so.

Expanding the list of thoughtless imported species includes Feral Cats, Wild Deer, Wild Dogs, Foxes, Feral Goats, Hares and Feral Pigs. The compound impact of each of these species acting in concert is native wildlife decimation. No quantification of the cost of species loss or land degradation has really been attempted and there is little point.

Is there any hope of redemption? Probably not. What has happened is that hunting of declared feral animals is now permitted in State Forests. This is a tool in the armoury of feral animal mitigation. It has many downsides including unintentional shooting of native species. There are no studies on the impact of shooting ferals on the breeding patterns of native species. The noise alone is probably a major deterrent. Vehicles, trampling and pollution are also major factors.

The Game Council of NSW is the body empowered to issue licences to hunt in the Newnes State Forest. Statistics provided by the Council are included here for information. In addition to the tabulation below, the total number of hunters allowed is 37. Hunters can use firearms, dogs, bows and blackpowder.

Animal	May 2011		Jan 2011		Dec 2010		May 2010	
	Seen	Taken	Seen	Taken	Seen	Taken	Seen	Taken
Feral cats	35	21	29	21	29	21	22	13
Wild deer	8	2	7	2	7	2	7	2
Wild dogs	21	7	21	7	21	7	19	4
Foxes	125	28	97	25	93	24	70	20
Feral goats	45	6	41	6	40	6	30	3
Hares	18	7	17	7	17	7	15	5
Feral pigs	38	41	36	37	35	36	33	32
Rabbits	533	111	449	92	427	89	349	70

**Seen* is number of animals sighted, *taken* is number of animals harvested from the forest.

In addition as a condition of licence hunters are issued with exclusion zone maps, which they must sign for. The maps are updated regularly. A sample map is set out below

Foxy I cannot print this

22 Hang Gliding

Firstly, I have been flying hang gliders in the Blue Mountains for the past 20 odd years and can honestly say it is an experience that you definitely have to try if you get the chance. The main site we fly from is at Mt Blackheath. Our site at Wolgan has quite a long history. In the early 1990s, a wooden ramp was erected by local pilots from Lithgow, but this ramp, fell into disrepair and was eventually burnt by vandals several years later. Our local Club, the Blue Mountains Hang Gliding Club then erected the current steel ramp in 1996, which I assume is the ramp you have discovered on your walks.

This is strictly an advanced pilot site due to the position of the ramp out from the sheer cliff. This site not used very often due to the difficulty in getting to the site and also due to the fact the prevailing weather conditions in the mountains being more favourable to flying at our other sites. I have personally flown from this site and I can say that the view looking over into the Wolgan Valley is nothing short of spectacular.

23 A 6000 Megawatt Power Station and associated Coal mine proposed for the Newnes Plateau

Researching for information about this proposal has been a challenge. It would appear from various source documents⁸⁵ that the proposal was in two distinct parts.

One part, relates to a joint proposal by The Electricity Commission of NSW, and a Japanese based consortium headed by Taiheiyō Coal Mining Company Ltd to develop a large underground coal mine near Birds Rock on the Newnes Plateau and export this coal to Japan⁸⁶.

The second proposal has been more difficult to formally identify. This proposal was to establish and operate a power station in conjunction with the Birds Rock Colliery, drawing on water supplies from a proposed dam on the Colo River. Oblique references to this proposal can be found in a commissioned survey of the Newnes Plateau / Colo River area by the Electricity Commission of NSW⁸⁷,

“...the Museum was advised that the faunal survey was required as background information, to be used in the preparation of environmental impact statements. Such statements will be prepared by the Electricity Commission in connection with a number of possible development projects planned for this area. No details of any such proposals were furnished to the Museum although some of these, at least in outline, were mentioned in informal discussions.”

A map, Figure 2.1, showing the proposed corridor from a dam site on the Colo River to the Newnes Plateau via Mount Cameron is included in the report between pages 3 and 4. A copy is reproduced as part of this document.

⁸⁵ Report on Item 10, Services Plans of Birds Rock Colliery Feasibility Study Stage 2. Contributors: Sinclair, Knight & Partners, Electricity Commission of New South Wales, Taiheiyō Coal Mining Company Ltd, Birds Rock Colliery, Taiheiyō Coal Mining Company. Publisher: Sinclair, Knight & Partners, 1980. Includes: folded plans, maps.

Electricity Commission of New South Wales, Taiheiyō Coal Mining Company Ltd, Birds Rock Colliery, Environmental Impact Statement, c. 1981. Includes: folded plans, maps.

Birds Rock Colliery Pty Ltd, Birds Rock Colliery, Environmental Impact Statement, January 1981.

An inquiry pursuant to section 119 of the Environmental Planning and Assessment Act, 1979 into a development application, Birds Rock Colliery, an underground coal mine near Birds Rock on the Newnes Plateau, NSW, Mr John Woodward, Chairman and Dr Alan Gilpin, Commissioners of Inquiry March, 1982.

Electricity Commission of NSW Taiheiyō Coal Mining Company Ltd Appendix B, Report on Item 10, Services Plans of Birds Rock Colliery Feasibility Study stage 2. Publisher: Sinclair, Knight & Partners, February 1980.

Department of Environment and Planning, Proposed Birds Rock Colliery, Newnes Plateau, Environmental Impact Assessment, November 1981.

Birds Rock Colliery Groundwater study Mine Inflows Appendix H, Australian Groundwater Consultants Pty Ltd, Publisher: Sinclair, Knight & Partners, Report 691, April 1981. Includes: folded plans, maps.

Birds Rock Colliery Water Quality Monitoring Program Appendix G, Publisher: Sinclair, Knight & Partners, May 1981. Includes: folded plans, maps.

Birds Rock Colliery Project, Birds Rock Colliery Pty Ltd Submission by the National Parks and Wildlife Service March 1981

⁸⁶ Birds Rock Colliery – Review of Environmental Impact Statement Submissions, May 1981, p.2.

⁸⁷ Faunal Survey of the Newnes Plateau/ Colo River Area, September 1979, “Appendix J,” Australian Museum, p.1.

A further oblique reference is contained in a paper prepared by the Colo Committee,⁸⁸

"A power station on Newnes Plateau would inevitably pollute the Colo Wilderness with heavy metals and other toxic pollutants, both by water and air."

The Colong Foundation for Wilderness further advised,

"On 6th September 1977, the NSW Electricity Commission advised the National Parks Association of its intention to build a power station near Birds Rock in Newnes State Forest. At the time, the proposed 6,000 MW power station was to be the biggest in the world".

Associated with the proposed power station on Newnes Plateau, a 110 metre high dam was proposed for the Colo River near Boorai Creek. A three kilometre road along Boorai Ridge and a helipad was constructed. A track from the ridge to the Colo River was established and a flow meter constructed.

The Sydney Bushwalker,⁸⁹ May, 1978. Editorial

"Most readers will be aware of the proposed dam on the Colo River and, rightly, are horrified at the prospect of the last wilderness area close to Sydney being destroyed. To argue that dammed water is not unattractive or sometimes even improves the landscape is ridiculous, for the associated construction sites, roads, power-lines, etc. are the real destroyers of beauty. (In a satellite photo I have of the whole of Tasmania, taken from about 3,500 km above the earth, not even Hobart shows as a blot on the green of the island, yet the construction roads to, and power-line clearing from, Lake Pedder show as huge scars even from that height.) The Colo's waters will not be used for drinking water or for hydro-electric power. The plan is to mine coal on the Newnes Plateau, build a huge coal power-station there – Wallarawang (sic) size: - and use the dammed water for cooling. The used, heated water will no doubt be stored in artificial lakes near the power station. We are therefore protesting not just at the building of a dam but the destruction of a huge area of bushland. Let's look at the Colo from a bushwalker's point of view. It is an area of spectacular scenery with huge cliffs close to the river, quite unlike the Grose and other Blue Mountain valleys. It is an area of real challenge, with no tracks, long distances. The river is still clean, drinkable, and well-stocked with fish. For we bushwalkers, faced with increasing petrol costs and the inevitable fuel shortages of the future, a wilderness area and ideal walking country so close to Sydney is especially attractive. In the last 25 years we have lost the Warragamba Gorge, the Burragorang, and many miles of the Cocks River. We have seen the flooding of the Kangaroo River and part of the Shoalhaven we have lost so many valleys in the Snowy Mountains."

The then Director of National Parks and Wildlife Service, D A Johnstone, wrote in scathing terms to the Secretary, Department of Environment and Planning, 17th March 1981, about the inadequacy of the Environmental Impact Statement issued by the proponent, Birds Rock Colliery. Extracts from the letter are set out below.

⁸⁸ Wilderness and Power, the case against a power station on Newnes Plateau and suggested alternatives – with special reference to heavy metals, Colo Committee, February 1979, Abstract, p.1.

⁸⁹ The Sydney Bushwalker is an official publication of Sydney Bushwalkers Inc.

"...In assessing the Environmental Impact Statement, the Service has been severely hampered by the paucity of information and detail within the Environmental Impact Statement...

...The Service is most concerned that no attempt has been made to consider alternative sites for the proposed development; even though a series of constraints on the potential locations of alternative development areas is presented. In fact the site chosen appears to have been selected on only one of the criteria advanced ... that is the access drifts have been located so that they penetrate both the Katoomba and Lithgow seams, Clearly this is a non selective criterion and appears to be on entirely economic grounds, disregarding important environmental considerations...

The Statement has not addressed a number of critical issues with respect to the potential impact on the existing environment and land use of the area. No assessment is made of, inter alia,

- 1 the impact of the proposed rail line*
- 2 the existing recreational usage of the area*
- 3 the effect of subsidence on hydrological regimes, both surface and groundwater and subsidence effects on geomorphology of the area*

Further, the survey for Aboriginal relics has proven to be totally inadequate...

The development proposals outlined in the EIS appear to be a primitive approach for such a potentially fragile environment."

It appears that the castigation of the NPWS about the inadequacy of the survey for Aboriginal relics, caused the urgent commissioning of a detailed EIS for the proposed Rail Spur from Newnes Junction to the colliery site. A document dated July 1981⁹⁰, reads, inter alia,

"The Survey

The route was inspected at every point of vehicle access, and surveys on foot made along most sections of the route from these points.

Many of the creeks are swampy, and owing to the nature of the soil and vegetation cover, very little erosion occurs in the area. Open sites were therefore unlikely to be found. Attention was paid to ridges and rock outcrops, where most sites in this area north of Clarence have been found.

What was found

At 4110 9922 a shelter, was found with flakes of fine grained siliceous material on the surface of a shallow deposit, and 10 axe grinding grooves on top of the outcrop.

⁹⁰ Birds Rock Colliery Pty Ltd, Environmental Assessment of Proposed Rail Spur from Newnes Junction to Colliery Site, July 1981, Sinclair Knight & Partners Pty Ltd, Appendix 3, a paper 'Archaeological Survey of proposed route of railway line between Newnes Junction and Birds Rock' June, 1981, Helen Brayshaw, Consultant Archaeologist, p2.

This site is on top of a ridge, above the railway easement. Although it looks stable, it is recommended that the site be inspected by a geologist and consideration be given to the possible effects of vibration.

Two additional sites were found near Bald Trig, a shelter, at 4318 9575, with a small amount of deposit, and one flake of fine grained siliceous material being seen on the surface. At 433 9580 one axe grinding groove. This groove is on a flattish rock near an outcrop, and only about 22 m away from the road, and very close to the proposed railway line."

The letter of transmission from the Service, dated 31st March 1981, in the ultimate paragraph, slams the proposal.

"...In conclusion, the National Parks and Wildlife Service considers that the environmental impact statement should be rejected and lodges a strong objection to the proposed development, pending a complete review of the proposal, preferably in the form of a Regional Environmental Plan for the Newnes Plateau. Such an exercise should take into account the full range of possible land use options for the area including nature conservation, coal mining and pine planting. Accordingly it is suggested that, if a new EIS for the Birds Rock Colliery is to be presented, any approval of the proposed development should be deferred until after the completion of any such Regional Environmental Plan."

The Bushwalker⁹¹, Volume 6, Number 4, May 1981, carried the following article

"The Electricity Commission of NSW has recently released an Environmental Impact Statement for a proposed coal mine on Newnes Plateau to be known as the Birds Rock Colliery. The headworks for the mine are to be sited in the headwaters of Carne Creek, otherwise known as the east branch of the Wolgan River. Mining would be underground, extending north towards Birds Rock, and east into tributaries of the Bungleboori Creek.

Submissions objecting to the proposal have been submitted by the Federation, the Colong Committee, NPA, TEC and NPWS. Conservation groups believe that the Birds Rock EIS is the worst since the new Environment legislation came into being. In fact, the TEC believes that the EIS contravenes the Environmental Planning and Assessment Act, and has threatened the Electricity Commission with legal action if the EIS is not withdrawn and rewritten. Even the Forestry Commission is reported to be unhappy with the proposal, as the proposed railway servicing the mine will go through one of its pine plantations.

The proposal, if it goes ahead will have severe impact on the natural environment of Upper Carne Creek, and could cause pollution to the Wolgan River. Numerous swamps at the head of Carne Creek could be drained. These swamps are particularly important ecologically, supporting many interesting plant species, and two rare birds, the Tawny Grassbird, and the Beautiful Firetail.

⁹¹ The Bushwalker is an official publication of the Confederation of NSW Bushwalking Clubs

Water for the mine and for coal processing will be obtained from tributaries of Carne Creek. These tributaries at present are an important wildlife habitat mainly because of the relatively large amount of water flowing along them. Reduction of the water flow due to damming of these creeks would seriously downgrade their value as habitat and would surely cause changes in vegetation along the creeks.

The proposed mine will be serviced by a railway running from Newnes Junction. The route of the line is to the east of the old Wolgan Valley Railway and crosses into the catchments of Wollangambe and Bungleboori Creeks. The line will have a deleterious impact on the Wollangambe Wilderness, being visible and audible well into this area

Recent cliff collapses at mines in the Lithgow area have highlighted the problems of siting mines in dissected sandstone country. The EIS claim that there are no significant cliffs in the area to be mined. On a recent inspection trip, cliffs of 30 to 50m were commonly sighted as were a few small canyons which would be destroyed if the walls collapsed."

In December 1979, The NSW State Government effectively put a stop to all development of the power station proposal by creating the Wollemi National Park, which included the Colo River, and the site of the proposed dam, an essential element of the power station plan. Whilst the worst aspects of the power station proposal have now been killed, the Newnes State Forest remains unprotected and the Birds Rock Colliery is still a possible development.

24 Selected early European settlement Shelters, Huts and Buildings

Introduction

When it comes to shelter, Aboriginal Australians in the Gardens of Stone area made use of what was available in the landscape, such as caves and overhangs. Where evidence of occupation remains, such as hearths, grinding stones, etc, we infer that such caves and overhangs were used as habitation sites.

Usage would have ranged from the very short term, seeking shelter from a storm, to longer term use such as birthing a child, conducting initiation ceremonies, or possibly tending a sick member of the tribe. A few favoured sites evolved as art galleries and tool making workshops. Evidence suggests some sites may have had multiple use functions and include artwork, tool making as well as hearths and grinding stones.

The Europeans

As Europeans spread across the Blue Mountains in the early 19th century, took up pastoral leases, or merely squatted on the land, one of the first activities after securing food and water was to create shelter for themselves, their families and their possessions. Initial huts were utilitarian, functional refuges. Construction was simple and generally made use of whatever materials were available.

Most of these early shelters or huts have been destroyed by time, storm and or fire, or rarely incorporated into more elaborate and extensive buildings. Often, all that physically remains is a set of stones where a chimney hearth was located. In other instances we have a sketch, or in rare circumstances, a photograph.

Some examples

The following diverse listing is understandably just a sample. Many structures have never been recorded at all. The sites listed range from single shelters, to special purpose buildings and structures to whole communities. The material is presented by topographic map.

Information about these structures varies enormously. For some, such as the Newnes Hotel, the story is so complete it merits a separate chapter of its own. For others such as the decaying stone chimney of a cattleman's hut on Newnes Plateau, the information is simply no longer available.

The story of each structure, or group of structures, is a rich social history. With some stories you will be able to visualise the builder labouring, smell the sweat and share the hopes and fears.

Map	Location	GR's	Description	Contact/ source if known	Probable or known use	Approximate time period	Status
Ben Bullen	Glowworm Tunnel	413 178	Wolgan Valley Railway	Leonie Knapman, Mark Langdon	Construction Workers hut	1905-	Exact sites are hard to verify
Ben Bullen	Newnes	423 254	Hotel	Thomas Ebersoll	Hotel	1907-current	Historic building
Ben Bullen	Nuggetty Gully	292 285	Nuggetty Gully		Gold Miners shack	1880s	Building collapsed

Cullen Bullen	Newnes Afforestation camp	437 058	Weather Station		Weather Station monitoring		Still standing
Cullen Bullen	Hermit Spur, BBSF	266 079	Modified cave		Depression housing?	1930 +	Safe to enter contains some basic furnishings
Cullen Bullen	Deanes Siding	426 137	Railway station buildings	Leonie Knapman	Railway siding	1906-1932	Only foundations remain
Cullen Bullen	Neubecks Creek, BBSF	270 083	Scattered buildings		Vietnam Vet's housing???		Collapsed, but identifiable
Cullen Bullen	Newnes Plateau, Wolgan River	349 076	Decaying stone chimney		Cattlemen's hut	1880s?	Stone Chimney remains
Mount Morgan	Wolgan Valley	491 262	Farm buildings	Luchetti family	Rural property rough accommodation	1970?	Buildings standing but unsafe to enter
Glen Alice	Airly	238 328	Airly town buildings, modified caves		Workman's housing	1880 -1910	No visible Evidence except for cave dwellings
Glen Alice	Genowlan Mountain	246 330	Mining sheds	Col Ribeaux	Workmen's housing	1960s	Buildings still functional
Gospers Mountain	Glen Davis	460 320	Bag town	Leonie Knapman	Miners accommodation	1940- 1952	No visible evidence
Lithgow	Bungleboori Camping Ground	395 005	Bungleboori Foresters accommodation		Housing	1940s	Perimeter fences remain
Lithgow	Blue Mountains Range	322 034	Bullock drivers hut	Danny Whitty	Emergency use in bad weather	1940s	No visible evidence
Lithgow	Gang Gang Swamp	404 023 to 404 027	Joseph Nimmo's Steam Sawmill		Sawmill	1882- 1890	Circular chimney footings
Lithgow	Maddox's Line of Road	404 984	Denis Manion's sawmill and residence		Sawmill	1871	Footings, well and artefacts
Mount Morgan	Glen Davis	458 294	Cave on The Inca Highway	Stephen Imrie	Surveyors camp + forge	1930s	Some minor artefacts still remain
Mount Morgan	Petries Gully	437 267	Boarding house		Miners accommodation	1905-	Only brick and stone chimneys remain
Rock Hill	Mount Budgery	474 102	Foresters Hut		Timber getters hut	uncertain	No visible evidence
Rock Hill	Mount Cameron	534 142	Cattleman's hut	Ossie O'Brien, Dick Bird, Danny Whitty	Cattlemens hut		Building standing but unsafe to enter
Rock Hill	Deep Pass	494 078	Norris Hut	Stephen Inrie	Farm hut		Foundations and hearth stones remain
Rock Hill	Natural Bridge	497 093	The Guzzlers Hut	Vince Murtagh	Refuge	Post WWII - 2004	Destroyed by fire in 2004. many artefacts remain
Rock Hill	Natural Bridge	512 099	The Yah Hut	Tim Hager Vince Murtagh	Social club house		Outer stone walls remain + central roof support

Workman's hut, Glowworm Tunnel, Wolgan Valley Railway

Finding evidence of temporary construction camps for the Wolgan Valley Railway is nigh impossible. The attached rare photo from the Ian de Beuzaville collection, courtesy of Leonie Knapman includes a wood and canvass tent, with a tropical roof, three men standing alongside it, while a fourth man, appears to be working at a forge nearby. It is possible that

all four shared the same tent. Best guess is that the picture was taken at Tunnel Creek, circa 1906.

The Newnes Hotel

In 1907, the same year that the Wolgan Valley Railway was completed between Newnes Junction, (Clarence of today is close enough) on the Great Western Line and Newnes, the Newnes Hotel opened its doors. Two years earlier, the Commonwealth Oil Corporation formally commenced establishing Newnes, as an industrial enterprise, to mine and process Torbanite, to make liquid hydrocarbon (petroleum) based products.

A complete history of the Newnes Hotel is set out in this book, pages XXX to XXX. The hotel was delicensed in October 1988, but continues as a museum, refreshment kiosk and information centre. It is the hub of life in the small settlement that Newnes has now become. Current owners, Thomas Ebersoll and Helen Drury also operate modern holiday cottages for visitors who want something more up market than a tent and less extravagant than the six star Wolgan Valley Resort.

The building is heritage listed and a very special destination for bushwalkers, canyoners and campers.

Nuggety Gully

Located on the southern slopes of Genowlan Mountain, and a tributary of Coco Creek, Nuggety Gully was the site of a short lived gold rush. Exposed metamorphic sediments in the gully yielded a number of gold nuggets. Several shafts were sunk but the gold was alluvial and the miners soon lost heart and moved on.

On the day we visited, the Nuggety Gully was almost dry and over grown with shoulder high weeds. After about 30m of pushing through this stuff and finding two, exposed but abandoned mine shafts, and verifying Carnes comments about Nuggety Gully we decided that it would be more pleasant to negotiate a long ridge to the west trending NW – SE.

In climbing out of Nuggety Gully, we came across the collapsed remains of an old shack and equally old equipment. An ancient plough share had been left for so long a sapling had grown through it, become a tree that had incorporated some of the discs into its trunk.

The Newnes Afforestation Weather Station recording hut

This extraordinary hut, at GR 437 058, located on the edge of a former *Pinus radiata* plantation, is a unique piece of history

The hut is a very small, pale green painted, galvanised iron building well hidden at the base of a very old pine tree, and strutted to it on the western side for support. Perhaps 1.5m x 1.5m in plan, it contained an old wood chip heater, properly flued to the outside, a car seat, and dry wood supply completed the furnishings. The door is a bit damaged but it can be closed creating a warm dry shelter if needed.

Nearby was another surprise, a now defunct rain gauge complete with electrical connections. It has a special embossed and engraved plate advising that it is and remains the property of the Commonwealth Bureau of Meteorology. The unit is of the electrical impulse type. It has been defunct for some time. Although set up for connection to 240v power supply, it undoubtedly had to be periodically serviced. The hut would have been shelter for the operative who may have had to visit in a snowstorm or other foul weather.

Hermits Spur, Neubecks Creek, Ben Bullen State Forest

Bushwalks often result in bizarre discoveries. This one was of sophisticated cave house on a rocky spur above Neubecks Creek. This is how I recorded our discovery. "On arrival at the narrow crest between two pagodas, we were in for a surprise, a cave that had been modified and converted into rough accommodation. This was at GR 266 079.

I called 'time out', as we explored this very isolated spot. The 'improvements' to the natural cave/overhang were quite extensive. Rough stonewalls about 1m high have been constructed around two sides, and concreted on the top. Sheets of corrugated roofing iron have been used to give added height to the walls. A double mattress had been installed, while cooking utensils including a very creative toasting fork were scattered about. An animal trap in the shape of a 50 x 50 x 50cm cube was lying on the floor. Of particular interest, were faded copies of the 'Daily Telegraph' newspaper dated 26th and 29th February 1984, possibly an indicator of the most recent occupancy.

One could not but admire the huge effort required to create this habitation, carrying in cement and a double mattress, to say nothing of finding and stacking the rock walls and carrying in bags of cement. Research by Brian Fox indicates that the site may have been created by a reclusive animal trapper. Located about 20m further north, is another overhang, which has had a basic stone wall, constructed on the western side. Brian and I have given this spur the name, the Hermits Spur. The spur is about 900m long and extends from approximately GR 265 077 to GR 272 083.

Deanes Siding

Deanes Siding is now shown as a locality about 4km north of the road junction of Glowworm Tunnel Road and Galah Mountain Roads. When the Wolgan Valley Railway was operating, Deanes Siding was important stop for adding additional locomotive power to enable trains to haul products out of Newnes.

In its operational days, buildings at the siding included a station building, a store building, a staff hut, the water supply pump engine house and six elevated tanks. Henry Deane in writing about the facilities at Deane wrote,

"At the station there is an 8 horse power Cundell Oil Engine, driving by means of a belt a Siemens Dynamo, which produces current at 500 volts. At the dam, there is a three throw pump, direct driven by an electric motor. Between the engine house and pump current is conveyed by copper cables, and there is another pair of wires by means of which, with the aid of a starting switch in the engine house, the pump can be set in motion.

In this way, the pump can be started without the necessity of any man visiting the pump. Labour is thus saved, and the water in the tanks can be replenished without delay. At both station and dam, the machinery is housed in a small building. A line of 3 inch pipes conveys the water from the pump to the engine tank. In connection with the water supply, an elevated stage has been erected carrying six 400 gallon tanks as at the Junction, and there is also a coal stage to carry 50 tons of coal".

Neubecks Creek drainage, Ben Bullen State Forest

The Ben Bullen State Forest tributaries of Neubecks Creek have been illegally used for rough accommodation on quite an extensive scale. At least two sites have been identified and information from locals living in Blackmans Flat would suggest that more huts existed at another time.

We are aware of two hut sites. One of these is a now collapsed timber and corrugated iron hut, located at GR 270 083. This hut is of unusual construction being built in a semi log cabin style, with a centrally disposed entry at one end. The corrugated iron roof is now protecting the collapsed and decaying log walls. In August 2008, on another walk, I noted a similar derelict hut located at GR 266 081, about 300m south west of this hut. Running through my mind is a question, whether there is a connection between these two huts and the modified cave on Hermits Spur.

At the end of Australia's involvement in the Vietnam War, a number of returning veterans were unable to integrate back into mainstream society. It could be that these huts were built and used by such men.

Hut on Newnes Plateau

Just east of the crest of the Blue Mountains Range, in the Newnes State Forest and about 400m east of the Blackfellows Hand Trail, on gently sloping ground above the 1100m contour, there is a collapsing pile of local rock crudely bonded together with a mortar made from a termites nest. A close inspection shows that this was a substantial chimney and hearth for a hut.

We do know from Danny Whitty and other sources that the area was used sporadically to graze cattle. Permanent water is available from the Wolgan River and tributaries and very rough alpine type grasses would have enable stock to survive. The area is also part of the Newnes State Forest, and the hut could have been used by forestry workers.

The structure stands alone. There is little telltale evidence of what the hut was used for or what period it was constructed. Disappointingly, a trail bike track lies within 10m of the ruin and has been used as a garbage bin by unthinking visitors.

The Luchetti property in the Wolgan Valley

The Luchetti cattle property was abandoned when the Wollemi National park was declared. The farm buildings include rough accommodation and large machinery shed. The rusting and decaying relics of the old grazing property, previously owned by the Luchetti family start at the former boundary gate, about GR 497 260 on the Wolgan Valley Trail and continue for

several hundred metres. Of particular interest is an old McCormick – Deering Tractor with the rubber tyres still intact.

Airly Town

The following excerpt from the “Airly Newsletter,” compiled by Diana Maynes, (see page XXX of this book).

“October 28, 1898, FIRE AT AIRLY

A hut occupied by Messrs. Evans and Hayes was completely demolished one day last week. As was their usual custom, they securely fastened their place and departed to work. Both occupants are positive they left no fire about. Shortly after dinner, smoke was observed issuing from the premises. Before any assistance arrived, the hut was completely destroyed. Besides their wearing apparel, and cooking utensils, Mr. Hayes lost his musical instrument, besides about £5 worth of music. The fire is a mystery, and it seems improbable that the origin will be discovered.”

This story is just an example of life in a town that no longer exists. It was created in the 1890s with the discovery of kerosene shale, and disappeared in the 1920s when the deposits were no longer economic. A visit today, 2013, to the site of the former town is almost one of disbelief that it ever existed. A few shards of broken glass, several stone chimneys and a few of the modified caves is all that remains of a once vibrant and thriving community of some 2,000 persons

The Mine in the Sky

Visiting ‘The mine in the sky,’ as it is affectionately known, is a unique experience. The following is extracted from my track notes for 11th April 2007,

“At 0900 we burst upon the scene of Col Ribaux’s, ‘Gold Mine in the Sky’, graphically illustrated in ‘The Story of Capertee,’ compiled by Bruce Jeffries, page 66. Here time did not matter as we prowled around the old buildings, examined some of Col’s hybridized machinery and had a go at trying to find a diamond in the discarded washings. I think we found some very nice clear quartz and that is about it!

Leaving the gold (and diamond) mine in the sky, we pushed north up the old road past heterogenous collections of disembowelled machinery items and experiments tried and discarded, evidence of Col’s ingenuity.”

Supporting the mining operation, there are several huts used as dormitory accommodation for the miners. These huts are of several different periods. The oldest huts are crude, with stacked bunks inside, whilst the most recent is a sliding glass door fronted Nissan Hut style building that could be recommissioned.

Bag Town, Glen Davis

Leonie Knapman, in her book, ‘Glen Davis, in the Blue Mountains of NSW – A shale Oil Ghost Town and its people, 1938-1954’, chapter 6, page 55 writes,

“When the first townspeople entered the Valley, Bag Town on the northern side of the Capertee River looked like a legacy from the stricken days of the Depression: like a makeshift soon to be wiped out.”

Whilst some evidence of more permanent buildings remains in Glen Davis, of Bag Town there is nothing. Describing the accommodation, Leonie continues,

"The dwellings on the right were under a common roof, with each room separated by a passageway providing entrance. Rooms consisted of a wooden bed, a cupboard for clothes and a small table or shelf. They had a wooden floor and a timber frame covered with whitewashed heavy duty Hessian."

The Hut on Log Hut Hill

On 3rd July 2010, Danny Whitty, Brian Fox and Michael Keats spent some time together. On that occasion with maps spread out, Danny advised a lot of information about places and features on the Newnes Plateau and Mount Cameron Plateau. One item Danny marked on the maps was,

"Log Hut Hill. Near the road junctions Beecroft Firetrail and Kangaroo Creek Road, Lithgow Topo Map, GR 322 034. Correspondence Danny Whitty, 3rd July 2010. Local usage name c1960s."

On 30th January 2013, Danny Whitty provided further information about this hut.

"The hut on Log Hut Hill was built by Bert Bird, my grandfather and his brother Jim Bird. The hut was located on the RHS of the road, the eastern side, driving up from Lithgow, and down the slope a bit to avoid the worst of the weather. It was built as emergency shelter with small adjoining stockyards for the bullock team."

I last saw the hut in 1955. It was a single room hut, timber slab in construction, plus bits and pieces of old iron, including cut and flattened 44gallon drums. This was mainly for the roof. The hut was finished internally with a canvass lining. It had no proper hearth, but a couple of steel stakes that supported cooking pots suspended by fencing wire from a star picket. An old 44gallon drum was used as an external water source. There was no stonework in the hut at all."

I have been back in recent times and can find no evidence of any structure at all."

Danny is unsure whether the materials in this hut were later transported to Mount Cameron for use in building the Mount Cameron Hut. If this supposition is true, it would account for why there is so little evidence left of the former hut on Log Hut Hill. If the steel items were the only ones relocated, then bushfires could have destroyed the rest.

Newnes State Forest – Foresters accommodation

On 20th November 2012, Brian Fox and Michael Keats interviewed Eric Lane, a retired Forestry Commission worker, in Lithgow. Eric worked for the then Forestry Commission at Newnes, commencing in 1981. Initially Eric and his wife Pam were housed in one of two relocatable cottages on the site of current Bungleboori Camping Ground.

Later, the Commission sold the cottages. One cottage was removed to McCains Falls, where it is still in use there, the other cottage was relocated to Lithgow, and has only recently been demolished. Eric and wife were relocated to Newnes Afforestation Camp site.

All that remains of evidence of the former use of the area for housing is the perimeter fence, which has been expanded to enclose the camping area.

Joseph Nimmo's Steam Sawmill

The October 2013 bush fire that swept across the Newnes Plateau revealed the long hidden remains of a cluster of buildings and facilities that included a steam sawmill, a dwelling and various ancillary structures such as horse yards. The site is located on the eastern side of Gang Gang Swamp with flowing water and about 20m from it and covers several hundred square metres stretching from GR 404 023 to GR 404 027.

Post walk research by Brian Fox tells the story of Portion 35, County of Cook, Parish of Cook. Survey Plan C1252-1507.

On 17th August 1882, a Joseph Nimmo took a Conditional Purchase 40acres. His Conditional Purchase lapsed 27th February 1886. His intended purpose was to operate a steam sawmill. When this 40acres was surveyed, 22nd July 1884, it was noted on the Survey Plan, Value of Improvements, Mill 400 pounds; House 30 pounds. Two years later a Special Lease, 7acres for a sawmill was granted to S. F. Tomlinson from 1st January 1888 to 31st December 1890. The fee payable was 10 pounds per annum.

The principle remaining structure is part of the Steam Sawmill. The most striking feature is a tradesman like circular ironstone chimney of local stone and bonded using mud. The cylindrical interior is 600mm in diameter and the walls are 500mm thick. It has a current height of 1900mm above ground level. Next to, and possibly connected to it is a rectangular structure, possibly a pit 8100mm long by 4400mm wide. This could have supported a horizontal steam boiler. The highest remaining wall is 3300mm high.

Scattered around the site area we identified (14) heavy cast iron pieces, pottery, glass, handmade chains, miscellaneous handmade iron objects, nails, spikes and 19 horseshoes. Also observed were handmade bricks, shards of hand blown bottles, an adze, chain links of various sizes, old harness fittings, a rasp for shaping horse hooves, a file for finishing horseshoe nails and hand forged pieces of iron etc.

Pictures of the many heavy iron pieces taken previously were identified by Philip Hammon from Scenic World, 11th March 2014 as,

"Grate irons from a boiler. When installed these were stacked side by side; burning coal (or charcoal) on top, air come up, through the gaps, and ashes falling down."

"If there was an installed boiler it would be for steam generation, possibly from a traction engine, although it could be a bit big, if it was a stationary engine, there would be chimney, foundations, water tanks etc. and importantly ashes, usually with moss growing on top, so easy to spot."

In turn Phil contacted a steam traction engine specialist, Robert Mills who advised on 15th March 2014,

"These are boiler fire grates, but they appear to be broken in half. My traction engine grates are 36 inches long, but these in full length would be shorter. They may be out of a portable steam engine or a stationary boiler."

Phil added, "Eucalyptus oil manufacture is a possible activity, also sawmilling. With the lack of substantial foundations to support a steam engine, a traction engine seems likely. These often burnt wood which doesn't leave a long lasting ash pile like coal does."

Two of the best finds of the day were a ceramic ointment pot jar and an antique glass bottle stopper.

The ointment pot/jar is 33mm high and 44mm in diameter. It is decorated with an image of a woman seated with a snake on the left hand side and the words "never despair" on the right hand side. The pot also has text as follows, HOLLOWAYS OINTMENT, For the cure of GOUT and RHEUMATISM, Manufactured only by the Proprietor. Inveterate Ulcers. Sore Breasts. Sore Heads. Bad Legs &c, Prices are 1/1 ½, 2/9, 4/6, 11/-, 22/- and 33/- per pot, 533 Oxford St London. Circa 1840 -1870.

Detailed research by Brian Fox has revealed the following additional information

"Thomas Holloway was born in Devonport, Devon, England on the 22nd of September 1800. He set up business for himself in 1837. He began by using his mother's pots and pans to manufacture his ointment in the family kitchen. Seeing the potential in patent medicines, Holloway soon added pills to his range of products. Holloway's business was extremely successful. A key factor in his enormous success in business was advertising, in which Holloway had great faith. Holloway's first newspaper announcements appeared in 1837, and by 1842 his yearly expenses for publicity had reached over £5,000 He died 1883.

An advertisement in The Courier (Hobart) 11th February 1859, p. 4, records, An Astonishing Remedy. HOLLOWAY'S OINTMENT."

The Antique Glass Bottle stopper was made in Thuringia, Germany between the years 1850-1860. The stopper is made from cast glass and contains manganese impurities which, with prolonged exposure to the sun have caused it to effloresce and turn a delightful shade of mauve.

The site also contains various other items which were from a more present time. These later items may have been left by bottle fossickers as there were no complete bottles located.

The above notes were compiled by Brian Fox, 28th February 2014 and 25th March 2014 with some input from the author 26th March 2014.

From an interpretation of all the evidence we now know this site operated as a steam sawmill from the 1884-1886 and then again from 1888-1890. The farrier operation would have been essential for maintaining the horses that hauled timber via drays to the sawmill, and then the

milled timber either to the Main Western Line or even as far as Lithgow. It is noted that this settlement predates the Wolgan Valley Railway by several decades and is also remote from the alignment of it.

Denis Manion's sawmill and residence

The surveyed plan of Portion 47 records the existence of a 'house, kitchen and stable', located south of 'Maddox Line of Road.' The same plan also documents a Conditional Purchase granted to Denis Manion in 1871. Maddox Line was later incorporated into the original Bells Line of Road.

At 1340 we had parked the vehicles at GR 402 985 and started the search of this surveyed portion which could still have artefacts dating back to 1871. The area has recently been subject to hardwood harvesting. Heavy vehicle tracks, cut timber stack areas and signs of recent activity were everywhere. The area had also been generally subject to intense fire activity although some areas had been spared.

Our searching for evidence of late 19th century occupation was successful. Found were the footings of at least one building and possibly two. Of great interest was the former garbage area, adjoining the probable kitchen site, where fragments of glass bottles and ceramic containers were found. A nearly complete green glass bottle was picked up with the impressed words, 'Hayman's Balsam of Horehound.' This product has the following testimonial published in the Sydney Mail, August 5th 1882.

*Relief from Cough in Ten Minutes
'Hayman's Balsam of Horehound.'
Is the most certain and speedy remedy of all disorders of the Chest and Lungs.
In Asthma and Consumption, Bronchitis, Cough and Influenza. Difficulty in breathing, Spitting of Blood, Whooping Cough,
Hoarseness, Loss of Voice, &c.
This balsam gives instantaneous relief, and, if properly persevered with, scarcely ever fails to effect a rapid cure
It has now been tried for many years, has an established reputation,
and many thousands have benefited by its use*

Also found was a fragment of a shallow lidded pottery jar for 'Henry's Colonial Ointment.' This magic potion was capable of curing, 'eruptions, sore heads, inflamed eyelids, blight, ulcerated legs, tender nipples and bad breasts.'

The Sydney Mail, 9th June 1877 carries an advertisement for this wonder cure all. The garbage site is at GR 404 984 and the collapsed stone foundations and possibly a chimney as well are all within a 30m radius.

Not mentioned on the survey plan, as it may have been constructed later is a well at GR 404 983. This well in about 2.5m x 2.5 m, and of uncertain depth.

The Inca Highway, the Surveyor's Cave

The discovery of this remarkable place was stimulated by research undertaken by Stephen Imrie. The story reads like fiction. What follows is an extract from my field notes from the first visit, 19th May 2012.

"Very soon, the group had pushed through the remaining scrub and we stood on the Inca Highway. Wow! This was indeed a magic moment. Here in the middle of nowhere was a cut and prepared trail that up to now had been a goal to be pursued. Once we had our minds under control, it was time to go exploring this amazing piece of industrial archaeology.

In the main overhang was a crudely constructed, elevated rock hearth complete with charcoal and adjoining retaining walls. An improvised anvil, a piece of railway line, was attached to a cut timber support with steel nails. Cut, forked sticks were set up to support working tools. A short length of steel tube, about 45cm long was lying on the rocks. No other tools or metal artefacts were observed. This whole blacksmiths set up was photographed in detail. It was possibly set up for reshoeing horses or sharpening rock cutting tools.

We now set about following the Inca Highway north. What we found was an amazing investment of human activity in constructing retaining walls up to 3m high, a bridle path over a metre wide that we could follow for more than 350m sharply rising up a cliff face where it seemed to terminate at a very steep gully, GR 459 294."

And from the second visit 4th July 2012,

"The Inca Highway, a cave and constructed pathway situated on the Wolgan / Capertee Divide with old internal infrastructure was seen by a bushwalking party led by Barry Higgins on the 3rd October 1977. Barry had likened it to the cliff trails of the South American Inca people and hence so named. Reference, track notes from Wilf Hilder collection held by Steve Imrie. David Warren Noble was also on this walk, and later added the name Inca Pathway on his map of the area.

A Bush Club walk on the 19th May 2012 to this location resulted in a much more extensive finds and research results.

The Newnes Investigation Committee had employed Surveyor Reginald Henry Pocock who in 1933 compiled contour surveys for works and township sites (future Glen Davis) and trial lines for a railway and/or aerial ropeway if required. Pocock also recorded that the survey party used a cave to sleep in to avoid the steep walking daily to and from camp.

Mount Morgan Topo Map, cave 459 292. Extensive dry stone walling extends from this cave for about 300m in a generally northerly direction. Ref: Pocock, R. H. Every Day a Picnic. A Surveyors Story. Reproduced within, Stateworks, January / February 1987, pp.28-32.

Boarding Houses in Petries Gully

The former kerosene shale town of Newnes is overflowing with historical industrial ruins. There are many such sites that could be included here as representative examples. Indeed, there are several complete books about the history of the former town and associated industrial complex. We have selected one site that is suspected to have been a series of boarding houses, possibly for senior employees. These ruins are removed from the town area and are close to the former manager's house.

The following is extracted from researched notes, 15th July 2009

"We moved on up Petries Gully to another set of ruins, three very similar, impressive sets of sandstone chimneys. The buildings appeared to be of similar layout and for the period quite large. The dominant chimneys feature twin fireplaces, (one has a triple), and were designed to serve adjoining rooms. Removed from these compound chimneys on each site is another chimney, lesser in height but larger in grate size that possibly served a kitchen. Behind one of these chimneys, and sharing a common wall, was a small storage room. If only bricks and mortar could talk."

And from my notes, 16th August 2009

"Next on our visiting list of ruins was a series of old sandstone chimneys. Stephen Imrie thinks these may have comprised a boarding house complex. Three separate, major, twin chimney structures are flanked by smaller chimneys set at right angles to each of them, and at a distance.

In the case of the first building, the smaller chimney was probably for the kitchen. At its rear is a small storeroom that may have been a dry goods store. The main room, possibly a dining area and adjacent lounge room would have been quite large by standards at the time. High quality, tuck pointed brick walls at the back of the building indicate a relatively big investment. Rusting, riveted square 400 gallon water tanks served each building."

Mount Budgary Hut

The Rock Hill 1:25000 topographic map, first edition, shows a hut at approximately 4724 1021, (AGD 66), on the second edition map, GR 4734 10474 (WGS 84). In 2013 the immediate area is quite bare although there is a lot of circumstantial evidence of human occupation.

Danny Whitty, a Wywandy tribe descendant, and a one time user of the nearby Mount Cameron Hut, has advised of some rather unusual goings on at the Mount Budgary Hut. Folklore has it that a loner lived in the hut who had a passion for Ford cars, other peoples Ford Cars. He would steal them and then drive them to the Mount Budgary Hut where he would systematically dismember them. The story continues that there was quite a large area under canvas where the various parts were stored. It is a bizarre story. It is suspected that the hut and adjoining structures, if they existed would have been dismantled and removed when the NPWS gained responsibility with the creation of the Wollemi National Park in December 1979.

The principal purpose of a site visit 23rd August 2013 was to search for, and document evidence to support or disprove the folklore. Based on what we found the following conclusions can be drawn.

- 1 There is strong evidence to support the existence of a hut, and a significant period of occupation and accumulation of man made objects.
- 2 The motor vehicle items found were from at least two different vehicles based on the mirror supports found.
- 3 It is conjecture whether there were many vehicles taken into the area, or merely parts of vehicles. Given at the time the road was open and maintained, and the extent of the scattered sites area discovered the folklore is believable.
- 4 Photos of the found car parts⁹², particularly the bumper bar rider was shown by Brian Fox to a Ford car enthusiast. He stated that no Ford vehicle had such riders.

⁹² Motor vehicle items found included various pressed metal struts and supports, chrome plated door trims, a heavy duty bumper bar rider with a rubber insert, an exhaust pipe end sleeve, internal and external rear vision mirror assemblies and a chrome plated item that was probably a dash board fixture.

This person suggested that they may have been from a Holden vehicle, possibly the HQ series 1971-1974, the HJ series 1975 or the HX series 1976-1977.

On 25th October 2013, I had a phone call from Danny Whitty offering further information about the evidence of human occupation of Mount Budgary. It appears that the builder /occupier of the area was known by the sobriquet of 'Tarpy'. This name originated from his extensive use of old NSW Railway tarpulins both as protection for his gear and also as a means of collecting rainwater. Tarpy also used to grow potatoes and turnips.

Mount Cameron Hut

John Cameron applied for Conditional Lease of Portions 2, 3 and 11 bounded by the Wolgan River and near the junction of Annie Rowan Creek in 1892. This total area of 250ac was confirmed 31st May 1893. He also took out a Special Lease in this area for grazing in 1921, which he held until 1928. Ref: Survey Plan 1930, 1931 & 1932. 1507. Parish Map of Rock Hill; County of Cook 1883 has the text added, 'Cameron's Old Track' this text does not occur on later editions. Mount Cameron is shown on the map, Parish of Wolgan, 1884.

The Survey Plan C1810.1507 dated 8th November 1890, describes Mount Cameron as, "The greater part of the area varies strikingly from the adjacent country, it appears to have resulted from volcanic agency and comprises rich soil clothed luxuriantly with good grass".

Landowners were Joseph George Beecroft, William Charles Wallace, Henry Coventy Wallace and David William Wallace from 1903-1926. It was then held by Vida Harris Jones until her death and subsequently passed onto her daughter Vidie Harris Clark who held it until 1969. Ref: Conditional Purchase Lease Cards and Certificate of Title Vol. 3928, Fol. 80.

On the 30th May 1947, the area was proclaimed a Bird and Animal Sanctuary. It is now part of the Wollemi National Park.

James (Jim) Bird held a lease over the property for about five years in the 1960s. Ref: Dick Bird's son, correspondence 29th January 2010. Other lease holders after the Bird's included, Herbie Mc Andrew and Kelvin Gale. Ref: Danny Whitty 19th February 2010.

Recent research into the history of Mount Cameron and interviews with Dick and Joe Bird former lessee/tenants of Mount Cameron when it was an active cattle property had really whetted our appetite to visit it. Some excerpts from the interview with Dick Bird were the real drivers of our curiosity.

"Dick Bird was involved in constructing cattle yards on Mount Cameron, which were later destroyed by fire. Dick says he un-knowingly felled a Wollemi Pine on Mount Cameron when he was building the cattle yards. He and his brother Joe used to ride horses all over the Mount Cameron.

Dick's wife recalled, "I was only a youngie. Dick took me up there camping, it was all right; we had separate beds, Hessian things. Then the dingoes started and rotten rats kept running back and forward. So I got out and I slept with him."

Dick recalls one time going to the hut there with his Dad (Jim). "We was laying there one day on the bunks and dad said umm I never seen that rope up there before. He went to get it – it was a bloody snake!"

The beds were made by stretching a piece of Hessian over two poles that were supported by four forked sticks set into the ground. You would put dry bracken on the Hessian and that was our bed. There was everything up there. There was an old kerosene fridge, and old as it was, you could go up there and light it and from lunchtime to nine o'clock at night it would be freezing up. Another thing we had was a milk container - a big one. We used this to store meat and other perishables. Trouble was people kept knocking it off.

'Sweetwater', a creek immediately south of the location of the former hut was where permanent water could be found. This would have to be portion 2 as described by surveyor Harris in November 1890. A close study of the first edition topographic map shows a creek trending roughly N-S along the common boundary of portions 1&2.

The Norris Brothers, originally from Lithgow, (reference Mount Norris) used to 'visit' Mount Cameron and 'knock off' stock to fulfil their meat requirements.

Kelvin Gale pulled the old hut down. He should have left it there. Old as it was, it was a home away from home. There is a prospector's hole near the edge of the basalt on Mount Cameron - presumably for gold. This would be consistent with the discovery of alluvial gold and diamonds in the 'deep leads' on Genowlan Mountain⁹³.

The John Norris Hut, Deep Pass

The flat grassy area at Deep Pass has always intrigued, as it is anomalous in the context of the surrounding country. Wild rumours abound as to who, how, why, where and when all this occurred.

Sometimes the circulation of track notes with questions begging yields amazing results. What follows is extracted from track notes dated 13th July 2012

"The track, formerly part of the access road to John Norris' hut⁹⁴, is still definable and leads to the remains of the sandstone chimney. Photos were taken for the record. It would be very nice to have a picture of this hut and capture that moment in history when this area was worked as a farm. It is quite remarkable how one incident can cascade into something very much larger. In this instance, the trigger point was an email from Stephen Imrie attaching a remarkable colour image of the Norris Hut in Deep Pass, GR 495 077. The image, from the late Wilf Hilder collection, was found by Stephen working his way through thousands of Wilf's old colour slides. It is a very useful image. It shows the hut in its heyday with a 2WD motor vehicle parked outside and all the surrounding area freshly ploughed for a crop. The vehicle we think, due to

⁹³ On my return a set of photographs of the old hut were sent to Dick and Margaret Bird for comment Dick is of the opinion that the building we saw is not the same structure that he and Margaret knew. The location is the same and some of the more memorable artefacts such as the old kerosene operated fridge are the same. Dick is of the opinion that after Kelvin Gale pulled the hut down, others possibly Danny Whitty and his family reconstructed it using a lot of the materials on hand. "The iron frame beds were certainly not around when Margaret and I used the place."

⁹⁴ John Norris held the lease at Deep Pass in 1960. John had built a hut within the clearing and used the area to grow potatoes, a vegetable crop that would keep in the ground until needed. Ref: Correspondence with Wilf Hilder 19th December 2009. Special Lease, Norris LB60/7.

its distinctive rear profile is a Standard Vanguard (1947–1956?). The picture confirms that at least one of the roads down into Deep Pass was easily trafficable to 2WD vehicles and that it was wide enough for a tractor as well. By interpolation, the current grassed area, which appears to be a type of couch grass, could well have been introduced as seed on the tractor.

The Guzzlers Hut

Every hut has a story. The Guzzlers Hut has a remarkable tale to tell. It involves intrigue, and a window into a period of turbulent Australian political history.

Again we let the track notes as written at the time of our visit in 2012 tell the tale.

“A member of the party decided to give this hut visit a miss and just enjoy the solitude of Natural Bridge. The rest of us, we headed down the short cut track that is overgrown and eroded so that it is a challenge, now being partly creek bed and partly natural log pile. The old truck wreck we had been advised about by Stephen Imrie was located at GR 496 096. It is lying upside down and slowly decaying into a pile of rust. A bumper bar, heavily chrome plated, and the under chassis are about the only parts of it still distinguishable.

We pushed on down through wild scrub until we reached a creek junction, from this point we walked, (or was it tunnelled), our way downstream until we came to a water fall and an old Ford Consul Mark 1 that now lies rusting in the creek bed, GR 497 093. Nearby, a collapsed old 44 gallon drum once served as a low level water supply. Overhead a suspended hose delivered water from a dam above the water fall to supply the Guzzlers Hut including water for the cistern attached to the toilet. The terra cotta drainage line is still intact. The Guzzlers Hut was destroyed in the 2003 fires

The artefacts around this magnificent site⁹⁵, GR 497 093, are truly remarkable. Still standing where I reassembled it, (on a previous visit) is the old cast iron, potbelly stove. Nearby is an Aga cooker, a Hallstrom kerosene refrigerator, a stainless steel sink, a small water tank, a full sized bath, an assembled steel framed bed, and dozens of sheets of roofing iron. I am seeking a full story of this hut.

We do know from entries in the Yah Hut visitors book that there was some inter change of visits between the two huts, although the purposes each hut was built for were very different. About 20 minutes was spent exploring and photographing this site.

Lola Imrie, wife of Stephen Imrie has provided the following information from her walks diary. It is dated 2nd November 1991,

“When we reached the Mount Cameron Road again we crossed over and followed the track down on the other side, we came to a cave with an old car in it and an old ladder going up a waterfall. On the other side, of all things, a

⁹⁵ Jack Pearson, an officer with the Ironworkers Union is credited with developing this site. He chose a wonderful position on a loop in the creek. It faces NW and is backed by a tall pagoda. Stunning cliffs to the north continue east and then south enclosing a unique location. The ‘long’ road in would be still trafficable for heavy duty 4WD’s

toilet. Suddenly here, there appeared a man and a large dog, the man offered us a cup of tea and told us to explore further down the creek, but to watch out for a fierce brown snake, so we didn't go far. Down here, we found old round tubs set up as a laundry.

We retraced our steps, and went up the path to our left only a few yards and came to the man's house (hut). We had an interesting chat and a cuppa. We then returned to our cars."

The Yah Hut

The Yah Hut occupies a special place in the annals of the Catholic Bushwalking Club. This is a lengthy story and is reproduced with permission. As well as documenting a phase in bushwalking history, it also says something about the determination of young men and women of the time.

Col White sent a remarkable photograph of himself sitting at the old piano in the Yah Hut. While, Paul Pacey wrote,

"I'll be interested to hear if the white plastic containers with the recorded history and the visitor's book are still at the YAH Hut. They were hidden under some sheets of corrugated iron inside the ruins when I was last there a few years ago.

I have also been to the unnamed hut at GR 497 094⁹⁶. This used to be a very popular spot for 4WD campers many years ago before NPWS closed off the track. You can easily walk to this hut from Deep Pass by climbing up the gulley east of "The Slot" at Deep Pass and then walking north along the ridge until you hit the old fire trail that then leads NE to the "unnamed hut".

Vince Murtagh, CBC, wrote inter alia,

"I had been meaning to talk to you after seeing your request last month for info / photos of the huts near Deep Pass. While I did contact a couple of people hoping for photos of both the Yah and Guzzlers Gulch, somehow I forgot to make contact to you. There are a few B&W shots of the Yah Hut floating around, no joy with photos of Guzzlers but I did get some description - I never visited it myself. If you like, I'll try to persuade a friend (Malcolm Brady) along on Sept 3 so you can pick his brain about those places, because he did a lot of serious walking there in the 70s with the likes of Bob Buck."

This gem of information from Vince was fantastic. I now speculated whether Guzzlers Gulch was yet another hut. A later check with the map showed that Guzzlers Gulch was the name for the hut below Natural Bridge visited twice previously. Further information was forthcoming from Tim Hager about Guzzlers Gulch Hut.

It appears that the moving spirit behind the building of this hut was one Jack Pearson, an office bearer of the Ironworkers Union who reportedly constructed the hut as a bolthole to escape threats of reprisals by the Communist Party. How much history is bound up with these

⁹⁶ This is now known to be the Guzzlers Hut.

huts! I also can now speculate with a bit more reason how on 7th January 2008, we found a bandolier of live ammunition in one of the nearby ravines. Were Jack Pearson's 'boys,' actively training in weapons use? It all computed.

Our next objective was the Yah Hut. While we did not have precise coordinates for the hut, we did have a general idea from an overlaid map prepared by Paul Pacey, and provided by Colin White. The GPS was programmed to 'Go To' mode, 511 097 and off we went down a short spur⁹⁷. This location was reached at 1056. We spent some time looking around unsuccessfully. It was clearly not correct. I then dug out some of the information sheets I had carried in. There was a reference to the Yah Hut being 'low down and close to the creek'. We now headed off in a NE direction down the spur towards Nayook Creek.

The faster scouts in the group were first to call out that they had found the site. It is at GR 512 099. What a site it is! It is truly of great merit being carefully positioned to maximise the views. By 1117, all members of the group were all on site. The visitors book with its historic log had been retrieved and was being carefully photographed.

I then read to the group, an article penned by Caroline Murtagh, and published in Catholic Bushwalker, 40th Anniversary issue. It is so important that it is reproduced below.

"In the middle of the late 'sixties a group formed within the C.B.C. who came to be known as the "YAHs". (They were boisterous at Club functions and in a disparaging way; someone called them "Yahoos". The group adopted the name and countered by calling 'the others' 'fuddy duddies' or "FUDS"). It was to be the start of a long and bitter tale, but they didn't know it as they yarned and shouted around the campfire in August '67 when they formally became YAHs.

The Yahs did much exploratory walking out from Newnes Plateau. They had already decided to build a hut as a base for walking trips. In July '67, "Jock" Mulligan applied for permissive occupancy of one acre out from Natural Bridge. It took 2 ½ months to be granted. The Lands Department⁹⁸ was worried about the discrepancy between the County map and the Wallerawang one-inch-to-the-mile sheet.

Bob Buck led an exploratory Club trip in September '67 from Deep Pass to Rock Hill, Mount Cameron and Nayook Creek, and this helped decide the location of the hut. Meanwhile the Yahs tendered to move a house from Botany to the site. In November an all night session decided the exact spot would be on a saddle high on the spur running south east into Nayook Creek from just north of Natural Bridge. However, in November, when a "wildflower walk" was used as a reconnaissance for the construction job, they realised that the idea of transporting the house was impractical and withdraw their tender. And when excavation commenced on the last day of 1967, the early arrivals decided a more suitable spot was lower down the ridge, below the two short cliff lines. Before anyone else came, the retaining wall was under way- at the new site! Definitely a "Yah" trick!

Many weekends were spent gathering rocks to build walls four feet high. Trolleys and pulleys were improvised, and rocks were even dragged on sacks. In March, Bob Buck, Greg Heys and Chris Watson carried in bags of cement on their backs, a 44 gallon drum for water, and various tools were brought in. A flying fox using two, 5 gallon

⁹⁷ The Yah Hut visitors/log book references this spur as the Yah Ridge. If the starting point is back near the Mount Cameron Trail then 'ridge' is possibly correct. Further research is required.

⁹⁸ Correctly the NSW Department of Lands.

cans were rigged up between the site and Nayook Creek, to carry sand and water. The walls were finished by the end of April. Little else was done for another year, except in August when the route for the access track was cut and blazed. A swap car walk in June '69, from Mount Tootie to Natural Bridge, seems to have renewed enthusiasm, as the windows were installed by early July.

The logs to support the corrugated iron roof were the next task, but this was not started until April '71. In the centre of the hut stands the "Goggin Log". It was placed there, and named so after a spectacular accident while it was being towed down the ridge north of the hut. Dave Horden and Paul Goggin were guiding the log, with ropes, while others tugged it along. It seems the "boss" was egging on his team; as the speed picked up Dave and Paul started running beside the log. A tree loomed up and Paul had to move. He jumped over the log, but its ragged tail ripped a long deep gash down his calf muscle. After some repair work by Barbara Burns (Halligan), a trained nurse, he was carried out on a makeshift stretcher to a car at the top of the ridge. He reached Lithgow Hospital two hours after the accident. Two weeks later Paul hobbled down the aisle for his marriage.

In April '72, (you can't hurry these things), the roof was nailed on and promptly blew off in a storm. In July, it was securely fixed. With the hut completed the Yahs decided a proper opening was needed, a Bush Ball. So, a floor was obtained from a house being demolished in Strathfield. A team of Yahs arrived and lifted the lot, bearers as well as boards, to the surprise of the fellow who sold the floor. The wood lay at the end of the Yah road for a while, and then was put in as a rush job, on two successive weekends at the end of October.

The Bush Music Club was invited to supply the bush band for the ball and guests were expected to wear appropriate dress, preferably formal attire. The first Yah Ball was held on November 10, 1973 and was a splendid success as the accompanying photos show⁹⁹. A repeat was attempted the following year, but as is the way with "repeat" events things went wrong. Foul weather caused two postponements and on the eventual date, the musicians were unable/unwilling to find their way to the hut. General chaos was the order of the day. Since then the Yah Hut has been used occasionally as base for walks or as a remote spot for social events. The hut's location has attracted flak, and now that it is within the Blue Mountains National Park.¹⁰⁰

Greg Foley in 2003, penned the following sad information about the Yah Hut

One of my mates kept asking; "when can we go to the Yah Hut?" We had been on many adventures together and I had taken him in to the Yah Hut a couple of times many years ago (decades). I was keen to revisit it myself and so we made a date. After much organisation by my friend, seven of us started off on the first Saturday of April 2003.

As we got past, the pine forest on Newnes Plateau and close to the Deep Pass turn off we could see the effects of the January fires. It had been thoroughly burnt out. The recent rain had allowed the regrowth to begin so there were patches of green along

⁹⁹ Not included.

¹⁰⁰ Correctly, it is within the Wollemi National Park.

blackened branches of the gums and around the base of the blackened sticks. We continued onto Natural Bridge and the question arose; how extensive were the fires up this way? I tried to put from my mind the thought about whether the Yah Hut had been burnt or not but I couldn't help wondering. A vague memory of someone suggesting it may have gone came to me. Anyway, we were here now so we had to go and find out.

As we started walking, I was still hopeful the hut would be OK, but the further we went the more my hope diminished. The walking was certainly easy with all the scrub gone and as we climbed the ridge, all that we could see had been burnt. Then as we descended to the old car park we could see that the fires had crossed Nayook Creek and had also reached to the north of the hut. I clung to the thought that being low down close to the creek and being in a natural clearing it may have escaped.

Coming down the final spur there was very little evidence of the track. However, it wasn't really necessary for the spur is easy to follow and there was no scrub anyway. We stopped on top of the big rocky outcrop halfway down the spur. We could see the extent of the fires. Far to the north towards Mount Cameron, it looked untouched but right along Nayook Creek and the ridges on both sides were burnt. I thought I saw a glimpse of orange in the direction of the hut but it was hard to tell.

Finally below the rocky outcrop, as we came down the last couple of hundred metres I could see that the orange was in fact fresh rust on burnt iron. The Yah Hut was gone. It had been destroyed by the January bushfires. The stone wall remained and the Goggin Log stood charred and defiant in the centre, along with two or three of the other upright poles. The corrugated iron roof had simply collapsed into the centre. The glass from the windows had shattered and was melted and moulded into fascinating shapes by the heat. All the dressed timber had burnt completely. The floor was gone. The window frames were gone. All that was left of the front door was the doorknob. There was no sign of the piano.

It was a sad day. We could see the bush beginning to regenerate but I thought there is nothing that can bring back the Yah Hut. All that is left now are the memories. Certainly, I have many fond memories of the Yah Balls, the base camp trips and other quieter times of escape. The sadness is in the loss of future opportunities to enjoy the peace and rugged beauty of this special place. Nonetheless, I am very grateful to have been able to enjoy it over these last thirty years."

After these readings, we thumbed our way through the old visitor's book and read some of the remarkable personal histories. Copies of the legal documents from the Department of Lands establishing title to the land were there as well. It is only now that I write this report that I realise the visitor's book and related documents all survived the fire. How lucky are we that this is the case. Perhaps when usage of the Yah Hut began to decline, a Yah Hut member decided to take the book home for safe keeping? We finished our visit with a group photo. Copies of this photo will be made available in due course to all interested parties.

Walks

- 7.1 Mount Walker and the Cox's River Marrangaroo Creek junction
- 7.2 Marrangaroo Ridge
- 7.3 The peninsula between Sawyers Swamp and Springvale
- 7.4 Fernbrook Ridge
- 7.5 Clerestory Spurs 1 and 2
- 7.6 Clerestory Spurs 3 to 5
- 7.7 Clerestory Spurs 4 to 7
- 7.8 Clerestory Spurs 8 to 12
- 7.9 Ravines and Pagodas south of Angus Place Trail
- 7.10 Spurs and ravines around Clerestory Spur No. 1
- 7.11 Beecroft Firetrail to Clerestory Spur No. 1
- 7.12 The pagoda ridges south of Beecroft Firetrail north of the ADF area
- 7.13 Upper Wolgan River part 1
- 7.14 Upper Wolgan River part 2
- 7.15 Upper Wolgan River part 3
- 7.16 Two tributaries of Marrangaroo Creek
- 7.17 Another exploration of the tributaries of Marrangaroo Creek
- 7.18 Farmers Creek west to east
- 7.19 Comet Mine Incline Railway and Middle Camp
- 7.20 Monkey Creek
- 7.21 Kangaroo Corner Creek
- 7.22 Reedy Creek
- 7.23 Clarence Arch
- 7.24 Blacksmiths Cave
- 7.25 Doctors Gap – Ida Falls circuit
- 7.26 State Mine Gully and Hassans Walls
- 7.27 Zig Zag Railway and Ida Creek Falls

Maps, Cullen Bullen, Lithgow, Hartley, Wollangambe, Mount Wilson

7.1 Mount Walker and the Coxs River Marrangaroo Creek junction

Maps, etc.	Department of Lands: Lithgow, 8931–3S topographic map, 1:25000 second edition, GPS setting WGS 84.
Walk description and route	After entering the Marrangaroo National Park, cross the Coxs River and drive to the top of Mount Walker. Explore the ridges to the south. Then relocate the vehicle and then walk the Coxs River upstream to the junction with Marrangaroo Creek. This is a relatively new national park. Access is via Lidsdale State Forest. Exploratory. What we do will be largely governed by access and time. Expect some wild terrain. Distance flexible, ascents up to 300m.
Gear issues	This is that capricious time of spring/summer, have warm clothes and a change in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and 30m tape, (leader only).
Comments	We may get wet feet and more. Some rock scrambling and tape work may be involved. The aerial photos show this to be dissected country. This walk is included as Marrangaroo National Park is closely related to the Newnes Plateau area physically, although geologically it is very different. It is also a very small national park.

Date walked 29th October 2012.

Marrangaroo National Park

The Marrangaroo National Park was created in February 2007. It covers an area of 1,671 hectares. The park follows Cox's River between Lake Wallace and Lake Lyell, with deep waterholes and shady trees. The peaks in the park reach almost 1200m above sea level where snow gums may be seen. The park is the home of the purple copperwing butterfly that can be seen in the spring. Official National Park information suggests the following activities,

"Camp along the banks of the Cox's River in one of the many small campsites. Enjoy swimming or relaxing while platypus spotting on the riverbanks. Explore Lake Lyell by canoe, or, after rain, run the rapids down the Cox's River. One of the best ways to see the park is on a mountain bike. Walk to the top of Mount Walker and enjoy the 360 degree views of the Lithgow area. Fishing is possible along the banks of the Cox's River. Flat-water canoeing in Lake Lyell is possible at all times but white-water kayaking along the Cox's River is only possible after recent heavy rain."

Geology

C.S. Wilkinson, Government Geologist, in 1875, surveyed this area. A map was produced entitled, "Geological Map of the districts of Hartley, Bowenfels, Wallerawang and Rydal." The scale was 2" to the mile. Several comments annotated on the map are worth noting. Mount Walker has an Aboriginal name, Gillingarambala, and Wilkinson documents on the

map, observations about the area between Mount Gillingambala and the Coss River - Marrangaroo Creek,

"High scrubby ranges formed of metamorphosed sandstone and shales with occasional beds and dykes of dense basaltic trap. The sandstones in places are altered into greenish quartzite. There are numerous narrow quartz veins which are probably auriferous as gold in small quantities occurs in the river and creek beds"

Elsewhere on the map reference is made to the occurrence of

"Hard siliceous sandstone full of Spirifer (Brachiopods); the casts of these fossils are filled with Calc (Calcite) spar."

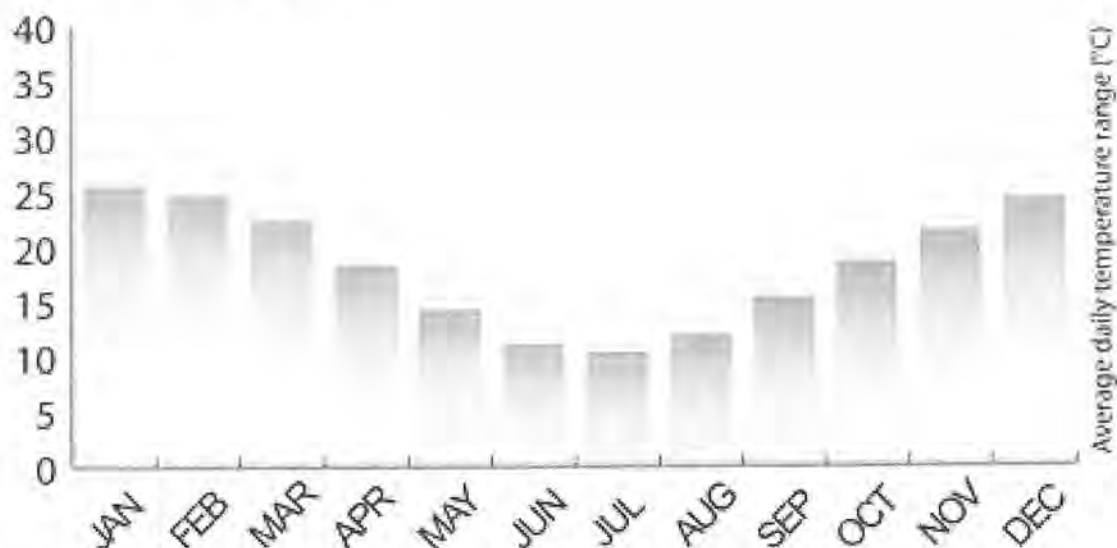
Vegetation

D.H. Benson and D.A. Keith, in their commentary on the natural vegetation of the Wallerawang 1:100 000 map make a one sentence entry regarding the geology near Mount Walker,

"Similar Devonian metasediments, although lacking limestone, are exposed around Mount Walker, 1189m, west of Lithgow, and have eroded to leave very rugged country."

Climate

Average temperature ranges



The area's highest recorded temperature is 38.4° C. Its lowest recorded temperature is -8° C. Information recorded by the Australian Bureau of Meteorology.

Average rainfall ranges



The area's highest recorded rainfall is 179mm in one day. Source Australian Bureau of Meteorology.

The Weather

A cool start at 4 degrees, with a cloud bank developing on the south west horizon; the day rapidly warmed up reaching 25 degrees, there was little wind, humidity was low.

Background Notes

Visiting Marrangaroo National Park requires strategic planning. The only legal access is counter intuitively via the Lidsdale State Forest on the western side, via the Great Western Highway. Make sure you carry the latest version of the Lithgow, 1:25000 topographic map, although there are many more roads on the ground than there are on the map. A GPS is vital to confirm your location on the 'road network'. There is no highway signage indicating that the national park is located on the eastern side of the state forest. Before setting out make sure you are in a real 4WD vehicle. Soft AWD vehicles and 2WD vehicles would be lucky to make it to the park boundary, let alone to Mount Walker. At all times you need to be aware of forestry operations and forestry vehicles. Do not try to visit the area after rain.

Track Notes

On the day, we entered Lidsdale State Forest via Link Road on the Great Western Highway at GR 257 954, at 0820. Within 100m of entry, the driver is immediately confronted with multiple choices of roads to follow. We adopted the simple procedure of taking successive, negotiable tracks heading east and south east until we reached the 330kV power line.

At 0840, we crossed under the power line at GR 277 926, and then followed a wild track down to the Coxs River at GR 281 920. The crossing is a rough formed ford. The water was about 30cms deep. On either river bank there was some minimal national park signage that proclaimed the obvious, the Coxs River. Immediately I was conscious of the fact that the river is degraded. There is wild broom in flower everywhere and exotic weeds and sturdy young blackberries line the banks. All rock surfaces in the river have a coating of slime.

After some quick photos for the record, we followed the least steep roads¹⁰¹ to link up with the long ridge road that goes all the way to the old trig on Mount Walker. We stopped at a five way intersection at 0915, GR 294 910. It had taken 20 minutes to drive from the ford crossing to this point, a distance of approximately 2km, and a rise of 300m. After securing the vehicle, we set out walking to the top of Mount Walker, initially along a continuation of the road. The Snow Gums are very attractive with a grassy understorey. On the day, this understorey was rich with *Caledonia* sp. orchids, possibly *Caledonia carnea* var. *ornata*. This rare species is reported from the Portland area. We sighted hundreds of blooms during the course of our high altitude walk. Many colour variations were noted.

Also present in lesser numbers were examples of the daisy like *Brachyscombe spathulata*. A plant, which could be quite rare, is a *Pimelea*, possibly *Pimelea curvifolia* var. *subglabrata*.

We arrived at the trig at 0939, GR 298 912. A combination of the elevation, 1189m, relative isolation from other peaks, (Mount Flaherty, of Wilkinson), spot height 1149m, at GR 298 958, is nearly 5km north, makes Mount Walker a viewing point like no other. To the east, there are commanding views of the Newnes Plateau and the city of Lithgow. To the south east can be seen Mount Cloudmaker and the higher peaks of the Wild Dog Mountains. Much closer to hand and more directly south, is the polluted Lake Lyell. To the west can be seen the cooling towers of Wallerawang and Mount Piper power stations, together with harvested sections of the Lidsdale State Forest.

After photographs of the old trig, regrettably disfigured with graffiti and magic pictures of the Snow Gums we returned down the slope south towards the road. A ridge above the 1000m level extends from the southern end of Mount Walker for about a kilometre. We planned to walk to the end of it where we hoped to enjoy good views over Lake Lyell. The walk through the open forest is delightful. It is rich in flora and vividly green. Unlike sandstone country where you can always count on a view on a rock platform, this country erodes into gentle smooth slopes. There are no cliffs and no views, just forest stretching away down the slope.

We went as far south as GR 301 904, where there was a restricted view of Farmers Creek, but nothing of Lake Lyell. We then backtracked and headed west to GR 299 904. Again, the views were non existent, however the ambience was delightful. We decided to have morning tea here. It was while having morning tea that we studied the rocks at our feet and found the negative internal brachiopod casts referred to by Wilkinson. They must have been in the trillions given the number of casts and the extent of the outcrops over the entire area.

By 1051, we had returned to the vehicle and prepared to relocate it, then walk some of the Coxs River. A flat tyre forced us to stop at GR 290 922, and change the tyre. At this spot we also had a view over a dramatic loop in the Coxs River, so before moving on, we took photos. A lone specimen of *Solanum brownii*, covered in brilliant purple flowers was also captured for the record.

The drive down to the Coxs River was another slow progress. This is not a place to have a disabled vehicle. At 1126, the vehicle was parked at GR 289 927. After that, it was packs on as we set out to walk upstream to the junction of the Coxs River and Marrangaroo Creek. It was not many paces before walking in the Coxs River became the only option to progress

¹⁰¹ There are many almost impossible 4WD tracks all over the main slopes of Mount Walker. The destruction of the environment is breathtaking

upstream. In the river, harder bands of rock have created bars and small riffles, often with relatively deeper pools on the downstream side. Swathes of gravel beds provide a contrast to rugged rock cliffs making for good photography. It is a shame that in many places exotic weeds have established and compete with the native species. In the higher reaches, blackberries are rampant.

The most worrisome aspect of walking this river is the burden of heavy metals that are discharged by several coal mines, the ash dam on Sawyers Swamp Creek, and the Wallerawang Power Station, all located further upstream. Dr Ian Wright in writing for the Gardens of Stone book series by the authors Michael Keats and Brian Fox, (Book 4) summarised the position succinctly and two relevant extracts are set out below,

"The second major source of heavy metal contamination was Wallerawang Power Station (WPS), which releases wastewater into the Coxs River downstream of Lake Wallace, this discharge was particularly contaminated by ecologically dangerous levels of copper, and it caused environmentally hazardous concentrations of copper in the Coxs River downstream. Copper levels in the Coxs River rose from 2 µg/L above the discharge to 43.5 µg/L below the power station waste release to the Coxs River. Such levels of copper are environmentally hazardous. This discharge also had mildly contaminated levels of zinc, aluminium, nickel, boron and fluoride. As was shown previously, the salinity level in the power station wastewater was the highest in the study area, and contributed to a large rise in the Coxs River salinity. Water pollution from this discharge was a focus of a recent court case by the Blue Mountains Conservation Society against Delta Electricity."

"Human activity continues to contaminate water quality in the study area, for example the wastewater discharge from Wallerawang Power Station provides a major source of water contamination for the Coxs River. This waste discharge releases a 'cocktail' of pollutants including salt, copper, boron, zinc and nickel. It is heartening that the power station owners (Delta Electricity) have recently announced that they admit to polluting the Coxs River and have made a public commitment to cease polluting. The treated sewage effluent discharges from the three sewage treatment plants are associated with environmentally hazardous levels of nitrogen and phosphorus pollution. Two of the treatment plants have currently been upgraded and I expect that this will result in less nutrient pollution in the future"

Lakes Wallace and Lyell are often closed to water sports by Lithgow City Council because of algal blooms. Here we were walking in a chemical soup, albeit, a diluted one. I have concerns that campers and other users of the Coxs River between the two lakes are unaware of the exposure they are subjecting themselves to. Swimming and accidentally ingesting water could be unhealthy.

Re reading the NPWS advice about platypus watching, I would suggest that this could still be possible in Marrangaroo Creek above the junction with the Coxs River. At 1159, GR 289 932 we encountered a very long and deep pool. It was decided to retrace our path for some distance, exit the river on the western side and continue our way upstream on the bank.

This process was interesting and we spent a lot of time clambering just to stay upright, as the bank is very steep. It took 15 minutes to be at the same position on the bank that we had been at in the river. In a shallow tributary valley, we did encounter a large patch of the golden

flowered Native Leek, *Bulbine bulbosa*. We continued our northern progress, soon hearing industrial noises. These emanated from the quartzite quarry above Marrangaroo Creek. The quarry is very large and is a massive scar on the landscape. Waste is just dumped down the scree slope. The quarry activity is centred on GR 308 943.

At 1243, GR 292 939, and at 900m, we stopped on a knoll about 60m above the junction of the Coxs River and Marrangaroo Creek. It was decided to have lunch here and then perhaps descend to the junction to take photos. In the end, three of the party made the descent.

Pictures of the quarry operation were taken before we set out to climb a further 60m to the top of a knoll, GR 290 938. This small knoll exhibits 'vegetation zonation.' About 20, vertical metres from the top, the alpine type grasses give away to a dense natural planting of *Stypandra glauca*. It was in full flower and intensely blue. On the walk up to the top, we encountered several flower spikes of the yellow Tiger Orchid, *Diuris sulphurea* together with the pale blue flower spikes of the Tall Bluebell, *Whalenbergia stricta*.

The top of the knoll, a mass of angular quartzite blocks, was reached at 1325. After taking more photos, we set off in a south westerly direction to intersect with another road. At approximately GR 288 935, there is a very good line of sight to photograph Mount Walker. From this point, we descended the road and returned to the vehicles.

The drive out was along a road, which on reflection was probably the one we should have entered by, although there is no signage to indicate this. We passed several old dams constructed for stock use, and noted the existence of a building at GR 282 949 and cattle yards and a loading ramp at GR 281 948. We also recalled that we had encountered a number of remnant fences in various places. Brian said that there are no records of the land being surveyed for issuing title deeds and it is possible that the land was only ever available on a lease basis.

A permanently open gate and full NPWS signage, was encountered at GR 280 948. As well as advising the name, Marrangaroo National Park, the same sign advises 'four wheel drive vehicle required beyond this point.' Mind you, a 2WD would not have even made it to 'this point'. An adjoining sign indicates the status of what lies ahead, and a rare concession by the NPWS. This sign says, 'no pets permitted, firewood collection prohibited, motorbikes must be registered and motorbike riders must be licenced.' On the Lidsdale State Forest side of the sign, the blackberries are rampant and the habitat destruction appalling

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0820	Great Western Highway at Link Road	257 954
0855	Cross the Coxs River	281 920
0915	Near the top of Mount Walker	294 910
0939	Mount Walker Trig	298 912
1009	On a spur south of Mount Walker	301 904
1016	Spur and morning tea 10 min	299 904
1051	Return to vehicle	294 910
1055	Change tyre + view loop in Coxs River 25 min	290 922
1126	Cross Coxs River and park	289 927

1159	Walking in the Coxs River	289 932
1214	On Coxs River west bank	290 933
1232	Viewing point above Coxs River	292 937
1243	Above the Coxs River marrangaroo Creek junction + Lunch 22 min. Actual junction GR 294 940	292 939
1325	Top of Knoll, view quarry	290 938
1400	Return to vehicle	289 927
1412	Cattle yards and park signage	281 948
1425	Great Western Highway at Link Road	257 954

7.2 Marrangaroo Ridge

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, first edition annotated by Stephen Imrie. Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. GPS setting WGS 84. Carne, J. E., Geological Map of Marrangaroo 1901. Extracts from old Parish maps.
Walk description and route	Park at the vehicle lay by where the Castlereagh Highway flyover crosses the Great Western Highway. Cross the Castlereagh Highway and follow a road up to a communication tower. Arrangements have been made to secure the key to unlock the gate for our walk. This rarely visited ridge has interesting cliff lines, deep ravines and a fascinating industrial history. We will find an old tramway; visit an old shale oil refinery site, a tunnel and more. About 10km, ascents +&- 100m several times.
Gear issues	GPS, PLB, 1 litre of water, electrolytes, camera, appropriate head and foot wear, maps and compass. The leader will carry a tape. Change of gear.
Comments	This walk may have challenging sections. We will be visiting old kerosene shale mining sites and retorts Fowlers and associated infrastructure.

Date walked 3rd August 2011

The Weather

An extraordinary, clear, warm, winter day, temperature range 11 to 23 degrees.

Background Notes

As soon as the briefing notes for this walk were issued, Stephen Imrie was on the telephone offering to provide information about the diversity of experiences we could expect on this walk. The volume of information was staggering. It ranged from copies of old maps, detailed history of various mining enterprises and photos of long defunct industry. To top it all was a map suggesting a way of route to maximise our time. It would still be an exploratory walk, but one crammed full of extras.

Setting the scene for the walk is a copy of Joseph Edmund Carne's geological map titled Marangaroo (sic) Kerosene Vale or Bathgate, printed in full colour and dated 1901. This map and indeed the literature, gives much attention to the Torbanite (kerosene shale) deposits shown on the northern section around Sawyers Swamp. This northern area was exploited by the brothers, Dr Walter Fawkes Mackenzie and Mr John Mackenzie, circa 1867. It now lies beneath the Sawyers Creek Ash Dam for the Wallerawang Power Station.

Exploitation of the southern outcrops of Torbanite at Marrangaroo was stimulated by Australia's need to be self sufficient in hydrocarbon fuels during WWII. A small company,

Lithgow Oil Pty Ltd¹⁰², installed three vertical N.T.U. retorts of American design at a site off the Mudgee Road at Tunnel Hill and began mining and distillation of shale oil.

Between 1943 and 1945 the company produced 9,100,000 litres of oil, which was refined at Glen Davis. The shale was mined on site, the seam narrow (30cm) and the costs of operation very high. The works were abandoned at the end of the war.

Track Notes

Vehicles were parked at a 'picnic area' immediately north of the Mudgee Road (Castlereagh Highway) flyover off the Great Western Highway, GR 307 976 at 0810. The Mudgee Road was then crossed to the east. Using our key we opened the gated road, GR 307 978 and made our way up the ridge towards the telecommunications tower, approximately GR 309 978.

Leaving current technology behind we headed east along an old access road that generally maintained a constant contour level. Several collapsed adits were noted on our way to a shallow, grassy, high level valley at GR 316 979. A group of kangaroos eyed us off before bounding away. As we headed south the first vestiges of a former tramway were located.

This is a massive trench like excavation encircling a ridge crest for more than 400m. In places the trench is over 4m deep. It generally follows the same contour as the exposed outcrops of Torbanite. What it was used for is speculative but it almost certainly was related to the extraction of Torbanite. We did locate what seemed to be a switch back down into the valley, but in view of the proximity to the Lithgow Correctional Centre we decided not to go and investigate.

Leaving the end of the tramway (it stops as suddenly as it started), at 0908, we ascended a ridge to the north east and reached the crest at 0915, GR 315 976. A short distance on we found the remains of a long abandoned, but elaborate boundary fence. It was 6- strand, and where the terrain was steep the gap between the lowest wire and the ground was packed with dry stone walling, in some instances more than 1m high. A study of the first edition Lithgow topographic map shows this fence line coincides with the boundary between the Parishes of Lidsdale and Marrangaroo.

Moving further east we reached a vantage point at GR 318 977. This viewing spot enabled us to see across the Marrangaroo Valley, Mount Walker in the Marrangaroo National Park as well as the newer suburbs around Bowenfels. Almost at our feet was the ugly but necessary Lithgow Correctional Centre. From this spot we could also view the raised alignment of the former railway siding to the Commonwealth Defence base at Marrangaroo.¹⁰³ The alignment runs between the base of the cliffs and the correctional centre. We noted with interest that a road has been constructed about 50m below this vantage point. Its purpose is probably related to security at the correctional centre.

¹⁰² Lithgow District Historical Society (LDHS), author unknown. The most likely author was Ian Holt. The LDHS was disbanded about 6 or 7 years ago and Ian Holt passed away about 7 years ago.

¹⁰³ Opened 12/3/1942. 2 mile (3.22km) branch line diverging at the western end of the Marrangaroo Station platform. Opened to serve the nearby Army Ordnance and Munitions Supply Depot. Closed 28/5/1972.

Walking the ridge crest was pleasant; it is open forest with patches of a low growing *Acacia* sp. in full bloom. The ridge has several neap spots giving rise to pagoda enhanced cliffs and providing great exploring possibilities. Caves, overhangs and slots are frequent. At 0950 a particularly attractive pagoda was chosen for morning tea, GR 320 981. Ten minutes later we were on the go again making great progress. As we came to pagodas rising out of the heath or forest these were climbed particularly at GR 323 982, GR 327 986 and GR 327 985. This last spot, immediately south of spot height, 1097, provided really excellent views, including the next ridge east, which features massive pagodas.

Continuing our progress to the north east we came to another saddle between two catchments that was crowded with pagodas and featured a massive slot separation, GR 330 990. To negotiate this slot we had to make a descent into one of the catchments. I chose the northern one, which proved costly in time and degree of difficulty. Roger decided to have a go at the southern catchment and was there on top to greet the rest of the party. It was 1145 before we regrouped on the eastern side.

We now started moving south along the unnamed ridge that includes spot height 1078. As we walked I was doing some mental calculations about what else we wanted to see and what further challenges we might encounter by continuing further south. As a result at 1155 I called lunch at a stunning pagoda, GR 330 989. This pagoda juts out from the cliff wall and features some amazing natural fretted erosion sculptures. During lunch I passed around a photograph taken in 1999 of one of the NTU retorts taken by Stephen Imrie. I wanted to make sure that we saw this spectacular ruin.

After lunch we headed a bit further south to descend a steep waterworn slot. This was the reverse of Roger's way of route to the top. At the bottom of the descent there is a huge overhang extending for more than 100m. It faces west and is dry. The rock colours are a delight. Following the overhang right up into the slot we came across a bike trail. Given that these trails are also found in Fernbook Gully to the east, the discovery came as no surprise.

Although the topographic map shows this catchment as completely enclosed by unbroken cliffs, the reality is that it is an easy walk up back onto the Marrangaroo Ridge. Perversely the northern side is shown as broken and therefore more readily traversed. If we had initially chosen the south side of the neap saddle to descend there is a good chance we would have walked all the way to spot height 1078.

We now retraced our steps along Marrangaroo Ridge to our morning tea location. About 100m west of this point we now descended generally in a north west direction to GR 314 982 (1321) and encountered another old road that contours on the Torbanite seam outcrop. This road changes quickly from a mere access track to a broad bench some 5m wide with a cut 'wall' into the cliffs, GR 318 983. This 'wall' is punctuated along its length every few metres with adits where Torbanite was extracted. Brian entered one adit and reported it went into the cliff for about 8m.

After negotiating a fence and makeshift gate across the 'bench' we followed it around a knoll and then east for several hundred metres. Along the way we found two solid brick structures roughly a metre cubed in size with remnant door openings facing outwards. These we suspect were used for storing detonators and sticks of gelignite.

As we progressed further along the bench another dozen or so adits were seen. One adit had outside it a long blue painted, lidded timber box that could have been used as a gun or ammunition box. It had rope handles and appeared to be in reasonable condition. Almost opposite this adit was a tailings dump and as we looked over the side into the valley we could see more brick structures.

In minutes we were down the slope and found a great number of brick walls, machinery bases with projecting anchor bolts and best of all one of the NTU retorts¹⁰⁴. The retort some 3m in diameter is now lying on its side; the fire brick lining is in places still intact. Lying next to the retort are the remains of a condenser unit. The cameras worked overtime as we tried to record what little remains are left.

After exploring this area we returned to the 'bench' and continued to walk along it until it returned to being merely a road and now heading into the valley. A further number of collapsed adits were observed.

Walking back to the gate, a rock specimen containing fossils leaves was collected by a member of the party. This fossil leaf is a characteristic Permian plant and a ready identifier with the coal measures. It is almost certainly an example of *Glossopteris sp*¹⁰⁵.

Having ticked most of the boxes for what we set out to do, we made our way back to the vehicles and the walk concluded at 1445.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0810	Park vehicles	307 976
0815	Gate	307 978
0840	Collapsed adit	316 979
0850	Tramway	314 977
0908	Eastern end of tramway	315 976
0917	Top of ridge and fence line	316 977

¹⁰⁴ Op. cit, LDHS. Shale was mined on the site, but the shale seam was narrow, reported as about two feet (30 cm) thick and, overall, of fairly poor quality. For the later part of this operation shale was trucked in from several areas, including Glen Davis, Barigan and sites in the Hunter Valley to augment the dwindling mine output.

The shale, mined on site or trucked in, was placed in a large wooden receival hopper and taken by a small scraper conveyor into one of the three retorts. These retorts could be described as steel cylinders, lined with fire bricks, mounted vertically. They were constructed in a manner, which allowed the bottom metre or so, which rested on wheels and a steel track, to be drawn away from the rest of the retort and so allowing the burned shale ash to drop.

With the bottom of the retort in place, and the joint of the two retort pieces sealed with fire clay, the retort was filled with shale, and a fire started on the top of the shale. The retort was then sealed and a balanced flow of air and suction was applied by fans. The air supply was regulated so that there was never enough air for a complete fire, just a continuous very low, but hot fire. The heat from this fire caused the oil in the shale to separate from the shale as heavy dirty, oil filled smoke, which was removed by suction fans. This smoke was then cooled and distilled into heavy oil. When all the oil was taken from the shale, the air and suction fans were stopped and the residue ash was dumped, by pulling out the bottom section of the retort, and scraped away.

The refining of the heavy oil to petrol was attempted at the works, but was not successful so the heavy oil was trucked to Glen Davis for refining into petrol etc.

Approximately 30 men worked at the site, and the operation of the retorts was a round the clock operation, as well as their base rate of pay the retort operating crews received a bonus of 2 pence per gallon of oil over 1600 gallons per month. This bonus was shared between the 16 retort crew members.

As stated earlier the costs being very high, these operations were abandoned at the end of the war. What plant that could be reused was salvaged and sold with the balance sold as scrap.

The site is now regrown into natural bush and little can be seen of the ruins of this industry

¹⁰⁵ Laceron, Charles Francis. Ancient Australia, 1954, page 124.

0930	Overlooking Lithgow Correctional Centre	318 977
0940	Top point on ridge	319 980
0950	Saddle, pagodas and morning tea (10 mins)	320 981
1009	On a pagoda	323 982
1026	Another pagoda	323 886
1051	Pagoda with extensive views	327 985
1100	Saddle and pagodas	330 990
1145	Crossed slot	330 991
1155	On pagoda and lunch (25 mins)	330 989
1226	In long overhang	330 985
1228	Bike track	330 986
1234	Crossed gully	329 989
1256	On Marrangaroo Ridge	329 988
1309	On neap saddle	320 981
1312	Heading NW	319 981
1321	Descending	314 982
1328	On the 'bench' /road with adits/ retort	318 983
1418	Fossil find	n.a.
1429	Under power line /more adits	312 982
1445	At vehicles	307 976

7.3 The Peninsula between Sawyers Swamp and Springvale

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. GPS setting WGS 84. Note Because the only electronic map of Lithgow that works with Ozi explorer is AGD 66 the route plots have automatically converted to this system.
Walk description and route	Park at approximately GR 340 005 and then head west picking up an old access track to about GR 324 006. From this point we will do a circular walk around the cliffs and pagodas of the unnamed double- headed mesa that lies between Sawyers Swamp and Springvale. There are many cliff lines up to 30m and lots of pagodas, Depending on progress we also visit two very deep gullies that appear to be full of rain forest. About 10km, ascents 200m several times.
Gear issues	PLB, GPS, maps, compass, 2 litres of water, electrolytes, camera, appropriate head and foot wear. The leader will carry a tape. Change of gear.
Comments	Not sure whether many walkers have been in here. We may see a bit of civilisation from time to time. Given the current unstable weather it could be a wet walk.

Date walked 27th April 2011.

The Weather

It was a most discouraging day for walking in Sydney and the lower Blue Mountains, so unappealing two potential members of the group pulled out on the morning of the walk. What they did not appreciate is the climate on the western side of the Newnes Plateau is so very different to the eastern fall or indeed the more exposed tops. Even at Clarence at 0800 it was wet and showed little sign of improvement. However by the time we had parked the vehicles at 0850, GR 331 006 the day was already looking perfect for a good walk – dull, somewhat overcast, threatening rain and 9 degrees C.

Background Notes

The Colong Foundation for Wilderness in the submission, “Proposed Extensions to the Gardens of Stone National Park”, advocate the inclusion of all those parts of the Newnes Plateau as a State Conservation Area, where that terrain is not already national park. The rugged western margin of the plateau where this walk took place includes some of the most well developed pagodas, attractive cliff lines and open forest to be found anywhere on the plateau.

As a group we were totally captivated by the quantum of amazing sights, pagoda clusters, intricate and intimate narrow slots and ledges, ramps and climbable access points that allow views into the huge complex ravine system that comprises the upper reaches of the most inappropriately named Sawyers Swamp and the unfortunately named Kerosene Vale. Neither name evokes a desire to go walking in the area; worse they have negative vibes, and may be

why the area apart from the colliery operations is still in such excellent condition and a joy to explore.

The origin of the locality name Sawyers Swamp, is yet to be verified, but possibly relates to the period when timber getting in the valleys was a major activity. It was in common usage well before geologist Joseph Edmund Carne produced his map "Showing position of Kerosene Shale Seam at Marrangaroo, (Kerosene Vale or Bathgate) in 1901" or, his detailed paper "The Kerosene Shale Deposits of NSW," published in 1903. The outcrop of the Kerosene shale band is now mostly obscured by the conversion of part of the swamp to an ash settlement dam for the Springvale Colliery and Wallerawang Power Station.

Track Notes

The briefing was simple. Using aerial photographs and the topographic map we would make an anticlockwise circuit of the double headed 'mesa', the area of pagoda rich country between Sawyers Swamp to the north and Springvale to the south, stopping to explore every interesting pagoda formation, cliff line, slot, ravine and ramp, plus follow any opportunity to enjoy the total experience. Initially we would negotiate a small isthmus that separated the two 'mesas'.

Set off walking at 0858 generally west along a continuation of the access road where we had parked. After walking for about fifteen minutes the road ended abruptly at a substantial pumping or pressure reduction station, GR 323 008. It was serviced by a power line and sported a massive 300mm + diameter, high density, black plastic pipeline. The installation has to be connected with either water removal or supply to the Springvale Colliery.

We moved on heading south west through a casuarina forest while simultaneously climbing through three, twenty metre contour intervals of the eastern 'mesa'. During the climb views opened up of the complex cliff line, nests of pagodas and weathered cliffs on the near and far side of Sawyers Swamp upper ravine, the Clerestory Spurs. We had to have a closer look and so descended all the gained height to stand on a cliff edge pagoda to take photos. This position was marred by the presence of a worn bike track, something we have become used to on the western edge of the Newnes State Forest.

On the plus side the bike track provided a clue for the route across the several deep slots within the isthmus defile between the two 'mesas'. Fortunately the bike track disappeared to down the ravine valley to the south while we contoured around the north west side of the 'second mesa'. Now, through the trees we could see several pagoda destinations to go and visit. The first was at GR 318 009 where our initial glimpses of the Clerestory Spurs and associated parallel, magic north east ravines appeared. I have already planned a day walk for this country however the map gives little indication of the magic this area holds. The camera was very busy.

Looking at my field notes I see a sequence of words like, 'slot up', 'tight gully,' 'amazing and unexpected ledge and slot', all this was crammed into such a small area. At 0959 came across a cairn at GR 316 011, which is located on a high spot on the northern side of the 'second mesa'. Pushing north from the cairn to the cliff edge was very rewarding, and by 1006 we had climbed a great pagoda, while the views across Kerosene Vale to the Clerestory Spurs were inspirational. Decided that this was as good a spot as any for morning tea, GR

316 012. We stayed 20 minutes. However we were not idle and plans were formulated to visit the collection of pagodas on the end of the north west finger of the 'second mesa'.

These pagodas were interlinked with great slots and a wonderful sinuous, semi enclosed, tight ravine that enabled a climb to the top of one pagoda at GR 315 014. We were impressed with the views and amount of fine detail in the erosion residuals. Cameras were busy, very busy. Descending this pagoda and circling to the west around the base of another large tower we then successfully climbed to the top of yet another enjoying the exhilaration of continuous discovery.

Next for our delectation was a winding narrow ledge, (regrettably with evidence of recent feral goat occupancy), that led to a succession of high points. It was all magic - except for the intrusive view of the ash settlement dam with its bizarre green and blue colours caused by flocculating agents and neutralisers used to treat the contaminated water before it ultimately reaches the Cocks River and Sydney's water supply- a thought none of us really wanted to pursue.

Closing out those images, we next skirted a cliff lined ravine and headed almost due west through the most delightful open *Eucalyptus haemastoma* forest. The walking was very easy as an old bike track went all the way. Visited another high point at GR 308 008. There were no views however there was some industrial noise from the colliery conveyor belts. At GR 306 010, decided to turn around, as the track would have taken us down into the 'back yard' of the colliery.

At GR 312 012 we left the track, and commenced an interesting ridge climb that turned out to be a wonderful collection of several dozen pagodas. We climbed and clambered up and down several until reaching a high point at GR 314 011. This was a stunning spot at 1096m, and as it was 1225, a good spot for lunch as well. To cap it all the clouds parted sufficiently for some good pictures.

At 1250 it was time to resume exploring. I had originally intended to descend a deep ravine way to the southern edge, however a lapse of concentration resulted in a descent into a similar ravine but on the north side. This was not a worry as we were in exploration mode and the experiences we had in the descent were wonderful. These included a great arch like window and a long slot that terminated on a high rock platform with a stunning view of the Clerestory Spurs and ravines to the north, 1320, GR 318 012. It was while on this amazing platform that one of the crew picked up a sighting of the pump house seen way back at the beginning of the walk! Two options presented. One to return to the ridge and descend into the southern ravines, the other to press on and find out whether we could get down all the way and take our luck with a possible confrontation with a mine border patrol. I chose the latter – nothing like spicing up the adventure factor a little.

The cliff descent had some interesting slide sections but overall was very easy. At 1348, GR 320 011, we intersected with the service road that would lead uphill to the pump house. The easy way out from here would be to walk the road and climb up next to the pipeline. Not for us, we walked down the road towards Sawyers Swamp. Back at home studying the geological map of 1901, compiled by J. E. Carne, I now realise that some odd looking mounds of disturbed ground we saw along this road were in fact one or two of the collapsed adits for Dr

Mackenzie's Kerosene Vale workings. I wish I had stopped and taken pictures as this Torbanite Shale seam was successfully exploited by Dr Mackenzie from 1867 to 1887.¹⁰⁶

Brisk walking along the road brought us to the intersection with the colliery access road in Sawyers Swamp, GR 320 015 at 1356. From this point there were several options that could be followed including two ridges and two ravines. We decided to follow the road as far as possible before making a decision. A large, fenced automated air intake installation was noted about 500m east along the road. The road ended at GR 326 012 where a fenced air intake was also noted. At this point we went into climbing mode heading up the eastern flank of a rapidly rising, narrow ridge, it was 1428, GR 328 010.

Initially the ridge was a very easy ascent however cliff lines were developing and we would have to breach them to gain the ridge top. Two super passes were found and climbed without rope assistance. Both have the same GR of 328 010, which gives some indication of how challenging they are. At the top we were rewarded with absolutely stunning views over the extraordinary top end catchment of Sawyers Swamp. A great blade of exposed rock separates two ravines and will be visited on a future walk¹⁰⁷. Behind this blade is more exposed rock including a great cavern that runs deep into a near vertical wall. Pictures, pictures!

At 1443 I became very much aware of a change in the immediate vegetation. It was an almost exact replica of the vegetation that identifies the fossil sand dune I visited with Dr Paul Hesse on 18th April 2010. This present site is at GR 327 007, and whilst the vegetation is correct and the sand very similar there is not enough sand to be a complete dune. It could well be of interest geologically as either a dune in the last phases of extinction or the initial stages of formation. I will be writing to the professor. It has the advantage of being almost on the roadside so access is not a problem. Returned to the vehicles at 1450.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0858	Parked vehicles and start walking	331 006
0912	Pumping station	323 008
0919	Bike track	322 007
0923	On edge of the isthmus between the two mountains	322 006
0949	On pagoda	318 009
0959	Bike track crossing	316 009
0959	Cairn	316 011
1006	Pagoda and morning tea (20 mins)	316 012
1049	Slot and pagodas	315 014
1107	On a pagoda	313 016
1132	Great views and more pagodas	315 013
1136	Bike track	315 012
1148	Following bike track and high point	308 010
1155	Return point on track	306 010
1204	On ridge	312 012
1225	On pagoda and lunch (25 mins)	314 011
1255	Bike track	316 011

¹⁰⁶ Carne, Joseph Edmund, "The Kerosene Shale Deposits of NSW" 1903. p. 244. Mackenzie also had a retorting facility on site.

¹⁰⁷ Park at GR 342 015 and walk west.

1310	Descent point	317 011
1320	Viewing platform	318 012
1348	On access road	320 011
1356	Road junction	320 015
1406	Road ends	326 012
1428	Pass one	328 010
1435	Pass two	328 010
1443	Possible sand dune	327 007
1444	Road	327 007
1450	Return to vehicles	331 006

7.4 Fernbrook Ridge

Maps, etc.	Department of Lands, Lithgow topographic map, 8931-3S, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park vehicles on the Beecroft Firetrail near the branch in the 66kV power line, approximately GR 343 015. Walk along a forestry track that generally trends south for about 2.5km and then follow an ever-narrowing peninsula to its termination at approximately GR 341 985. This is a high ridge 1,000m + so there should be expansive views. The map shows a solid cliff line but the aerial photos indicate plenty of opportunities to explore the cliff line as well as descend into a deep ravine to the west where an old track leads back to the plateau. About 8km, ascents 200m.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	Part Exploratory. Views of the Hoax Town Hotel. Scrambling and mild exposure.

Date walked 31st March 2014.

The Weather

A totally overcast sky with low mist in the morning. Progressively the mist dispersed, the clouds thinned and by midday we were seeking shade from the heat of the sun. Temperature ranged from a cool 12 degrees to 22 degrees.

Background Notes

Fernbrook Ridge and its associated deep valleys are located on the western perimeter of ADF¹⁰⁸ land at Marrangaroo. Successive issues of Department of Lands topographic maps of Lithgow have always omitted showing this boundary and the extent of the Commonwealth controlled ADF land. The reasons for this ongoing secrecy by the Commonwealth are not clear and in the 21st century there is a need for more transparency. Given that the area is used in part for the disposal of live ordnance and training under live fire, public safety should dictate better disclosure.

Track Notes

Vehicles were parked at GR 341 014 near the junction of the Beecroft Firetrail and service roads for a 66kV power line. A briefing session was then held and significant changes made to our plans. The walk would be done in reverse and the spectacular pagoda topped ridge east of Fernbrook Ridge on the western edge of ADF land would be included.

At 0849 we set off walking south west along a service road under the power line. One of the first fungi observed was a very large specimen of *Phylloporus sp.* It was deep yellow and

¹⁰⁸ ADF = Australian Defence Forces

very conspicuous. On the crest of a rise at GR 336 006 there is a gate and road junction. Here we left the service road, headed east on an old forestry track. This proved to be an interesting but an incorrect decision and we explored a lot of burnt forest, sighted a lot of different species of fungi and collected a small but serviceable axe that had bounced or fallen off a maintenance vehicle.

After completing this interesting circuit we picked up the Fernbrook Fire Trail and headed down into Fernbrook Gully. The State Mine Fire of October 2103 had burnt fiercely in this valley. Signage that used to warn of private property and a locked gate ahead was barely readable. Every tree still standing had been reduced to a charred remnant of its former self. Regrowth of under storey ferns was well advanced, however many lignotuber species were yet to show signs of life despite the extensive rains of March.

At 0947, GR 336 002 we found the reduced remains of an old converted Blitz Truck. The fire had burned away all the surrounding foliage so it was possible to take good photographs of this heavily engineered vehicle which had been modified for pushing scrub and small trees in the course of forestry operations or land clearance. A lot of pictures were taken of this relic that possibly dates to immediately post WWII.

A bit further down the road we saw something not observed when I walked here in April 2010, a water catchment installation. This comprised two heavy duty 44 gallon drums fitted with taps, some aerial piping and all positioned at the base of a small waterfall. This was at GR 335 997. We kept on walking the old road which is now not trafficable due to the number and size of fallen trees. Some recent effort has been made to clear a few smaller logs but whoever was working on it has given up the project as being too much effort.

On the last visit to this area we also found an unoccupied dwelling. I noted at the time.

"At 1115 a collapsed wooden bridge identified a side track to the west, GR 334 998. When built, this bridge was designed to carry heavy vehicles, it being made of 50cm diameter logs and surfaced with second hand railway sleepers.

We continued walking and to our surprise spied an old cast iron bath in the middle of the forest. Seconds later the collapsing remains of a substantial dwelling were sighted, GR 334 997. This building would appear to be located on surveyed Portion 38. An inspection revealed it to be in very poor repair with virtually no walls but with an operational cast iron stove, and some indicators of recent occupation. Took photos of the house, water tank and some strange bits of mechanical equipment then continued our journey."

The only obvious indicator of the former dwelling remaining is the old white cast iron bath. Crossing over the creek we went in search of the house. All that remains is a heap of twisted roofing iron and rusting structural members. A Malley's Copper dated 1942 has survived, as has a vitreous tea cup made in England for 'John Brown and Company, Melbourne.' The old log bridge has been totally consumed by the fire.

Conducting a thorough search we found a deep constructed well adjoining the house site. This well is a near perfect rectangle in cross section and about 3m x 4m. The depth to current water level is over two metres and its total depth is possibly more than 8m. Also checked out was a collapsed structure up the northern talus slope. It appeared to be that of a building roof

but no purpose could be deduced. A small enclosure nearby the house site was possibly a vegetable patch. The connection between all the observed 'improvements' that are located on Portion 38 can only be guessed. Very likely it was used as a holiday retreat on an occasional basis.

Research undertaken by Brian Fox shows that the portion where the burnt house is was an old area in terms of occupation, originally owned by Walter Mackenzie, late 19th century. The Mackenzie brothers had interests in coal. They are the same brothers who had coal interests at Asgard Head in the Grose Valley. The recently destroyed building is unlikely to have any connection with the Mackenzie brothers.

Fungi were abundant in the area with many different species being observed. Of particular note were *Ryvardenia campyla* with its distinctive drops of adhering amber fluid, giant puff balls, *Peziza austrogeaster* and hard puff balls, bright yellow with powdery grey spores inside, ID to be confirmed.

We took a brief morning tea break back on the track, recommencing our walk at 1037. As we continued down the track it became wetter and wetter underfoot, and at times the creek seemed to have taken the road as its new course. The quantum of fallen logs also increased. At 1059, GR 338 990 we spied another house. This was on Portion 39. Not wanting to disturb anyone or alert any dogs that may be about we headed east up the talus slope and onto Fernbrook Ridge. The route was remarkably easy, the fire having removed all vegetation exposing a good ramp up the first level of cliffs. A short walk to the north took us to another user friendly ramp through the main cliff line, GR 339 991.

We were still west of the principal ridge and some distance from the high pagodas with views to the south. At 1122 we traversed some of the most thoroughly burnt country of the 2013 fire. All organic matter had been consumed; the soil was almost white, the quartz grains being freed from discoloration, very few lignotubers showed any sign of life. Large areas were devoid of any green matter at all. As we pushed south I commented to Brian that despite the sterile appearance of the landscape, some animal had been scratching the ground in search of food.

Minutes later we had a possible answer, Brian, mounting a big pagoda suddenly froze, indicated to us to be quiet as he positioned his camera. What he was capturing was a series of images of an Eastern Grey Kangaroo, *Macropus giganteus*, sitting on the next pagoda south. The Kangaroo stayed while we all came to the viewing spot. It was one of the most beautiful grey kangaroos I have seen. The long hairs of its coat reflected the sunlight and gave it an outline halo of light. After it had had enough of us, it took off, bounding over the pagoda tops with an elegance we could envy and at amazing speed that was breathtaking.

The unique animal experience over, we walked out to the southernmost, high pagoda, GR 341 986 and surveyed the scene. All visible arable and pastoral land was clothed in vivid green, it looked more like spring than autumn; the ADF base at Marrangaroo, its precinct surrounded by a green wall of *Pinus radiata* looked almost benign. We could not see the roof signage *Ryan's Hotel* that used to be such a feature of the WWII Hoax Town, part of the decoy system designed to protect Lithgow from a Japanese air attack. Perhaps with the passing of time and the need to repair the roof, this reminder of our history has been lost.

Time now to go and investigate the great pagodas we had been looking at the next ridge east from Fernbrook Ridge. To do this we needed to drop down into the next valley, a part of Portion 12, as indeed is the south end of Fernbrook Ridge, and then find a way up through the cliffs so we could explore the great pagodas that surmount this ridge.

We started this process by walking along the eastern edge of Fernbrook Ridge testing for possible ramps or stepped pagodas. The topographic map does not give any encouragement for this, showing a continuous cliff line. After three 'no go' ramps, one was found that was almost too easy at GR 342 990. Essentially a watercourse, this ramp was well graded down the 40m vertical cliff that we needed to reach the valley floor. Not unexpectedly evidence of a former road was encountered on the valley floor.

To ensure that we did not miss the end point we walked south down the valley floor for about 150m to GR 343 988 and then climbed up about 50m to the base of the pagodas. Just below the cliff base we encountered a burnt and collapsed 4 wire strand fence that had charred notices attached to it warning "caution risk of explosives in the area". Checking with my copy of the map that the ADF provided some years ago we must have been right on the very western edge of the ADF lands. We kept on walking and at 1221 reached the crest of the ridge at GR 345 987. The views were fantastic and show a network of roads including a recently sealed one that possibly connects to an underground ammunition bunker. There was absolutely no sign of any activity or personnel.

From several high pagodas we could look upstream in the Marrangaroo Creek network and see ridge after ridge of pagodas, the Lost City and a network of unsealed roads. Excellent photographs were taken showing the rugged terrain. Progressing north we found we were crossing and recrossing the ADF fence line as it more or less followed the spine of the peninsula of land. At 1245, GR 345 991 we decided to have lunch. A great pagoda was selected and the sun provided a delightful warmth to the location. Twenty three minutes later we were on the move once more. We had only progressed about 30m to GR 345 994 when two things happened, firstly, the pagodas disappeared and, secondly, ahead was a perfectly formed track leading north. It had no obvious reason to commence here although we speculated that it was probably an ADF perimeter training track or fence servicing track.

Fast progress was made along the track to GR 344 988. From here we cut across country towards where the vehicles were located. Interestingly at GR 343 000, in intensively burnt terrain Brian found the detonating pin of a 25lb bomb. It was dated 1942. I have a similar one at home dated 3/1937. It would seem that quite often this ordnance would somehow find its way well outside the prescribed firing zone. By 1343 we had reached 341 002 and at 1351 the network of tracks encountered in the morning. The vehicles were reached at 1409. Total distance walked 11.81km, total ascents 488m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0849	Park vehicles and leave	341 014
0907	At road gate	336 006
0917	Fork in track	340 006
0926	Another fork in track	342 004
0932	Head west	341 002
0936	On Fernbrook Fire Trail	338 003

0942	Old locked gate	336 002
0947	Old Blitz Truck	336 001
1010	Old water supply installation	335 997
1015	Old house ruins	334 998
1037	Finish morning tea, 11 minutes	335 998
1059	Leave Fernbrook Fire Trail, head east	338 990
1113	Climb ridge	339 991
1122	Fernbrook Ridge crest	341 991
1131	At point + Grey Kangaroo	341 986
1145	Leave point	341 986
1154	Ramp down into valley	342 990
1203	Walk down valley on old track	343 987
1209	Leave road and climb east side cliffs	343 988
1216	Cross fence line with signage	344 988
1221	On crest of ridge	345 987
1225	At point of ridge + view sealed road	346 986
1245	Lunch on pagoda, 23 minutes	345 991
1323	On old track	345 994
1329	Track heads north	344 988
1336	25lb bomb detonator	343 000
1343	Cross track	341 002
1351	More tracks	339 005
1358	At road gate	336 006
1409	At vehicles	341 014

7.5 Clerestory Spurs 1 and 2

Maps, etc.	Department of Lands, Lithgow topographic map, 8931-3S, 1:25000, second edition, GPS WGS 84. Department of Lands, Cullen Bullen topographic map, 8931-3N, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park vehicles at the junction of the Beecroft Firetrail and Kangaroos Creek Road. Head south west through the State Forest and descend into the rainforest at approximately GR 314 030 then make our way around some minor spurs towards the nose of Clerestory Spur No. 2, GR 310 027. Continue walking below the cliffs, but seek options to ascend to the crest of Clerestory Spur No. 1. This spur is quite bulky and several options look possible. Depending on available time continue westward, checking out some very dissected country. About 6km, +&- 300m several times. The walk may be done in reverse depending on conditions. Exploratory.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	This is complex and tough terrain. It is immediately south of several known and documented Aboriginal art sites. Some use of a tape should be expected. As far as I am aware this area has not been visited by bushwalkers.

Date walked 15th April 2014.

The Weather

A cool cloudy morning with increasing areas of blue sky until mid- afternoon when total cloud cover returned. Relative humidity was high all day. Temperature ranged from 11 to 14 degrees.

Background Notes

The Clerestory Spurs comprise twelve pagoda studded spurs trending approximately north, north east from the main creek system of Sawyers Swamp towards the Beecroft Firetrail. Named by Michael Keats on a Bush Club walk, 14th September 2011. No. 1 GR 308 025; No. 2 GR 312 027; No. 3 GR 313 024; No. 4 GR 317 023; No. 5 GR 319 020; No. 6 GR 322 018; No. 7 GR 324 017; No. 8 GR 326 017; No. 9 GR 327 014; No. 10 GR 331 013; No. 11 GR 334 012; No. 12 GR 336 012.

A clerestory is the upper part of the nave of a Gothic church or other sacred building with windows above the aisle roofs. These pagodas measure up in every way to such a title as they include numerous perforations or windows. Lithgow Topo Map, GR 308 025 west to GR 336 012 east.

Clerestory Spurs, numbers 1 and 2 are perhaps the most spectacular of the 12 spurs. They exhibit consistent pagoda development along their entire length and feature complex

ironstone plates, and in places highly developed ironstone nodulation. The paucity of vegetation gives the individual pagodas clean lines and dramatic presence.

Track Notes Clerestory Spurs No's 1 & 2

The vehicles were parked at GR 321 034 at 0838 at a height of 1083m immediately west of the junction of the Angus Place – Beecroft Fire Trails on the service road for the 66kV power line. Initially we walked the service trail west to reach the high point of the spinal ridge of the first spur where it projects from the Blue Mountains Range. This was at GR 313 038. We set a course south west and soon had to adjust this to south to maintain our position on the crest, GR 311 037.

By 0900 we had our first pagoda view encounter. As we progressed along this ridge the pagodas became almost continuous. There is no adequate indication on the topographic map of the extensive nature of these pagodas. We climbed one at GR 309 034 and were amazed at the quality of pagoda development in several ravines to the north west. A separate excursion needs to be undertaken to explore these ravines.

Almost as a given, we encountered a bike track that was used by us from time to time. Our progress south was punctuated by numerous stops to take photographs. Many pagodas were climbed and views were captured both to the west and to the east. The early morning autumn sunlight was great to work with, really enhancing the outlines of the successive ranks of pagodas, and in many places the profiles of native Cypress Trees, *Callitris sp.*

In a state of near delirium we progressed out towards the southernmost high point of spur number 1, GR 308 027. Here we decided that morning tea would be a good idea and fifteen delicious minutes were spent looking particularly at the knife edge like spur number 2, immediately to the east. After morning tea we would seek to find a way of descent through the 40m high cliffs, visit the manmade lake that now separates spurs 1 and 2 then climb to the top of spur number 2.

A 1040, after being confronted earlier with a 3m waterfall option, we found a smaller water course with a 1m waterfall that was negotiable with less risk. This was the only challenge in the cliff descent, the rest was easy with many *Leptospermum* species providing impromptu brakes on the slopes above the waterfall, while fallen logs providing the brakes below the waterfall. This waterfall also created a 'vegetation zone boundary' between the upper very dry pagoda area from the lower slopes and valley floor that were carpeted with Native Violet, *Viola hederacea* intermixed with native grasses.

The valley floor was a little piece of paradise and would have made a very pleasant campsite. It was made even more alluring by the sun that decided temporarily to come out of hiding. Dropping our packs we walked down to the edge of the manmade lake – an annex lake to the ash settlement dam. The noise of frogs croaking away was amazing. The introduced bulrushes, *Typha sp.* have grown huge, possibly because of the excess nutrients in the water. Some individual plants exceeded two metres in height.

Leaving this little piece of paradise we had a decision to make, which way would we walk to find a way up spur number 2? Spur number two ends with a huge vertical monolith about 30m high and separated from the main spur itself. We decided to walk up along the base of the cliff line on the east side of the spur and keep testing each slot and crevice until we found one that would go, to then make the ascent.

This was an amazing journey. We found a dry overhang at GR 313 030, and a little further on two natural tunnels 5m and 10m in length caused by cliff sections slipping off and then collapsing against the main cliff. Spur number 2 has a bulge in the upper reaches causing us to circle around it. Finding a way up still eluded us. At 1132 GR 314 031 we came across a long dry overhang over 30m in length with ledge like extensions going even further. There was no evidence of human use. We spent quite a few minutes searching for art, hearths, etc., without finding anything.

Pushing up the valley it suddenly ended and did not look promising for us to exit. A steep watercourse with a large dead tree wedged in it enabled us to negotiate the first 3 metres of climb. This was followed by a long, 45 degree open sandstone slope that really tested leg muscles and one's power of concentration. The climb up the slope was about 50m; the top and level ground was most welcome.

After a quick consultation with the map we headed south along the ever narrowing ridge of spur number 2. We had only travelled a matter of metres when the views of spur number 1 were seen and more exciting, a series of high pagoda crests that marked a secondary ridge in between spurs 1 and 2. This spur perhaps 300m long could be easily accessed from the open rock apron like area between the two major spurs, GR 311 032 to GR 311 089. Not for visiting today. We were keen to get to the end of spur number 2.

What a journey it was! For most of its length this spur is less than 50m wide and in many places less than half that. Also it is 40 to 50m high. The views are stunning all the way from both west and east aspects. Pagoda walking is an intuitive art and provided one reads the terrain it is relatively easy to walk the ironstone ledges, negotiate the small gaps and use the natural hand and foot holds.

We stopped at GR 311 031 to examine a rare phenomenon, clusters of ironstone nodules, about billiard ball size, seemingly randomly glued together and with interstitial perforations creating sculptures that were out of this world. Time to move on and out to the very last conjoined pagoda on this spur. We knew from observations when crossing the valley floor that the terminal pagoda was separated from the ridge. It is also about 20m lower than the rest of the ridge.

At 1229 on the very end of the spur we each managed to find a spot to sit to have lunch, GR 311 028. It is a rare place and we suspect that few others have ever been there. Indeed a few of us were appreciative of the mutual support needed to climb up the last metre to the top. Descending was much easier. Despite the views and the magic of the location we stuck to our 20 minute lunch break and at 1250 we were on our way back still admiring the wondrous views all around. This is a location to revisit and explore so much more. Leader Brian was determined that rather than explore the mini spur between spurs 1 and 2, that we should return to the vehicles, then drive east to the point where we could quickly descend into the ravine between spurs 4 and 5 and visit the Stage Cave.

Keeping a good pace we reached the vehicles at 1334. A quick drink and notation of the walk statistics; distance 8.18km, total ascents 419m, then we were off once more.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0838	Park vehicles	321 034
0851	Leave service road, head SW	313 038
0857	Change direction	311 037
0900	Viewing pagodas to NW	311 032
0905	Bike track heading SW	311 035
0909	Viewing pagodas	309 034
0923	On pagoda ridge	308 032
0933	On pagoda	309 032
0941	Pagodas everywhere	309 030
0956	Pagoda view	308 028
1005	End of Clerestory Spur No. 1 + morning tea, 15 minutes	308 027
1040	Descent off Clerestory Spur No. 1	309 127
1048	Valley floor between spurs No. 1 and No. 2	310 027
1055	Edge of lake	310 026
1100	At cliff base Clerestory Spur No. 2	311 027
1113	Exploring cliff base	312 030
1118	Dry overhang	313 030
1124	Two tunnels	314 030
1132	Long overhang	314 031
1145	45 degree slope and climb to top	313 032
1208	Ironstone nodules	311 031
1229	On point of Clerestory Spur No. 2 + lunch 30 minutes	311 028
1309	Climbing ridge	312 032
1324	Climbing ridge	316 037
1334	At vehicles	321 034

The Stage Cave

The vehicles were relocated at GR 326 027 on the 66kV power line access track. After a good drink we set off without packs to walk to the site of the Stage Cave.

This walk was largely on old logging tracks. It was quite amazing to note the steepness of the slopes where great trees had been cut and then hauled up hill for stacking and sorting before being transported to a mill. It was only the last 80m or so when we had to push through scrub and then fight great ferns that threatened to engulf and completely disorientate us. A large cave was entered at GR 322 026. It was not the Stage Cave, however it was a cave of considerable interest because of the old but still readable graffiti.

In this cave were the names L Deeley 1923; W Belton 1923, and Robert Anderson, 1/1/1936. Very faintly was also, D Nolan 1924. Research by Brian Fox of the electoral rolls shed no light on whether these were local people. Given the closeness of this cave to what was then main road between Mudgee and Bell, these men may have been itinerant workers or just passing through and found the cave handy to doss down in. No artefacts were seen.

Another cave was examined at GR 322 027. This one had the name and date, T. Weinert 1906. He owned land at Wolgan gap. Research by Brian Fox shows there was a Thomas Weinert who died in Wallerawang 26th July 1944, aged 80. He would have been 42 in 1906,

a good fit for the evidence although we have no other corroborating proof. It was noted that on the parish map there were other members of the Weinert family who owned land at Lidsdale which is 3km from the cave.

The Stage Cave was entered at 1427, GR 321 025. It is a beautifully proportioned cave, 12m wide, 12m deep and 10m high. The proscenium is perfectly centred. It has all the attributes of a stage. Taking a close look around, we found some partly buried old rusting food cans and a shard of glass from a bottle. Also a cut log with minor small axe marks is still in the cave together with other cut timber. These caves are all located on Surveyed Portion 405, Parish of Lidsdale.

We returned to the vehicles at 1452. Total distance walked 3.32km, total ascents 89m

Table of Times, Locations and Grid References

Time	Location	Grid Reference
1345	Park vehicles	326 027
1358	Graffiti cave number 1	322 026
1410	Graffiti cave number 2	322 027
1427	The Stage Cave	321 025
1446	Interest old track	323 026
1452	Return to vehicles	326 027

7.6 The Clerestory Spurs¹⁰⁹, numbers 3 to 5

Maps, etc.	Department of Lands, Lithgow topographic map, 8931–3S, 1:25000, second edition, GPS WGS 84.
Walk description and route	Park a vehicle at approximately GR 323 033, the junction of the Beecroft Firetrail and Kangaroos Creek Road. Walking from west to east explore a series of spurs, ravines and associated pagodas, visiting terminals at GR 312 024, GR 317 023 and GR 319 022. Return via an old logging track to the vehicle. Rugged, possible rope use, up to 200m +&- several times. About 8km.
Gear issues	Have clothes to change into in the car for afterwards. 1 litre of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	A repeat walk for better photography. Some scrambling and exposure. Date walked 4 th April 2014.

The Weather

Total cloud cover with low hanging mist prevailed until about 1030, the sun then made a brief appearance and the sky cleared a little for about 90 minutes. During this time the humidity rose and conditions became quite sticky and unpleasant. The clouds then returned and the humidity dropped along with the temperature. By 1300 a few drops of rain were falling and minutes later we needed to don wet weather gear. When we reached the cars it was raining steadily. Temperature range from 15 to 17 degrees.

Background Notes

This area little visited by bushwalkers is a secret gem. It contains more pagodas per square kilometre than most areas within the Gardens of Stone National Park. It suffers from its European history with multiple adverse legacies from timber, kerosene shale and coal extraction. Timber and coal extraction are both current activities. In addition, the landscape views to the west and south west are dominated by electric power generation plants and an ash settlement dam.

On the plus side of the ledger the pagodas are of great number and quality, the rare pockets of lush rain forest undisturbed, and the views avoiding the ash settlement dam are as good as it gets. The opportunities for bushwalking are excellent with easy access making it possible to be in the pagoda fields within 700m of parking a vehicle.

Track Notes

¹⁰⁹ See Book 5 Local Place Names for details

The vehicle¹¹⁰ was parked at GR 323 033 at 0845, immediately south of the junction between the Beecroft Firetrail and Kangaroos Creek Road¹¹¹ on Log Hut Hill, where an outline of the walk was given by Brian Fox. In brief we would successively visit three of the 12 Clerestory Spurs and two of the intervening gullies and minor spurs.

We were walking by 0850, initially traversing regrowth forest and from time to time crossing over old timber haul roads. By 0930, GR 314 027 we had picked up the spinal haul road for Clerestory Spur number 3. This road has mellowed with time, and to its terminus provides a quick route to the pagoda fragmented end.

By 0946 we were enjoying views to the west towards Clerestory Spur No. 2 and an artificial lake created by the ash dam on Sawyers Swamp¹¹². We noted with interest that there are two major sub spurs in the intervening gully that appear to be filled with deep rain forest. It is planned to visit these on a separate walk.

Sticking close to the western edge of the pagoda fringed cliffs and by descending several deep clefts we made progress towards the end point that for this spur is a massive isolated rock pagoda. The panorama view is blighted below by the ash dam which appears to be being allowed to silt up; a new artificial hill of soil covered fly ash under long term construction and Wallerawang Power Station complex. Away from this the views are of spectacular cliffs. It is not hard to image Sawyers Swamp before it was violated.

After quite a few minutes recording and photographing this place and the views of Clerestory Spur No. 2, it was time to head north and commence an under cliff walk into the ravine between spurs 3 and 4. It was now after 1000 and morning tea moved to the top of the priority list. After exploring some great cliffs and noting the 41m drop below, a high dry undercut bench with views at GR 314 025 was agreed as a good spot to have morning tea.

The ravine between spurs 3 and 4 is both deep and wide. It is also the location of two prominent internal spurs. These spurs and their associated geomorphology provide the basic structure for microclimate development. Species diversity is significant and moisture loving plants that can survive at 1000m plus thrive. In these ravines, and in the deep ravine next east between spurs 4 and 5 there are huge boulders covered in *Microsorium pustulatum*, *Pyrrosia rupestris*, *Dictymia brownii* and *Blechnum billardiarei* and *Blechnum patersonii*. A thorough audit needs to be conducted as these are species observed while walking through. Fungi were also in profusion with stunning examples of the red and yellow *Boletus obscurecoccineus* being photographed.

Creeks and tributary creeks were flowing well. *Dicksonia antarctica*, *Cyathea australis*, *Todea barbara* and numerous smaller species crowded each other for space. The descent for the crossing began at GR 316 077 and ended with an ascent at GR 317 027. From this later point a series of small ledges and terrace like ironstone bands were an irresistible combination to take us through the lower cliff line. We did extremely well negotiating ledges as narrow as 100mm, slots at odd angles and indeed we were successful until the last 5m when the odds were so stacked against us we had to concede defeat and retrace the climb in

¹¹⁰ On vehicle was parked at GR 343 015 due to a misunderstanding. We managed to cram 6 bushwalkers into one Subaru Forester for the 2 kilometres of the journey.

¹¹¹ See Book 5, Local Place Names for detailed information

¹¹² See Book 5 Local Place Names for detailed information.

reverse. As it turned out, 50m further on there was an easy walk up ramp. The exhilaration of the climb remained.

At the base of the main cliff line GR 317 024 a ledge suitable for an art site was encountered. Whilst no ancient art was found we did find some very old graffiti on the back wall, "1890 A O Asher" or as it was all in capital letters, it could have been "1890, Aoasher." A bit further on the initials "T M" we noted and separately again, undated "Con Aoasher" or Con A O Asher." Research into this name by Brian has so far drawn a blank. About this time in the late 19th century, in the Sawyers Swamp area prospecting for Torbanite was taking place. Several adits and mullock heaps associated with this mining period can still be seen on the south side of Sawyers Swamp.

At 1133, GR 317 023 there is a major natural slot through the spur so that a walk through can be done avoiding a visit to the terminus. We noted the slot and kept on walking. Five minutes later we reached a very large pagoda that was accessible by a scramble and climb. Again there were special views to be had from the top. The terminal end of Clerestory Spur number 4 is forked. We were climbing the link bit between the two when David and Lucy signalled quiet. They had come across a wombat out for a stroll. Great images of the Wombat were secured before it sensed our presence and shuffled off. This was at GR 317 022.

The ravine between spurs 4 and 5 on its western side exhibits a very steep, almost continuous 40m plunging cliff line. Above it, but below the upper cliff line is a high level ledge matching the ledge where the graffiti is located in the previous ravine. This ledge has serious undulations, but it is all negotiable. At GR 320 024 an unusual artefact was found, an old square section, screw top bottle. Inside was a white powder and by rotating the contents also a printed piece of paper. I brought the bottle home and after soaking the rusted screw top section with solvent, retrieved the paper.

The piece of paper has provided yet another window into our early history. It was a gift coupon issued by Mitchell Maid home cookery and issued by D Mitchell & Co. Ltd. This company operated between 1930 and 1939. The most interesting thing about coupon No. 96858, worth 4 points, was not the listing of free gifts it could be exchanged for, but the overprinting.

"As the cost of presents listed on these coupons has become prohibitive on account of the War we are compelled to each of the following alternatives:-

- (1) Reduce the point value of each coupon by half*
- (2) Reserve to ourselves the value of 3d. per each 12 points"*

The white powder in the bottle proved to be Bi- carbonate of Soda. 20m beyond this was a vaulted cave. Writing of this area visited previously, 6th October 2010, I wrote,

"We moved on and nearby and below the western cliffs, a large house sized boulder had broken away from the main cliff to create a very large, vaulted cave. The exterior was encrusted with a diversity of epiphytes and begged it to be explored. What a revelation. Inside was a low stonewall and a levelled area. The cave seemed quite deep so out came a headlight torch for a check out. There were no visible artefacts but there were a series of chock stones. This has been someone's camp. After photos and notation we continued up the valley in now lush and long undisturbed rainforest.

The upper valley was filled with many huge boulders – most of house size and all covered in ferns and mosses. Continuing our way northwards we observed a deep slot that appeared to provide an access route to the cliff tops some 50m above. It was far too early to exit but we decided to check it out as a future access point. What a fine fern filled slot it was! Great tree ferns filled it and we made super progress until the last few metres when it terminated in a vertical 3-4m drop. Easy to abseil in but no way out.

Now we returned to the lower forest and crossed over the boulder field where we spied a promising looking cave for lunch. It was a top quality cave with clean level floor and a perfectly semicircular stage backdrop filled with ferns. Just so unexpected. Lunch was taken on a platform rock out the front so if we turned around we had a full view of the stage, later named the Stage Cave. No actors – just Steve having his lunch centre stage!”

Today we found the vaulted cave and stone wall but we should have stayed down in the creek area to visit the Stage Cave. As it was we climbed high and reached a line of delightful pagodas with great views, GR 321 025. It was now 1230 and lunch was a priority. In jest I suggested that Lucy should sing for us as Sonya (who has a superb trained voice) had when we visited the Mid Summers Night Grotto. Lucy did something more dramatic. She had spent some of her youthful years with her mother on a mission in the Northern Territory. Lucy put on an interpretation of an Aboriginal dance and sang as well, telling in the local dialect the story of hunters lost at sea. A truly moving experience. Thank you Lucy, you are very special.

As lunch was drawing to a close, the weather was changing. We still wanted to visit the end of the next spur east, so at 1250 we were packed and moving. Initially there was a small climb then a crossing of a shallow gully before heading south east to pick up a logging road that runs down the spine of the spur, GR 323 025. Rapid progress was made on the old road that traverses a great stand of Casuarinas and terminates just before emerging onto a series of pagoda topped rock platforms with great views of the higher number Clerestory Spurs in the upper reaches of Sawyers Swamp.

Looking west the sky was almost black with angry storm clouds that appeared to be hovering just east of Bathurst but moving progressively towards us. At GR 322 022 packs were shed, some possible Aboriginal water pots examined and then the crew headed out a further 300m over dissected pagoda country to capture images from the point.

At 1319 they were at the end point of Clerestory Spur No 5, GR 319 022. Lucy and I had decided to have a break. As the guys returned the first drops of rain fell. The two kilometres up hill to the car was executed in double time. On the way we came across a very large piece of abandoned and vandalised equipment. It had been a forestry logging vehicle, an OSA260, a 6 wheel vehicle complete with a crane hook to pick up logs and place them within the cradle at the back of the vehicle.

As we were de kitting the rain started to get serious. By the time we had driven to the second vehicle the rain had set in. Total distance walked 8.1km, total ascents 487m.

Table of Times Locations and Grid References

Time	Location	Grid Reference
0845	Park vehicle	323 033
0850	Commence from Beecroft Firetrail –Kangaroos Creek junction	323 033
0902	Traversing old forestry tracks	320 033
0930	Views east of Clerestory Spur No. 4	314 027
0946	Views west of Clerestory Spur No. 2	313 025
0957	At terminal of Clerestory Spur No. 3	312 024
1008	Morning tea in ravine, 9 minutes, (1030m)	314 025
1039	Descent into ravine	316 027
1048	Crossing ravine + ascent	317 027
1102	Walking ledges on pagoda and return	317 026
1107	Position	317 025
1125	Climbing and exploring a ledge + graffiti	317 024
1133	Exploring slot and 1 of 2 'ends' of Clerestory Spur No. 4	317 023
1155	Another slot	317 023
1157	Wombat siting + second end of Clerestory Spur No. 4	317 022
1212	Bottle discovery + habitation cave	320 024
1230	Climb on pagodas + lunch, 20 minutes	321 025
1300	Traverse to Clerestory Spur No. 5	323 025
1310	Water pots on pagodas	321 022
1319	Terminal end of Clerestory Spur No. 5	319 021
1345	Old forestry equipment	325 026
1400	At vehicle	323 033

7.7 Clerestory Spurs numbers 4 to 7

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931–3S, second edition. GPS setting WGS 84.
Walk description and route	Park off a sidetrack from the Beecroft Fire trail at approximately GR 327 027. If we have more than one vehicle another will be parked somewhere along the track that starts at GR 342 015. Return to GR 327 027 then commence exploring several deep ravines from west to east. Distance is irrelevant; as time will beat us. About 9km. Lots of climbing, scrambling up and down pagodas and significant cliff lines.
Gear issues	GPS, PLB, appropriate head and footwear, 1 litre of water, electrolytes and camera. Change of gear.
Comments	This walk may have challenging sections. Expect rope assisted events. Date walked 10 th August 2011.

The Weather

A cloudy day with a constant biting wind, snow falls were a possibility, temperature range 2 to 6 degrees, chill factor –5; a day to keep warm and very active. It was cold all the time and very cold in exposed situations on the tops.

Background Notes

The northern, cliff lined side of Sawyers Swamp, the Clerestory Spurs, is some of the most challenging terrain to explore of the whole Newnes Plateau. On every walk into this area I have overestimated our capacity to achieve outcomes by more than 50%. Despite the impact of man, the area is still one filled with huge geo diversity and many unique attractions.

All exploring was undertaken between the 1,000m contour (the ravine floors), and the 1100m contour, (the spur crests). Forests NSW are currently harvesting old growth hardwood trees for pit props and large mill logs. Several assembly sites were stacked with steel strapped bundles of pit props cut to length. No workers were seen during the day.

Track Notes

Full of ambition we parked a vehicle at GR 342 015 and drove the other vehicles to the start of the walk at GR 327 028 on a log haul track. At 0856 we headed out on a track extension of a log haul road. It soon disappeared and we entered a pleasant, open casuarina forest and made fast progress to a viewing spot at GR 319 024. This location was towards the southern end of a blunt nosed ridge that terminates about GR 318 022, spur number 5. The cliffs are spectacular. While taking pictures we noted a deep cave at the base of the wall of the cliff line in the next spur east. Having explored several of the spurs to the west of this point we went in search of a way down into the ravine and to the cave.

Sometime was expended as successive, possible descent points to the north were checked out. An excellent viewing rock was climbed at GR 321 024. From this point we could look south down the ravine and appreciate why earlier descent points were impossible. To the north of this rock we found a way through and at 0932 the descent was completed.

The ravine was filled with ferns. As is our usual practice in such situations we kept close to the base of the cliffs (in this case the western side) where generally the going is easier. Imagine our surprise when at 0936 we entered a cave, not an overhang but a real cave. Dimensionally the cave is something special. From front to back it exceeds 10m, the interior height over 3m and the almost circular opening (6-7m) slightly constricted in relation to the interior. It also had a reasonably level floor. It was so unexpected and so very special.

After photos we moved further south and found another cave. This one was special for different reasons. It contained historic graffiti with the names L. Deeley 1923 and W. Belton 1936 executed in charcoal. It is unlikely that there have been many visitors since.

An even higher roofed cave was next visited. It was reached by walking in the creek bed, which at this point is hard against the western wall of the ravine. It is certainly a place with many extraordinary features.

We had now progressed down the ravine to the approximate location where we had seen the big cave from the spur on the east side of the ravine. At 1010 we entered the cave, which has some unique features¹¹³. It felt familiar to me. It should have. I was here on 6th October 2010 when I named it the Stage Cave, a perfect spot for morning tea, dry, spacious, and out of the wind.

Packs back on we resumed exploring, this time on the western side of the next spur east. At 1025 we came across the decaying remains of an old marijuana planting. The grower(s) had been quite innovative using a wheelie bin to transport their gear in and then converting it to a drip irrigation system. For whatever reason the area had been abandoned.

At 1030 climbed to a high point for a view, GR 321 024. Originally it was planned to walk this ridge but the pressure was on to explore more of the valley and see what else might be revealed. Being an exploratory walk this was no problem. We dropped down to a long dry overhang on the western side of the ravine and followed it south. Soon this overhang became a ledge positioned high above the ravine floor and quite a way down from the ridge top. The further south it went, the narrower and more exposed it became. It was getting rather exciting as the wind ripped past. There were two choices - retrace, climb down and go around the base of the cliffs or climb up and over the top.

Brian undertook a recce of the climb and pronounced it as "doable". Some had doubts. The climb involved major exposure and I had forgotten to pack the rope. Still by making use of a convenient tree to 'chimney' we could gain the first leg up to a very narrow ledge. Then a narrow cleft provided several strategic, hand and foot holds for the next pitch. The final pitch required the use of some rather crusty looking ironstone projections and a strong will.

¹¹³ It was a top cave with clean level floor and a perfectly semicircular stage backdrop filled with ferns. Just so unexpected. Lunch was taken on a platform rock out the front so if we turned around we had a full view of the stage. No actors - just Steve having his lunch centre stage! For further details see Track notes for 6th October 2010

With Brian supervising from the top, Adrian was first up to the narrow ledge. I followed. Together we started a pack haul. I then was first up the final pitch. It was awesome looking over the top. The top point of climb is very narrow – maybe a metre wide before one looked down to the vertical drop on the other side of some 50m plus. The wind blew strongly threatening to literally blow us away. I was stoked. Few, if any bushwalkers stood where we were standing now, on an exposed pinpoint, GR 319 020. This is the western most point of Clerestory Spur number 5.

No time to dwell on this, it was back to assisting with the moving of packs, etc. At this point a member of the party advised the climb was outside his comfort zone. For those of us on top this presented a dilemma. Descending would be a real challenge. I had to make an executive decision and split the party. Two members would back track, circle under the cliffs and meet the rest of us at the head of the next gully east. It was a decision fraught with downside risks that we could actually achieve this reunion. It was now 1140.

The topside party slowed pace and had no problem filling in time taking magic photographs. This is exceptional terrain for those who love it wild and rugged. At 1157 the top party gave a call to test where the other party was. The wind was still blowing and I had visions of a long vigil. Surprisingly there was a synchronicity of calls – the lower party and the top party called simultaneously and even more surprising the lower party was less than 50m below. I was mightily relieved, and it was a good reunion at 1157, GR 320 021.

Time to continue with our exploration – the next spur east beckoned. From our vantage point it looked even more challenging than the one just negotiated. As we walked out to it we noted cut stumps from small trees. Descending a rock face Steve said to me that it seemed familiar I had a similar sense of déjà vu. Indeed a later check of the recorded waypoints from 6th October 2010 showed this to be true.

This time however we would push right to the southern end of the ridge, GR 322 018, Clerestory Spur number 6. The views apart from the ash dam below were just stunning, particularly to the next spur east once more, the fourth one today. Returning from the nose we found a relatively sheltered spot to have lunch, 1229, GR 322 020. It was really chilling so after just 20 minutes we were on our way once more.

We had seen a great slot down into the next ravine east where the spur had been cleaved, splitting off a separate line of dramatic pagodas divided from the main ridge by a long narrow ramp. It was good to go down away from the wind and be able to enjoy looking back up at stunning cliffs of gold and ochre and enhanced even more by some exposed rocks coated in brilliant orange red lichen. This is a very special place. By 1307 we were down in another ferny ravine, GR 323 020.

It was now time to cross the creek at the bottom of the ravine, 1314, and climb once more to the top of the ridge, 1323, GR 324 018, Clerestory Spur number 8. This spur contained some deep separation slots making a ridge top walk impossible. We did the next best thing walking south along the eastern side until the major slots were behind. A ramp and slot complex then enabled us to reach the top and again look at the next very impressive spur to the east. There are no doubt enough good things still to explore for another day in this area.

On top at the terminal point, GR 324 017, 1335 the cameras again went into overdrive; then as we could not walk back along the ridge we descended and walked around underneath the

cliffs and at 1348 recorded the same grid reference as at 1335 but some 30m lower down. An undercut bench and overhang then allowed us to walk back along the western side of this ridge completing a full loop walk.

The temperature was now starting to drop back towards 2 degrees and the wind was not abating. It was time to make our way out. After completing the loop walk we headed generally north to pick up another great ridge at GR 325 021. Here we dropped our packs, put on an extra layer and went exploring an amazing collection of pagodas and erosion forms. This area is worthy of more time. Photocomposition is easy with lots of russet coloured *Allocasuarina nana* filling the spaces between the sculptural forms.

At 1432 identified a ramp down into the next ravine east that we will use as the starting point for the next walk in the area, GR 325 021, only metres away from where we had dropped our packs. Packs shouldered it was a short walk over almost clear rock to pick up the end of yet another very old forestry trail, GR 327 024. At 1448 we had completed the circuit of the walk.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0854	Park vehicles	327 028
0856	Start walking	327 028
0908	Out on ridge	319 024
0926	On rocky promontory	321 026
0932	Cliff base in ravine	321 027
0936	A real cave	321 027
1003	Another cave and morning tea (14 mins)	321 025
1025	Marijuana plantation (in ruins)	322 024
1030	Climb to viewing point	321 024
1115	Climbed exposed rock face	319 020
1140	Ridge top	320 021
1157	On next ridge east	322 022
1220	Southern point of next ridge east	322 018
1229	Lunch (31 mins)	322 020
1307	Slot descent	323 020
1314	Cross creek to east	324 018
1323	Spine of next ridge east	n.a.
1335	Top of ridge terminus	324 017
1348	Base of ridge terminus	324 017
1407	Skirting ridge to west	325 021
1432	Pagoda field and ramp	326 021
1434	On old access road	327 024
1448	Returned to vehicle	327 028

7.8 Clerestory Spurs numbers 8 to 12

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. GPS setting WGS 84.
Walk description and route	Park a vehicle just off the Beecroft Firetrail, at approximately GR 327 025, and another at approximately GR 336 013, or as far along this trail as is possible. To ensure that the top end of the Sawyers Swamp northern catchment is explored we will start from this second vehicle position. The top end is a deep 'Y' shaped ravine featuring spectacular pagodas and high cliffs. The intention is to follow these cliffs around to the north exploring successive ravines to the west. At GR 330 014 we will attempt to climb up through the cliffs, venture out onto the peninsula at GR 328 013, before descending via a complex gully/ravine system at about GR 330 018. The plan is to then sidle under the nose of the next headland west and climb out via magnificent narrow ravine before heading north to the second vehicle. Max 9km. 100m +&- several times. Lots of climbing, scrambling up and down pagodas and significant cliff lines.
Gear issues	PLB, Tape, 1 litre of water, electrolytes, camera and preparedness to have a good day out regardless. Change of gear.
Comments	This walk may have challenging sections. Expect rope assisted climbs and possible exposure. This walk explores more of the Clerestory Spurs located to the north of Sawyers Swamp.

Date walked 14th September 2011.

The Weather

A near perfect spring day, bright and sunny, generally a clear sky, windy on exposed ridges cooling temperatures, temperature range 6 to 17 degrees, hot spots in the sun where protected from the wind.

Background Notes

During the journey to the walk start and again during the walk we had discussions about the misnomer of Sawyers Swamp as a descriptor of the area. It is not inspiring and certainly does not do justice to the array of pagodas that characterise the series of promontories of the northern cliffs above Sawyers Swamp. Accordingly I have done some research, and determined to describe this beautiful area comprising 12, separate pagoda finial topped, spurs stretching from approximately GR 308 025 in the west to GR 336 012 in the east as the Clerestory Spurs¹¹⁴. There is still much to explore in this area. The Clerestory Spurs are located mostly between 1000m and 1100m.

¹¹⁴ A clerestory is the upper part of the nave of a Gothic church or other building with windows above the aisle roofs. The pagodas measure up in every way to such a title including numerous perforations or windows

Track Notes

At 0843, two vehicles were placed at GR 327 025 and the group then relocated to GR 342 015, where two other vehicles were left. It was not possible to drive down the old access road to GR 336 013 as planned. Also the map does not account for the many additional tracks that have been created since its compilation and production.

A major track junction created by the convergence of 5 logging tracks was encountered at 0908, GR 337 013. We selected the track generally trending west that led us down into the northern arm of the 'Y' shaped headwaters of a Sawyers Swamp tributary creek. It was now 0908. The track soon disappeared and before us was a steep descent into the valley. This was not a problem. As we descended, the cliffs opposite came into full view. They were a surprise showing several huge, naturally hollowed out caves. Our journey was already off its planned course as we went to check them out.

It is hard to get an old GPS to pick up signals in this deep ravine so a lot of what we saw in the next three quarters of an hour can generally be noted as being per the cliff line shown on the map that stretches from GR 335 015 to GR 333 013. The very first overhang /cave contained significant signs of Aboriginal occupation and use. Many sets of stencil handprints in red ochre were found along a 70m stretch of contiguous overhangs. Unfortunately these stencil prints are fading rapidly and in another decade will be gone. Some group has seen fit to install fixed combined metal and plastic markers on the outside walls of several caves indicating where the images are located.

We were rapt that our walk had started with such a bonus. These discoveries had us thirsting for more so the cliff line was followed up and down for many more metres. The rewards were more art sites together with a huge overhang, best described as 'double storied'. Some approximate dimensions calculated from pacing it out were 13m across and 25m high to the top of the second story. Several of the caves could have also been habitation sites but no evidence remains of historic hearths. There has been significant recent animal traffic in all the caves.

Isolating and protecting this area from the downstream entry is an amazing tight slot. Huge, house size tumbled boulders protect a narrow fern filled defile that requires patience and persistence to negotiate. Interestingly it also has quite a few cut logs wedged in it from forestry operations possibly 50 years old. It is an extraordinary place and certainly should not be revisited for future logging, despite it being in a State Forest. It was 1004 when we emerged from the defile.

Below the defile exit the southern arm of the 'Y' shaped headwaters creates a spectacular junction. I will be back to explore this valley separately together with a number of other major features that must be documented. Where the two ravines converged the views of soaring cliffs above become more complex and detailed. It is trite to quote the phrase 'that every prospect pleases', but it is true in this place, so much to see and do.

It was 1020 and time for morning tea. A great position in the sun surrounded by honey coloured cliffs and forest giants was chosen. A very pleasant 16 minutes was spent soaking up the atmosphere and reflecting on the start of our exploratory walk. A massive tree, possibly a stringy bark, in our midst was encircled by 7 of the party who just managed to join

outstretched hands around its base. We wonder how many like it ended up as paling fences in western Sydney.

An inspection of the cliff wall west beyond the morning tea site revealed the development of iron salt stalactites along a drip line. Unfortunately these were no longer active and not very good to photograph. We then moved on down the valley following the base of the cliffs on the northern side as planned. This only lasted until we spied an apparent cave on the south side. Down and across we all went to check this out. In a high cave there was a delightful active, iron rich stalactite /stalagmite feature that had formed into a column. Camera time once more. Even more interestingly the back wall of this cave had large areas of irregular calcite (Calcium carbonate) growths, up to 50mm long very much like the helictites that can be found in limestone caves such as at Jenolan Caves.

By 1109 we were exploring the twin valleys between Clerestory Spurs 10 and 11. An old, narrow track made movement up the easternmost gully an easy climb. At the top I pulled out the notebook I wrote a single word entry, "Wow". The view ranks with the great pagoda views of the Poseidon Arena tens of kilometres to the north. I think we have a very poor appreciation of the geomorphological gems we have so close to Sydney, and that they are so vulnerable lacking any legal protection. The Colong Committee needs more political muscle in its bid to urgently add these features to the SCA / National Park system.

Looking west the serried spurs and soaring cliffs of pagodas on the Clerestory Spurs 10, 9, and 8 were so tempting we had to go and explore them and at 1119 we had achieved a position on a pagoda spur in the middle of the twin valleys between spurs 10 and 11, GR 332 013. The view south was over the easternmost of two neap points where the unnamed peninsula between Kerosene Vale and Springvale is almost severed from Marrangaroo Ridge. Lots of photos for the record.

Contouring around the valley headwaters was followed by some delightful clambering over successive high pagodas to the very edge of the cliff face of Clerestory Spur number 10, at GR 330 102. This is an awesome place. The drop at the point is vertical and close to 90m. There was a suggestion for an early lunch on this spectacular point. I said 'no,' we will try and make it to the point of the next Clerestory Spur – number 9 which is bedecked with even more wonderful formations. After some more scrambling and clambering we emerged onto the great, dissected peninsula that is number 9. Because of its position and relative isolation the wind was strong so the attraction of lunch on the point was not there. A protected sunny spot was found and the packs left there while unencumbered exploration of this playground got underway.

What a delight! For fifteen minutes we explored, noting several possible descent points, a great cleft and variations on a theme of pagodas to rival Paganini's comparable musical opus, 'Variations on a theme by Brahms'. The variety is infinite. Returned to GR 329 015 to have lunch. I overturned a tempting flat rock to discover two beautiful Leseurer's Velvet Geckos, (*Oedura lesueurii*). They posed for photos before scuttling off under the next rock. Under a small rock fragment, (under my lunch box), I discovered a small, longhaired caterpillar. Brian's camera managed to record every fine hair detail. What it specifically is will be a research project.

Over lunch we weighed up the option of returning part the way we had come to check out a deep cave and overhang sighted from the pagoda terminus on Clerestory Spur number 10 and

explore the amazing ridge extension opposite it but positioned in the centre of the valley or, to proceed with the original plan and exit between Clerestory Spurs 7 and 8 after dropping down into the ravine between 8 and 9 and exploring under the base of the cliffs. The original plan option won out.

The descent into the ravine was remarkably easy as we just happened to do it before the steep but negotiable slope reverted into raw vertical rock cliffs. Down in the valley we were spoiled by finding an old timber haul road. Although long ago abandoned and overgrown it still provided a defined path. As the valley floor expanded a significant area of regrowth forest was found. The trees are of uniform size, close to perfect for easy harvesting and milling. The old stumps indicate that given time these trees in this valley grow very large indeed. Tributaries of Sawyers Swamp in the area have cut deep channels into the river terraces revealing soil depths of more than 2m.

At 1348 we started our walk up the gully between spurs 7 and 8. The lower western slopes of spur number 8 are like parkland with lush green grass carpeting the ground. Disturbingly we found a series of faded orange plastic ribbons attached to trees. We questioned whether this meant that Forests NSW were assessing whether to restart harvesting operations. Our next big surprise was finding a significant road and track that given its grade and width I suspected would lead to the top and connect with the Beecroft Firetrail.

Surprises continued. At 1410 we came across a collapsed enclosure that could mean only one thing – a crop of marijuana had been tried and failed very likely due to a lack of reliable water. An old hose was found nearby. Knowing the needs of special crop producers I was prepared to bet that the road definitely went all the way. Carrying lengths of dressed timber and coils of wire mesh needs as a minimum, a track suitable for a motorbike. I was right. In so far as bushwalkers are concerned we had now found a very easy way into Sawyers Swamp making exploring that much easier.

At 1421 the 'road' crosses a ridge high up behind Clerestory Spur number 8, GR 327 020. It is a spur endowed with wonderful erosion residuals, so again we dropped our packs and went exploring. It was here we found a flat topped residual with a hole in it that enabled photographs of a 'head on a plate'. Quite amazing and most of us posed for unique photos for the record. Apart from this whimsical item there were many more great shapes that have now been recorded.

Returning to the track, it now wound gently up the slope towards the 66kV power line. Near a former log storage and selection area was a strange steel pole with support structures to hold an instrument of some kind – surveying or electronic. Initially I thought it may be for monitoring subsidence but then I think it more likely it was to hold a radio transmitter for loggers in the valley to communicate with the team on the top. I need to talk about this with a forestry historian. Later this was proved to be a rain gauge.

The power line came into view at 1444, GR 331 023. Here Brian and I left the group and walked some 400m to retrieve our vehicles. The rest of the party headed due north for 100m to wait for us on the Beecroft Firetrail. The reverse car shuffle was complete by 1500.

Table of Times, Locations and Grid References

Time Location

Grid Reference

0843	Vehicles at end of walk	327 025
0851	Vehicles at start of walk	342 015
0859	Leave old logging track	342 013
0908	Track junction	337 013
0920	In the cave overhang complex (45 mins) + art	335 013
1004	Slot canyon exit from valley	n.a.
1020	Morning tea (16 mins) + tree measuring	333 011
1057	Cave with stalactites etc.	n.a.
1109	Heading up a gully	n.a.
1119	On top of Clerestory Spur No. 11	332 013
1146	On top of Clerestory Spur No. 10	330 012
1237	On top of Clerestory Spur No. 9 + exploring	327 013
1246	Lunch on Clerestory Spur No. 9 (43 mins)	329 015
1338	In valley between 8 and 9 + old road	327 016
1348	Creek crossing and regrowth forest	324 014
1358	In valley between spurs 7 and 8 + old road	325 018
1410	Marijuana plot	326 020
1421	High up on Clerestory Spur No. 8	327 020
1435	Strange device on a pole	329 021
1444	At 66kV power line	331 023
1448	At vehicles	327 025
1500	At other vehicles	324 015

7.9 Ravines and Pagodas south of Angus Place Trail

Maps, etc.	Department of Lands, Cullen Bullen topographic map, 8931–3N, 1:25000, second edition. Department of Lands. GPS WGS 84.
Walk description and route	Park one vehicle at the junction of the Angus Place and Beecroft Fire Trails and another at approximately GR 313 052 on the Angus Place Fire Trail. Return to vehicle 1 and commence walking down a creek to the NW, staying on the northern side of it. Explore the cliff line tops between GR 315 044 and GR 315 088, then head out walking the southern edge of the peninsula to GR 308 046; then cross to the north of the peninsula and explore the cliff edge and deep into the pagodas at the headwaters around GR 313 048; then head west and follow a cliff line topped with pagodas to GR 305 049 before descending the cliffs and exploring the deep ravine gully back to the vehicle on the Angus Place Fire Trail. About 10km.
Gear issues	Have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass, tape (leader).
Comments	Scrambling, exposure. Date walked 33th May 2014.

The Weather

After the warmest May on record, autumn finally arrived. The sky was cloudy 8/8ths cover with fleeting intermittent, small patches of blue. In exposed positions variable light wind was quite chilling. The mercury hovered between 9 and 12 degrees.

Background Notes

The area explored is subject to an application by Centennial Coal, for an extension of underground long wall mining at the Springvale Colliery that will impact on 1,860 hectares of Newnes Plateau forest in Stage Two of the Gardens of Stone National Park reserve proposal. The proposed mining will unacceptably impact on cliffs, pagodas, 41 nationally endangered swamps, including 11 shrub swamps and the headwater catchments of three creeks causing reduced stream flows and water pollution¹¹⁵.

This area was visited by a party of bushwalkers 11th April 2014 and documented in track notes. The pagodas and associated features were so impressive that the area was earmarked for urgent re walking and documentation of significant features and vegetation, as if the mining application is successful NSW stands to lose some of its most significant geo heritage.¹¹⁶

During the walk a delightful example of a brilliant turquoise green fungus was observed. This was a *Chlorociboria*, a genus of fungi within the subphylum Pezizomycetes. The genus includes 17 species. Two common temperate zone species, *Chlorociboria aeruginascens* and

¹¹⁵ Colong Foundation for Wilderness, submission to NSW Department of Planning & Infrastructure – Springvale Mine Extension (SSD 12_5594) dated 26th May 2014.

¹¹⁶ Track Notes by Michael Keats published 11th April 2014

Chlorociboria aeruginosa, can only reliably be distinguished by microscopic examination. *Chlorociboria aeruginosa* has larger spores ($9\text{--}15\text{ }\mu\text{m} \times 1.5\text{--}2.5\text{ }\mu\text{m}$) and the worm-like cells of the outer surface are rough, unlike the commoner *C. aeruginascens*, of which the spores are $6\text{--}10\text{ }\mu\text{m} \times 1.5\text{--}2\text{ }\mu\text{m}$. The hyphae and fruiting bodies of all species make xylindein, a secondary metabolite that stains the substrate wood blue-green, with "green oak" being a valued commodity in woodworking. The blue-green pigmented wood is featured in "Tunbridge ware."

Track Notes

During the course of the drive, Yuri shared with the writer thoughts to focus the walk on maximising our time in the threatened pagoda country by eliminating unnecessary walking in less interesting terrain. As a result the vehicles were parked at GR 319 046 on the Angus Place Trail at 0840.

Under a threatening sky the walk was underway at 0846 across open forest that had been logged over 50 years ago. There were dramatic splashes of yellow as numerous specimens of the Wattle, *Acacia terminalis* lit the bush with vivid colour. Whilst this species has a long flowering season, it is unusually early for Newnes Plateau above 1100m.

A bike track was encountered at GR 318 044. This proved handy as about 10 minutes into the walk I realised I was without my pack. Accompanied by Ian it was a quick retrace of our steps to find that I had left the pack alongside the vehicle. No wonder there was a spring in my step as we strode along. At 0854 the group assembled on a cliff edge and we had our first of many sightings of the brilliant lipstick pink *Styphelia tubiflora*. It looks similar to *Epacris reclinata*, however this species does not flower until August.

Although our plans called for us to explore the high cliff line, we also wanted to explore the complex convolutions of the creek system sandwiched between the Angus Place Trail and the Beecroft Firetrail that features several creek junctions before exiting through towering portals. The terrain of this creek system is a succession of great pagodas, secret slots, hidden caves and glorious short rock tumbles encrusted in ferns and mosses. It is also one of those locations that entices the explorer to look around just one more bend to see what is revealed.

Several slots leading up to the cliff tops were noted and after deciding one that would be our route, packs were left and we went exploring successive seductive places until we could see the portals into the valley. This point also is where the creek system drops about 20m. It is also a place that we walked underneath 11th April 2014 and looked up and wondered what treasure lay beyond. After taking photos we returned to our packs and commenced an interesting climb up a slot that was more watercourse than slot. The lower sections were covered in moss and slippery to climb.

On top, GR 317 045 we began exploring pagodas that form a knotted complex of unbelievable beauty with views downstream to the cleared land of *Rocky Acres*. The prospect that all these delicate formations could end up as rubble as a result of underground long wall mining is horrific. We had the cameras busy taking picture after picture. The complex of pagodas we were on is a short deep ravine back from the main cliff edge where the views are totally captivating.

Descending into this ravine revealed more complex formations and a mighty descent, GR 316 043. Traversing this ravine led us out onto minor platforms with even more eye candy revelations. This country is totally magic. Scrambling around the pagodas at different levels we could enjoy constantly changing micro landscapes. I found myself covering only a few metres in distance before I just had to stop and take another picture. By 0932 I had covered less than hundred metres but taken 20 photos, GR 314 044.

The cliff edge was now before and above me, GR 313 043. I found a slot that just might lead to the top and so went up it, pushing away dead vegetation and using ironstone projections as hand and footholds. At the top I was both excited and disappointed- excited by the stunning view deep into a pagoda filled ravine – disappointed by the fact that there was no way forward. Back tracking and descending about 4m there was precarious way of route to the south that worked, GR 314 044.

Using this route we all (but one) made it up to the crest of a small pagoda ridge that had just enough room for the group to spread out and have morning tea. Being exposed, every breath of wind was chilling so it was hard shells or jackets to survive as we had morning tea in a place where few others have ventured, GR 313 045. After refreshments it was time to head north and keep exploring. The first objective was to climb a major pagoda face. Ten minutes climbing and then we could look down on the morning tea site with pagodas so special and so free of vegetation that they command respect as do monuments in ancient Mesopotamia. We were enchanted, rapt and awed – all at once.

The next two hundred metres was a continuous viewing of pagodas and the cliffs to the north west that contained the amazing Window to Oblivion. As I recorded, 11th April 2014.

"We had only been walking a few minutes when a recently used bike track was encountered, GR 315 050. For while it served our purpose this track was followed. It was not for long as at GR 314 049 we came across the first of many jaw dropping views of pagodas, cliffs and 'WOW' panoramas. The topographic map gives no indication as to the wealth of fine geomorphology that we spent most of the next hour exploring and photographing. At 0916, GR 313 048 I made a simple entry in the field notebook, 'great pagodas'. What an understatement! This terrain is hypnotic and there is just so much of it. Why has it taken so long for it to be discovered?"

We climbed and clambered everywhere. At GR 313 047, a natural balcony overlooks a 50m vertical drop. This is no ordinary balcony. It also sports a natural rock eave protecting the southern side, and commanding views over the valley walls to the south east that are pocked with caves and overhangs. Also in our line of sight to the south west were several more outstanding orphan rocks that we successively went to explore. We had several 'kids in a candy shop' experiences that took us close to delirium. What a place! The balcony window view vertically below was named by Daryl as the 'Window to Oblivion'. Isolated pagodas at GR 312 041 and GR 311 086 made for magic photos".

We would revisit this site shortly. In the meantime we made our way to the head of the gully, GR 315 047. On the north western side of the gully there are several overhangs that are almost caves. As is our habit the cave walls were inspected for signs of Aboriginal art and or graffiti. We were in luck with one set of clear initials, 'AM' executed in charcoal. After the walk Brian researched these and advised,

"The cave we investigated with the initials, A. M. I wondered if they were the Mason family. Masons Lane connects to the property Rock Acres which was below us in the valley. The Mason family was very active in this area. The Lithgow Cemetery website lists an Arnold Mason and an Archie Mason both buried in the Wallerawang Cemetery.

Correspondent and local historian Danny Whitty has supplied the following historical information.

"Re the initials A.M. which you located - possibly Archie Mason from Rock Acres but also could be Alf Murray who was in the area long before Archie. My great grandfather Sam Murray who was Alfs uncle had a property just south of Rock Acres and Groves which took in the cliff line south of Grove's fire track, (which is now shown on map as Beecroft Firetrail). Also the Angus Place fire track was originally named Dando's after Harry who had the block south to Groves. Harry was Archie Masons father in law?, not positive but very close family ties. This block took in Rock Acres. All of these properties had frontages to Wolgan Road but now the Angus Place to Wang power station coal haul road goes through them. Mum was born in the old house on Sam's block where the only remnants of his house is the old plum tree. The house mysteriously was burnt down just prior to haul road construction in the 70's. Sam had died many years previous 23.09.1930. Dandos and Groves Tracks both ended (eastern and) at the Kangaroo Creek link road which went from Log Hut hill and joined up to Blackfellows Hands track at ploughed ground. There are also extensive pagodas further south which run into Sawyers Swamp... Regards, Danny"

The chances are that that this graffiti was done by one of the two Mason family males.

Climbing the north western side of the ravine was via a rather easy slot and made even easier by the bike trail near the top, GR 314 048. It was now time to show those in the party who had not been here before just how fantastic was the Window to Oblivion with its vertiginous vertical drop. It was also a place to take lots of memorable photographs.

Ten minutes elapsed before we could pry people away from the spot and show them some not so nice aspects of this place. The most confronting damage is a huge fracture caused by sub surface mining that is visible in both vertical and horizontal surfaces. The main fracture is over 500m in length and when collapse occurs the damage will be disastrous and disfiguring to the landscape. The main location for viewing the fracture is at GR 231194 304614.

We moved on along the cliff edge to another viewing platform that is characterised by a level rock surface that has a 50m plus drop. This is at 310 045. This has been named at the Window to Infinity. The similarity to an infinity pool is most pronounced. More time was then spent exploring the cliff edge pagodas to the south west. Stops were made at 1201, GR 308 045 and 1206 at GR 309 048. From this last location the view to the north east is of an almost endless succession of the most decorative pagodas to the top end of the Mikkleson Gully.

At 1220 we climbed a massive pagoda, GR 310 048 and declared it perfect for lunch. Descending after lunch our aim was to explore each of the pagodas to the head of the ravine. We had not progressed more than 100m when below was a yawning void. Looking down giant tree ferns appeared as tiny stars of green, GR 311 049. An inky darkness was the

background. Of course immediately the latest plan was modified to see whether we could get down into this challenging and mysterious place. First however we wanted to visit a very large pagoda complex at the head of Mikkleson Gully.

At 1311, GR 311 050 we stood on top of the highest point in this group of exceptional pagodas. In reaching this pinnacle of wonder we looked down into even more amazing ravines and dark places. Nearly half an hour just 'disappeared' while this beautiful area was explored and photographed.

All efforts to descend any one of a handful of slots was thwarted by large unfriendly drops. In the end we had to descend the north face of the northern most pagoda and then circle around anticlockwise underneath this towering mass. As we went deeper into the ravines, micro climates became the norm. It was within one of these very damp places that we found the brilliant turquoise green *Chlorociboria sp.* fungus. The intensity of the colour makes it stand out. This was at 1339, GR 312 050. Several other relatively unusual fungi were also photographed in this area.

Given that effective daylight time was rapidly running out we pushed along seeking the entrance to the deep ravine observed from near our lunch spot. On the way we entered a large amphitheatre like overhang that extends from GR 310 049 to GR 310 048 making it a significant size. In addition it has with bands of red shale that have decomposed into ochre like material. This is not altogether unexpected given our proximity to known art sites 2 to 3 kilometers to the north in the cliffs above Lambs and Kangaroo Creeks.

At 1405 we were at GR 310 048 and very close to the observed slot from near the lunch spot. In fact we had been to this slot on 11th April 2014. On that occasion we were descending. This is what is recorded.

"By 1018 we started an initial descent, GR 310 048 and at GR 310 068 a further descent was made down a watercourse that included several inconvenient logs, leading to a large undercut bowl with several centimetres of water in the basin bottom, where either very long legs or a jump was required. It is an irreversible descent, but a very attractive one."

Today there was no water and helping hands ensured that we all made it up to the top of the cliff line. Minutes later we picked up the bike track GR 311 047 and followed this back to the vehicles. Total distance walked 9.02kms, total ascents 550m.

Walkers in the first two vehicles reported seeing a pack of four wild dogs whilst driving out of the area. The dogs appeared to be poorly nourished.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0840	Park vehicles on Angus Place Trail	319 046
0850	Bike track	318 044
0854	Viewing spot	317 045
0904	In gully	316 043
0926	Exploring pagodas	315 043
0932	Exploring in ravine	314044

0940	Above drop in ravine	315 043
0945	Climb up watercourse to cliff top	314 044
1015	Morning tea on high exposed pagoda, 10 minutes	313 045
1035	Climbed to top of higher pagoda	313 045
1051	Head of ravine, graffiti in old cave	315 047
1105	Climbing slot to cliff edge	314 048
1114	At the Window to Oblivion	313 047
1132	Major fracture	312 046
1141	The Window to Infinity	310 045
1201	Exploring cliff tops	308 045
1206	Exploring cliff tops	309 048
1220	Big pagoda and lunch, 20 minutes	310 048
1246	View into deep slot ravine/canyon	311 049
1311	On very large pagoda complex	311 050
1339	Fungus find <i>Chlorociboria</i> sp.	312 050
1349	Big overhang (north end)	310 049
1357	Big overhang (south end)	310 048
1405	Climb slot seen from lunch spot	310 048
1411	On bike track	311 047
1439	At vehicles	319 046

End Note

The walk done on 11th April 2014 included quite a lot of time spent in the ravine below the Window to Oblivion. There were some discoveries that are included here for completeness.

"As a team we have become adept at 'discovery.' This applies to everything from Aboriginal art sites to graffiti to industrial archaeological sites. On this walk we added two unexpected items. The first was a ladder. This was at GR 309 045. This ladder is made from cut sections of a tree about 70 to 80mm diameter, with two long pieces as the supports and four shorter sections as the rungs. The rungs are joined to the supports with plastic strapping using a patent fastening system. The ladder is in place against a rock face with a natural cave about two metres further up the cliff. The structure is possibly up to 20 years old. Questions immediately crowded our brains about this artefact.

There was only one thing for it. Brian needed to get up there and see what was so significant to make such a construction necessary. The short answer was 'nothing observable'. Why then was such effort expended to build the ladder? The cave did not even have a flat floor! There was no evidence of it being used. There was also no evidence of a track of any kind to reach the spot. The location is more or less the epicentre of cliff collapse.

We moved on. At 1138, GR 312 046 we came across a very large area of old rock face collapse. This was near to being vertically below our morning tea site and therefore we had arrived at 'Oblivion'. The view looking up was not nearly as awesome as the view looking down although it was good to know that we had been able to actually reach the site. We continued up the valley to GR 314 047 where there was an interesting dry but otherwise unremarkable cave. It was also noted that if after morning tea we had retraced our steps a short distance we could have descended the valley from approximately GR 315 048 by using watercourses and slides between the pagodas plus a bit of rock hopping.

As the valley had now narrowed to less than 100m we decided to search for caves and explore under a cliff line that formed a semi-circular wall about 300m long and up to 40m high between two arms of the creek, roughly at GR 314 047 and GR 316 044 respectively. Only 50m into our journey there were two fine overhangs, again they were nothing remarkable. At GR 314 046 we entered a large cave 15m deep, 10m high and 25m wide. This cave was devoid of art or graffiti but it contained a worked piece of bark about 1.5m long and 300mm wide that had regular scalloped sections cut from its edges. This was the work of someone with time on their hands and a sophisticated tool. There was no hearth in the cave yet it would have made an acceptable campsite as there as a small waterfall and enough protected level space to lie down."

7.10 to come

7.12 to come

7.13

Upper Wolgan River part 1

Maps, etc.	Department of Lands topographic map Cullen Bullen, 1:25000, 8931-3N, second edition. GPS setting WGS 84.
Walk description and route	Park a vehicle at GR 360 065 and another at GR 349 090. Return to GR 360 065 and proceed down the Wolgan River. There are many interesting rock cliffs and cave assemblages, several located up side creeks. Expect a tough but rewarding time. Wet feet possible but unlikely. We will do our best to stay dry. About 6km +&- 100m several times.
Gear issues	GPS, PLB, maps compass, 1 litre of water, electrolytes, camera and appropriate head and footwear. The leader will carry a tape. Change of gear.
Comments	I am not sure whether many walkers have been in here. Given the current unstable weather it could be a 'wettish' walk. There are documented reports of Aboriginal and European relics in this area. We will particularly investigate sites at GR 364 068 for evidence of a tool factory; GR 369 073 for a habitation cave and small tool factory and GR 361 069 for a habitation site. Note these GR's are all AGD 66. The remains of an early European structure are reported at GR 349 077. This later site is some distance from the Wolgan River and may be better accessed from Blackfellows Hand Trail at GR 345 077.

Date walked 22nd June 2011.

The Weather

The first snowdrifts appeared on the Bells Line of Road as we drove west towards Watertrough Hill. Climbing to the top of it more of the ground was white than green and brown. Into Bell white was now the dominant colour of the landscape. Driving along the ridge to Dargan the flurries of snow grew more intense. A peek through a gap to the south west near the ridge crest showed a wall of white, snow laden cloud coming our way. Inside the car the thermometer recorded the outside temperature steady at 2 degrees.

Yuri recalled his early days in Russia. "It is just the same. 2 degrees is good for snow to fall." My thoughts were racing. In discussing with co-author Brian Fox our forthcoming book series on the Gardens of Stone National Park and beyond I had said, "We do not have any really good pictures of snow in the area to include on the chapter on climate – we need some." Was this a case of being really careful what you wish for? There would be plenty of snow picture opportunities today... possibly too many.

After an exciting drive to Bungleboori, (narrowly missing two timber jinkers whose drivers operated on the basis that no one would be on the road, except them, so we will have all of it) in the snow and relishing the unbelievable beauty of a totally white landscape, the reality of a day walk in snow slowly dawned. A photo opportunity at Blackfellows Hand Trail turn off was a magic moment. Draped around the signage for classic pictures it was amazing how soft the snow felt. At that stage I was not conscious of the cold.

Starting a walk in falling snow (2 degrees), with driving winds from time to time (chill factor minus 5 degrees) is not the most auspicious way to enjoy the upper reaches of the Wolgan River. The entire plateau above 1000m was blanketed in white creating magnificent, almost romantic scenes deep in the bush that are rarely seen.

Track Notes

Weather conditions were such that the walk, as planned had to be severely curtailed. Proposed walking in the Wolgan River with wet feet was not attractive, so instead of a major car shuffle and walking the length of the river from GR 368 065 north to the Spanish Steps at GR 354 096, we would do two separate walks. The first walk would visit the Aboriginal sites and then return to the vehicles at GR 358 062. The second walk would be a very short one from leaving from and returning to GR 345 074.

After a drive along the sodden tracks to the walk start, many layers of clothing, headgear and gloves were donned. In falling snow we started walking down an extension of the old timber getters access road, which the trail biking fraternity had made into a track.

The wind was now rising and at times gusting strongly. Below 1000m conditions began to ameliorate. The snow stopped falling and snow on the ground began to melt. By the time we intersected with the Wolgan River the ground was 'as normal' but extremely wet. The vegetation at this location on the banks of the Wolgan River is dominated by drifts of red bronzed *Casuarina nana* and gnarled, creamy white trunked specimens of *Eucalyptus haemastoma*. With the snow component added the contrast made for stunning imagery.

Our first destination was an overhang site, some 200m north of the Wolgan River on tributary stream at approximately GR 367 071. As all the GR's sourced were AGD 66 and required

conversion to WGS 84, there is a measure of inaccuracy. As the original figures are only accurate to $\pm 100\text{m}$, the usefulness of them is suspect. In all instances seeking geomorphological features of caves and overhangs was far more important.

Along the Wolgan River and tributaries in this area several minor overhangs occur at stream level but access requires crossing numerous braided watercourses with hidden obstacles. By the end of the first walk we all had wet frozen feet and very cold hands. Every so often snow flurries would swirl around us. Despite this we did find an exceptional site for examination. This site more or less fits some of the descriptive material written by P.P. Gorecki in an archaeological survey report dated February 1983 commissioned for the Angus Place Colliery.

"Site is located on the right bank of a right tributary of the Wolgan River at the base of an escarpment on the valley floor. It is quite an open shelter, 10m long x 4m wide x 4m high. Its orientation is 210 degrees. The talus is flat and extends well out beyond the drip line. The vegetation in the immediate vicinity is thick and swampy and on the above slopes is a thick, often impenetrable band of tea tree and saltbush..."

The deposit of the shelter is a coarse yellow brown sand. In the area where the sand is exposed ... there could be on the order of 2,000 artefacts ... artefacts include backed blades, scrapers, cores, from which bladelets were extracted, large waste flakes and minute chips. Rock types include chert, indurated mudstone, quartz and fine grained igneous... There is no evidence of fire through numerous burnt bone fragments were seen."

This site was visited twice. The first time it was a casual passing through as we wished to explore the creek further north where information indicated a further overhang. We kept walking on a trail bike track but turned around when this joined another forestry access ridge road at GR 370 077. A study of the Cullen Bullen map shows that this road joins Sunnyside Ridge Road at GR 383 082.

Returned to the overhang through falling snow and freezing cold. It was only 1048, but morning tea was essential. It was while sheltering and consuming morning tea that many flakes and cores, etc. became obvious. Many photographs were taken. Far from the 2,000 flakes documented by Gorecki, we may have seen two dozen. In the intervening years I suspect many others have been to this site and very likely collected items as souvenirs. We took nothing but pictures. Another factor would be the encroachment of the vegetation a great part of the tool workshop area could now be covered in growth that was non existent in 1982.

At 1138 we climbed high in a terminal side ravine to find an excellent habitation cave at GR 363 070. This cave showed strong evidence of recent European occupation. It has an adjoining small waterfall and an excellent outlook across a bend in the Wolgan River.

From this spot we then headed west still following the cliff line. Where the Wolgan River makes a sweeping "S" bend, an easily climbable pagoda provides a commanding viewing platform, GR 362 069. Looking north we could see clusters of pagodas flanking the river. Regrettably we were all too cold to even think about wading/walking to go and explore what they may hold.

This is definitely a locality to return to under more benign conditions and follow the walk as I originally conceived it. Descending the pagoda we recrossed the Wolgan River and headed south east to re join the track back up to the vehicles. As we climbed the wind gained strength and up above the 1100 m contour it had now effectively stripped the snow from everything; such a transformation in such a very short time. Arrived back at the vehicles at 1218.

A decision was taken to immediately drive to the location on the Blackfellows Hand Trail due west of the reported position of the ruins of an old stone chimney, GR 345 074. Walking to a compass bearing of due east it was a leisurely walk downhill to the location, GR 349 076. The reported structure stands alone. The mortar used to 'cement' the rocks together is local clay. There is little tell tale evidence of what the hut was used for or what period it was constructed. It is suspected to have been built for either pastoral or timber operations. Disappointingly a trail bike track lies within 10m of the ruin.

Returned to the vehicles at 1300 where the first priority was to change into warm dry gear. Lunch was taken in closed vehicles out of the wind with the air conditioning on. Walking was over for the day.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0855	Park vehicles	358 062
0910	On the Wolgan River	365 068
0920	Cross the Wolgan River	365 069
0950	Overhang /shelter	365 070
1000	Cross swamp, bike track	369 072
1015	Road junction on ridge crest	370 077
1048	Overhang /shelter + am tea	365 070
1138	Second cave and waterfall	363 070
1142	On pagoda above Wolgan River	362 069
1201	Rejoined bike track	364 067
1218	At vehicles	358 062
1247	Relocate vehicles	345 074
1255	At ruin site	349 076
1300	Return to vehicles	345 074

7.14 Upper Wolgan River part 2

Maps, etc.	Department of Lands topographic map Cullen Bullen, 1:25000, 8931–3N, second edition. GPS setting WGS 84. Aerial photographs.
Walk description and route	Park 1 vehicle at GR 360 065 and another at GR 349 090 (near the Spanish Steps). Return to GR 360 065 and proceed down the Wolgan River. There are several interesting rock cliffs and possible caves, several located up side creeks. Expect a tough but rewarding time. Wet feet possible. We will do our best to stay dry. About 6km +&- 100m several times.
Gear issues	GPS, PLB, maps, compass, 3 litres of water, electrolytes, camera and appropriate head and footwear. The leader will carry a tape. Change of gear.
Comments	There are documented reports of Aboriginal and European artefacts and relics in this area.

Date walked 23rd November 2011.

The Weather

When part 1 of this walk was attempted, 22nd June 2011, it was snowing and bitterly cold. That walk was abandoned when hypothermia threatened. Conditions today were not a lot better, continuous rain and a temperature range of 10 to 11 degrees. It was unpleasant and after 4 hours of being soaked it was decided to pull out.

Background Notes

The upper reaches of the Wolgan River are little explored and even less recorded. Despite the unpleasant weather conditions this walk of discovery revealed several places of great charm, huge contrasts in topography and a compelling desire to revisit again and continue our exploration when better conditions prevail.

On the day the group was planned to be a much larger one, including a visiting contingent from the NSW Northern Rivers Bushwalking Club. Arrangements had been initiated some six months earlier, however on the day circumstances of ill health and inclement weather meant that their group of 8 reluctantly withdrew. At 0800, two of their party came to apologise at Clarence. We wished them a speedy recovery and hoped that they were able to complete other planned walks on their itinerary.

Track Notes

As the rain was pelting down the briefing session for the walk was held under cover at the Clarence Railway Station. A prepared aerial photomontage of the walk was laid out and the areas of potential interest were discussed. It was also determined to shorten the walk by about 1km and the car shuffle by about 4km. In essence we would look at the best bits. If the rain eased off there was plenty of further exploration that could be undertaken.

The rain had turned the Blackfellows Hand Trail into a series of shallow pools separated by short stretches of greasy road. This made the journey and the car shuffle a bit longer than normal so we started walking late at 0937 in the rain. The forest looked beautiful in the rain.

Several species of Eucalypt with white or mottled white and shades of grey bark reflected what little light there was creating delightful effects. On the ground there were small drifts of pink *Boronia* and purple *Tetralthea* plus the occasional acid yellow prostrate *Hibbertia* sp. There was no shortage of beauty. The invertebrate world was very active with many species of moths and butterflies seeking either food or a mate. Pink Nematodes of great length were wriggling around in ephemeral pools; there was bird life everywhere.

Being in an accessible part of the Newnes State Forest that had been logged many years ago, there is a network of snigging roads and a dearth of thick understorey. This made for rapid progress. It also meant that a lot of the higher ground has been taken over by trail bike riders who have wrought irreversible damage. Fortunately so far they have kept out of the really interesting areas.

At GR 351 075 and at 1100m¹¹⁷ a bike track was intersected. It was headed the way we wished to go so it was followed for about 150m before we entered the upper reaches of an unnamed creek. Once it no longer severed our purpose we headed downstream, for a few hundred metres before climbing a low ridge on the western side. It was now 1025 and we sought a cave or other dry spot to have a refreshment break. As if by magic an isolated

¹¹⁷ At this elevation on the Newnes Plateau the vegetation regime has many elements of alpine forest and the plant species assemblage reflects this. Extremes of temperature from subzero in winter to 30 degrees plus in summer combined with thin soils have resulted in a unique flora that is not fully understood or appreciated. Readers interested in recent research can refer to Marshall T. Wilkinson, John Chappell, Geoff S. Humphreys, Keith Fifield, Bart Smith and Paul Hesse. Soil production in heath and forest, Blue Mountains, Australia: influence of lithology and palaeoclimate; *Earth Surface Processes and Landforms* 2005, 30, pp 923- 934

pagoda appeared on the edge of the ridge. We headed for it hoping that somewhere around the base we would find a spot out of the rain.

We were in luck. We found an overhang at the base of the pagoda on its eastern flank, GR 353 080. Whilst it was not perfect, it was dry and there was room for us to remove our packs and relax for a time. We did note with concern that this pagoda like so many where underground mining is taking place has a significant recent crack from top to bottom. I also noted that an opportunistic heath plant species had recently established in a narrow section of the crack.

The rain did not let up. The wetness also was starting to permeate our so called wet weather gear. Time to get moving. The next section of the walk was pure wonder. As we headed downhill into the catchment several large pagodas loomed out of the wet forest and then provided sentinels for entry into an enchanted world. It started simply enough, an overhang with a dry creek bed floor. Around a bend it evolved into a very large cavernous overhang and then into a huge twin cave complex possibly 20m high with a sloping ramp that led up to a secondary level where stunning views across a tree fern filled creek fill the field of vision. This is a spectacular place.

Later, looking back at the aperture of this cave from the eastern bank it appears as a vast black hole in the base of a massive sandstone pagoda. What a spot. Next it was my desire to descend to the Wolgan River via a tortuous section of canyon below this cave complex. I went deep into the fern filled upper section and disappeared from view. I managed to go down about 10m before it would have been necessary to fix a hand line. We would have become totally wet. The creek was also flowing well so there was no support for the idea. I returned to the top.

What we did do then was to clamber out on the east side, photograph the view and then descend what is known as the asymmetric flank side of the canyon¹¹⁸, where it was possible not only to look deep into the canyon but technically feasible to walk back up it. I wanted to do this but the crew pointed out the huge amount of fallen, very slippery logs that would have to be negotiated. Something to do next time we visit.

After photographing the canyon slot we continued down the graded ridge to the Wolgan River. The river at this point and on this day was remarkable. Within a broad flat bed, varying from 50 to 100m in width the actual waterway meanders like the lower reaches of a mature river. Never more than 1.5m wide the river is convoluted beyond imagination travelling more than twice the distance via successive loops and convolutions. Even more surprising is that the river banks are almost devoid of vegetation so it is possible to overview the entire phenomenon. Lots of images were recorded here, and also a water sample for the water data bank, GR 356 083.

Still, the rain did not let up. We were all in varying degrees of wetness. The temperature had not risen, staying at 10 degrees. We pushed along the Wolgan River downstream to the bend at GR 352 086. It was now 1201. Here we had a number of choices to make decisions about. To the north was another very tight, and very explorable canyon that appeared to stretch for

¹¹⁸ Asymmetric features are where one side of a valley or canyon is completely different to the other. In this instance the western side of the canyon was a 50m + cliff. The eastern side a gentle graded series of rock shelves.

over 500m through an 'S' bend; 300m downstream yet another side creek and canyon offered opportunities.

The reality was we were all getting cold and could start making errors of judgement. We opted to cease further exploration and exit via the ridge that forms the obstruction that forces the Wolgan River to change course shifting 200m west before continuing its long journey north. For a brief moment the rain stopped and we had doubts about our decision. The break lasted perhaps two minutes and then the rain was back. Our exit route was plotted to roughly coincide with the 1080m contour line. Certainly it was a longer route but it correctly brought us back onto Fire Trail No. 5 about 200m SW of the placed vehicle.

By 1320 we were regrouped at the walk starting point. There was unanimous support for a change of gear, a snack in the cars to be followed by a hot pie at Pie in the Sky at Bilpin.

When there is some reliability in the weather and it is predictably warm, then we will have another visit to this area. Based on accumulated knowledge we know that another very satisfying day of adventure waits in the unexplored canyons.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0937	Vehicles at start	347 066
0956	Bike track	352 075
1000	Leave bike track	351 076
1015	On ridge	351 074
1025	Pagoda shelter + a.m. tea (10mins)	353 080
1111	Caves and canyon - exploration	355 080
1144	Wolgan River + water sample	356 083
1201	Leave Wolgan River + commence exit	356 086
1226	On the 1080m contour	352 084
1252	Intersect with Fire rail No. 5	349 090
1310	Vehicles at end	351 092
1320	Regroup at walk start	347 066

7.15 Upper Wolgan River part 3

Maps, etc. Department of Lands: Cullen Bullen, 8931–3N, topographic map, 1:25000, second edition, GPS setting WGS 84. Various aerial photographs.

Walk description and route Leave vehicles at the junction of Fire Trail No. 5 and Sunnyside Ridge Road, GR 375 093. Head south to an unnamed creek, walk in it downstream to the junction with the Wolgan River, then continue to walk downstream in the Wolgan River exploring several side creeks; cross Fire Trail No. 5, then head north exploring compound pagodas, and the first 'S' bend above the Wolgan Falls. At approximately GR 355 105, climb up the cliffs before rejoining Fire Trail No. 5. About 6km, +&- 200m, rough and wild. Exploratory.

Gear issues 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and 30m tape, (leader only). Have clothes to change into in the car for afterwards.

Comments Some rock scrambling and tape work may be involved. Lower body parts may get wet. Expect to be challenged.

Date walked Monday 5th November 2012.

The Weather

A very warm start followed by a hot day with increasing cloud forming thunder heads, humidity low but rising, temperature range 19 to 25 degrees, much cooler in ravines and caves.

Background Notes

The Wolgan River is a watercourse about 64km long. It rises on the Blue Mountains Range, 4.5km north west of Bungleboori. It flows in a generally northerly direction towards Newnes where it turns eastward to its junction with the Capertee River. Lithgow, Cullen Bullen, Ben Bullen and Mount Morgan Topo Maps, headwaters 360 030. Junction 637 231.

The Wolgan River and Carne Creek join at the southern edge of the Ben Bullen Topo Map, 387 177, previously these two major drainage patterns were known as the Eastern and Western Branches of the Wolgan River. The Eastern Branch was renamed Carne Creek, 1970. Ref: GNB notes 5th March 1970. Shown as Wolgan River Western Branch and Wolgan River Eastern Branch on the map, Parish of Wolgan, 1884.

Surveyor Frederick Robert D'Arcy surveyed the Wolgan River from near present day Newnes, downstream towards the junction with the Capertee River, July 1831 Ref: Surveyor General Letters received from surveyors, Reel No. 3060, Andrews, Alan E J. Major Mitchell's Map 1834.

Exploring the Wolgan River above the Wolgan Falls¹¹⁹ has been a progressive activity that commenced in 2011, with walks being conducted 22nd June in snow, and 23rd November in unpleasant wet humid conditions.

The area is an interesting mix of open, easily accessible forest, extensive hanging swamps, yet along the watercourses is endowed with caves that were used as occupation sites by Aboriginal people¹²⁰. In the late 19th and early 20th centuries, the area was used to graze cattle.¹²¹ In some caves very old cattle dung pads can still be found. The area has been logged for hardwood, particularly in the deep ravines where trees in excess of 30m high are still common. The most recent surface land use has been the illegal growing of marijuana.

Track Notes

Vehicles were placed at GR 359 097 and GR 375 093 500m east of Fire Trail No. 5. Walking commenced from GR 375 093 at 0850, from this point we headed south down a gentle slope in very open country. There were wombat burrows everywhere and the main ground cover plant in flower was the Native Violet, *Viola hederacea*, its brilliant purple flowers looking very showy.

By 0909, GR 367 091, we had intersected the upper reaches of this tributary stream of the Wolgan River, and noted an increased frequency of cut tree stumps. These were a mix of

¹¹⁹ Wolgan Falls marks the eastern end of the tight winding canyons of the Wolgan River, as the waterfall flows over the cliff line of the Newnes Plateau into what is the start of the Wolgan Valley. Cullen Bullen Topo Map, 347 101. The best view of the falls is from GR 346 103. Wolgan Falls, is accessed via Blackfellows Hand Trail and Fire Trail No. 5 from the western side or from near the road junction of Sunnyside Ridge Road and Fire Trail No. 8 on the northern side.

¹²⁰ The walk dated 22nd June 2011, documents several Aboriginal habitation sites.

¹²¹ Personal communication, Danny Whitty, 3rd July 2010.

sizes ranging from pit props for the coal mines and larger trees for milling. The area has not been disturbed by loggers for several decades.

As this was state forest, it was no surprise to come across a recently used bike trail with all the attendant problems of erosion and habitat loss. This track followed the creek for about 300m. Leaving the track to maintain our position in the watercourse we spied the unmistakable signs of marijuana cultivation; coils of fencing wire, a water supply drum and lengths of hose. The intending farmer was more than a little ignorant about the requirements of the crop. The area is far too dry and the enclosure had not even been established, GR 361 090.

We moved on, and at 0935 came across a significant hanging swamp with a good range of plant species, many in flower. The most delightful were the *Grevillea*, *Grevillea acanthifolia* ssp. *acanthifolia*. The crimson red, toothbrush like flowers being some of the deepest colour forms I have seen. All photographers entered the swamp to take pictures.

Whilst in the swamp we noted the appearance of a low cliff line to the west, and significantly a dark spot that looked like the aperture of a cave. Minutes later we were exploring what was undoubtedly an Aboriginal habitation cave, GR 360 089. There was evidence of a very old hearth. There was no sign of any art on the walls. It would have been a favoured site. The cave opening faces east, there is pure running water from the hanging swamp nearby, and the swamp itself would be a great food resource harbouring crustaceans, snakes and possibly turtles.

The location is also quite beautiful with elegant trees and a pleasant natural ambience. We spent some time here, taking photos and appreciating the general area. Leaving the cave, we continued downstream into a narrowing ravine that soon took on canyon like qualities. The further we went, the higher the cliffs became, and soon it was a canyon. At GR 358 087, an apparently deep pool forced us to climb the cliffs to the south, as we were not equipped to go swimming.

The cliff climb was easy and led to a heath covered ridge. I was determined to find a way back down and then explore the canyon upstream to the deep pool. We had several attempts to descend but all ended in unacceptable drops, until we reached another bend in the creek where there were drops we could cope with. At 1028, we left our packs and descended into the canyon.

The first 50m or so was rather bad news with a lot of sword grasses and uncertain ground to walk on. Things did not get better as we encountered a section of deep mud. The good news was that the cliffs were so close we could hold onto both sides and thus limit how far down we sank. After this, the canyon became very pleasant with a sandy floor and strategically placed beautiful tree ferns. Alas, this did not last either and after about 30m, the canyon ended at the pool that initially forced us up onto the cliffs.

While walking in this canyon, Marion and I both thought we could hear voices. The chances of other bushwalkers being in the same area were such long odds we thought that perhaps we had stumbled on someone in trouble, and besides as a group we were making a lot of noise. Emanuel had taken his boots off and was really enjoying the mud. Brian had climbed high up the cliffs to photograph the rest of us deep in the canyon. There was a lot of friendly banter and carry on. Again, in a quite break we thought we could hear voices. On several occasions, we called out, but there was no reply.

As agreed, we made our way back to where we had dropped our packs. A rope had been set around the base of a tree to make the climb out easy. Brian of course wanted to photograph the climbers. When Emanuel threw his boots up to climb bare foot, he was too quick so the boots were thrown down again for a replay! Emanuel rose to the occasion and carried his boots up by the laces in his mouth. Lots of hilarity followed. Marion did one better and carried the rope up in her mouth. We were out of control and morning tea was a lot of fun.

While packing up, we heard the voices again. This time they were closer and when they asked for Brian Fox and Michael Keats, we knew they were Bush Club members. In fact, we had a reunion as Geoff Fox and Chris Sterling joined the party. As we had left five minutes early from Clarence, we had missed them. Because Chris was carrying a copy of my detailed briefing sheet, they decided to do the walk and hopefully catch us up. They said the noise we made was so loud that finding us was no problem. We were now a party of seven. It was now 1100.

Time to negotiate our way to the junction of this unnamed creek with the Wolgan River. Walking across the ridge from the morning tea location, the cliffs again become high with sheer drops of over 20m. We were forced to traverse upstream for a distance before a descent could be safely negotiated. At the junction, GR 356 087, the bed of the Wolgan is very wide with a flood plain up to 100m wide and littered with fallen trees and debris. The running river is less than two metres wide and snakes its way around. There was no observed aquatic life.

We made our way downstream and almost immediately picked up a bike track at GR 355 087. This followed the Wolgan River for about 200m. We used it willingly as the flood plain debris was hard going. Rapid progress along the bike track led to an old logging access road that accelerated our rate of progress even more and by 1214 we entered the first of the 'S' bends of the Wolgan River above the Wolgan Falls, GR 353 097. Here the road was left behind and we entered an amazing completely naturally walled section of the river.

The 20m + high cliffs are almost continuous, and wrap around both sides of the first big bend of the river. The gorge is narrow and filled with very large blocks of rock. To cross or not to cross. Between us, we tried all the options. Some walked a high level narrow log, some elected not to cross but follow a cliff base hugging route. Dave and I elected to rock scramble, and had some amazing adventures on and off the big rocks. I had no idea where the water was but we managed to reach the cliffs on the opposite side dry and safe. Time to take photos, although the light conditions were very difficult.

Our western most point was where we stopped for lunch, GR 351 098. This was within a tree fern filled overhang with towering 30m + Brown Barrel Gums, *Eucalyptus fastigata*. During lunch, we plotted our exit route. We would cross the Wolgan River to the east and then climb up through the cliffs onto a magnificent series of tall pagodas that formed a narrow peninsula on a loop within the river.

The climb was spectacular and provided a great opportunity for photos. On top, GR 352 100, some of the fretted ironstone was exceptional in form and variety. From these dizzy heights, it was very tempting to head east, and towards Fire Trail No. 5. In fact this was impossible as we had to head north to get off the pagodas and then see whether it was possible to descend, cross the Wolgan River one more time and then head south east towards the Spanish Steps

and our exit. The 35m or so descent was remarkably easy as we picked up a *Leptospermum* filled ravine and negotiated a graded descent to a crossing of the Wolgan River, GR 354 100.

At 1353, we intersected with the fire trail. Rounding the first bend, GR 354 099, we found the Spanish Steps. The steps have become even more degraded than the last time I visited the area. The rock shelves are severely damaged, and as the 4WD owners have sought new thrills, they have widened the area so that it is a great gash on the landscape. The locked gate now stands wide open and is a mockery to the authorities. From the Spanish Steps, it was a quick walk up the fire trail to the vehicle parked at GR 359 097. Total distance walked 8.06km, total ascents climbed 208m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0850	Vehicle 1	375 093
0909	Cut tree stumps in creek area	367 091
0918	Intersect bike track and follow	365 092
0929	Leave bike track	362 691
0928	Marijuana plot	361 090
0935	Hanging swamp	360 090
0939	Aboriginal habitation cave	360 089
1000	Canyon and deep pool	358 087
1028	Enter canyon and walking upstream	357 089
1046	Morning tea + meet Geoff Fox and Chris Sterling 17 min	357 089
1116	On high cliffs	356 088
1121	Descend high cliffs, enter Wolgan River	356 087
1126	Find bike track and follow downstream	355 087
1200	Intersect Fire Trail No. 5	352 089
1214	Exploring in the big 'S' bend of the Wolgan River	353 097
1252	Lunch in fern filled overhang 17 min	351 098
1309	Cross the Wolgan River on a log	351 098
1334	Top of big pagoda	352 100
1348	Descent and recross the Wolgan River	354 100
1353	Track junction and Fire Trail No. 5 + Spanish Steps	354 099
1414	Vehicle No. 2	359 097

7.16 Two Tributaries of Marrangaroo Creek

Maps, etc.	NSW Department of Lands topographic map, Lithgow, 8931 – 3S, 1:25,000, second edition. GPS, WGS 84.
Walk description and route	Park vehicles at GR 373 010, descend a south flowing tributary all the way to Marrangaroo Creek, then follow Marrangaroo Creek on an old trail to approximately GR 359 992; climb up a spectacular cliff lined canyon for about 2km, return to the vehicles via a tributary stream at about 361 007.
Gear issues	GPS, appropriate head and footwear, map and compass, 1 litre of water (Marrangaroo Creek is undrinkable, but side creeks are OK), PLB and 30m tape will be carried by the leader. Warm gear for afterwards recommended.
Comments	This walk is modelled on a walk done in January 2008. Possible wet feet and tape work. Should be a good work out. A very full and challenging day

Date walked 5th August 2013.

The Weather

A typical August day with constant strong winds of 30kph and gusts up to 60kph. On the plus side the day was generally sunny with a few fast moving clouds that occasionally blocked out

the sun, the temperature ranged from 3 to 10 degrees, however the chill factor meant that most of the day it was actually close to zero and rather unpleasant.

Background Notes

The Marrangaroo catchment contains some remarkable landforms and pagodas, diverse vegetation, and is also home to a major ADF defence facility, restricted access Commonwealth Land, that is not shown on the topographic maps produced by the NSW Department of Lands. It is understood that this protocol of non disclosure reflects the historical sensitivity of this area that extends back as far as WWI¹²². The Australian Army, in the past operated a bombing range and other more clandestine operations within the lower catchment. Current usage is as a training facility for ordnance disposal.

There is a dam on a tributary creek of Marrangaroo Creek at GR 370 991 that was constructed in the early 1900s to provide the settlement of Marrangaroo with potable water. This water supply was only superseded in 1987, and the dam and reticulated pipe network allowed to fall into disrepair.¹²³

Aboriginal use of the area. We made what could be a very significant discovery of cave art. It appears to be an image of an animal running. One leg is very well executed. More about that discovery later.

Track Notes

Looking like three polar explorers and still not really warm under four layers of thermals, polar tech and hard shell protection, we set out from the vehicle at GR 373 010, 0824. This location is precisely where the 66 kV power line makes a 90 degree turn to serve a coal mine ventilation shaft, the roar of the exhaust turbine still audible above the wind.

Within five minutes of starting we had dropped down into an unnamed tributary gully of the Marrangaroo Creek. It was still bitterly cold, although we were protected somewhat from the direct force of the wind. Around us were hundreds of cut stumps of varying sizes that would have represented logs used as pit props and also some very large diameter logs that would have been cut as billets¹²⁴ (short timbers hewn, split or in the round), for fencing posts or railway sleepers.

Regrowth of timber is advanced and the area could be reviewed for re harvesting in the next ten years. The density of the forest is exceptional. Following logging there has been an expansion of understorey species, particularly of ferns. Common throughout the length of this tributary, and often in mixed dense masses are Coral Fern, *Gleichenia dicarpa*, The Common Bracken, *Pteridium esculentum*, *Blechnum nudum* and the King Fern, *Todea barbara*. The bane of every bushwalker, Sword Grass, *Gahnia sp.* was also prevalent.

¹²² For a more complete history of the Defence operations at Marrangaroo, readers should consult Plunkett, Geoff. Chemical Warfare in Australia, a history of Australia's involvement in Chemical Warfare 1914-1945, 2007.

¹²³ This information was gathered by Brian Fox in a conversation with the Caretaker of the Marrangaroo Army establishment at the end of the walk.

¹²⁴ Wallis, Norman K. The Australian Timber Handbook sponsored by the Australian Timber Development Association, 1956. Published by Angus & Robertson, Glossary entry.

At 0831 we encountered a recently used bike track, GR 374 008 that served our needs for about 50m; it then trended west while our mission was south. There was a marked change in gradient of the creek at GR 372 004. This gradient change was matched by a vegetation change, with tall *Leptospermum* species being dominant while the ferns temporarily disappeared. The first real rocky cliffs appeared at GR 372 002 when the open valley constricted into a broad canyon before narrowing even further. Sun drenched rock walls featured for about 100m. In the immediate area three tributary streams conjoin with the main tributary at GR 371 998 and GR 371 997. Each of these junctions are flanked with spectacular cliffs. The valley floor is once more dominated by the fern assemblage and progress is slow even where animal tracks can be accessed. Although the winds have dried out much of the moisture from the soil we did find a very attractive white and yellow Fungus that looked like a small, poached egg.

To keep out of the fern jungle on the valley floor, we kept close to the base of the cliff line on the western side of the creek. At 0957, GR 391 993 an elevated overhang was entered. As is our routine practice we immediately began to look for evidence of Aboriginal occupation. I thought I could see some modern graffiti, however it turned out to be just shadows. As I was showing the others, John noticed something I had missed, a very clear, three claw foot image in red ochre! As we looked more closely we could see the image of a whole animal. Immediately John set up his camera on its tripod and recorded the image.

Brian and I searched the rest of the wall and ceiling area looking for more images. We found nothing else. What was the animal? We could not be certain, however John will share the image with some experts. For the record, the overhang is 25m long, 5m deep and the height varies from 2.5m at the back wall to over 4m at the drip line. The opening faces east. We decided to have morning tea here.

Resuming, we continued to explore the cliff extension of the overhang. After a few metres it resolved into a high level ledge that went west around the nose of a bluff overlooking a thicket of *Leptospermum* downstream. The ledge terminated in a shear drop so we retreated a little and then plunged down into the *Leptospermum* brush. Because it was a lot taller than we expected we were able to walk under it and progress was relatively quick.

A hundred metres further on we noted that the speed of the water in the creek had slowed markedly. Soon it stopped altogether and the ground we were on became boggy. We had reached the upper shoreline created by the dam shown on the map. After some false attempts we finally managed to find a spot to take a flying jump to the eastern side, GR 370 992. Then it was time to climb high to avoid the swamp conditions of the artificial lake edge. Photos were needed of this and the reed edge, and so it was that we climbed an isolated rock. Not a bad view however the light was not good looking into the sun.

Scanning to the south, we could see the curve of the dam wall and an old winch, GR 370 991. A bit more pushing through dense stands of *Casuarina* and we were able to drop our packs and walk out onto the wall. The dam was full and water was flowing over the spillway section on the western side. Brian climbed up to the winch platform to take pictures. We both felt that we had been here before, although this dam is very similar to another dam located on Marrangaroo Creek proper at GR 372 986.

Thanks to Brian's initiative to visit the Army establishment at the end of the walk and to research undertaken by John Fox we know a little a little more about this dam.¹²⁵

After a full inspection we dropped down below the dam wall and commenced walking along what must have been the access road constructed to transport materials to the dam site. The road has been washed away in places, also it criss crosses the creek many times. Sections of the cast iron pipe used to convey the water to Marrangaroo can be found at several locations. It is estimated the pipe is about 12 inches in diameter.

At 1102 we came across a low level weir with a deep 'V' notch cut into a steel plate, GR 368 987. This plate was flanked by two concrete structures that have been dislocated by floods. A much more curious device was found at GR 367 986. Made of cast iron, and about 18" x 10" and about 6" deep with the letters "DAV" cast into the top, hinged and also with a valve like feature recessed into it at one end, we think it was a discharge air valve, used for 'bleeding' the line when air locks occurred.

It was all very interesting. The road, whilst not having been used for many years, was remarkably free of re growth and for the most part still drivable, except for fallen trees. As we were so close to the designated military land I was not surprised. This area would make excellent training country. The road crosses and recrosses the Marangaroo Creek at GR 364 987, and GR 363 989.

At GR 362 989 we found the remains of a gateway, a barbed wire fence and some military signage. Of the gate there was no sign. Looking around we also found a very tattered red flag on a steel pole, the internationally recognised code for an active military area. The flag has possibly another season to go before it falls to pieces. We carefully checked our map. According to the cadastral lines shown on the topographic map, that we know defines the Commonwealth Military land, we were still 150 to 200m away from the designated area. When Brian visited the caretaker of the defence facility after the walk and checked the military boundary against his plotted boundary it was found that we had just transgressed the defence area.

On the ground, there was some evidence of recent vehicle movement although the number of fallen trees probably means trail bike activity rather than military equipment. Crossing Marrangaroo Creek at GR 361 990 we had another sighting of the water supply pipeline. We then continued on the road to GR 359 992, where we planned to head north up another tributary of Marrangaroo Creek.

After a final crossing of Marrangaroo Creek, we headed towards a cliff line, again wanting to avoid the thick scrub that filled the valley of this creek. By now the wind was ferocious and just staying upright was an issue. We decided that following that creek back to the vehicle was not going to happen. We just wanted to find shelter from the wind and a quick way out.

¹²⁵ Sunday Times (Sydney, NSW) *Published Sunday 10 June 1923, page 4 of 36* LITHGOW WATER SUPPLY Proposal to Increase Storage Capacity. LITHGOW, Saturday. — Mr Van Hemet, Public Works Department Engineer, has finished his investigations in regard to Lithgow's water supply. The reservoirs also at the source of the supply at Middle River (also known as Marrangaroo Creek), in addition to the reticulation, has been thoroughly gone into. It is stated Mr Van Hemet is firmly of the opinion that a storage reservoir at Marrangaroo is a necessity, as is also the heightening of the retaining wall at the top dam, to provide for the storage of several million gallons extra. At present, with both dams full, the storage is slightly over 119,000,000 gallons. A fair flow is running into the reservoir as result of rain.

On the topographic map the cliffs in the immediate area are shown as continuous and not negotiable. Not so as at GR 359 994 we found a ramp slot combination that went all the way in several stages. The top was reached in five minutes. The speed of the climb was in part driven by a desire not to be blown away.

Cresting the top we were in a pagoda wonderland. On the next ridge west the pagodas crowded the cliff top; there was also a good assortment of them on the ridge we had just mounted and to the east were two ridges famous for their pagodas, the Lost City. Wow, this was exceptional country to be in and a world away from the fern and *Leptospermum* filled valleys. The only downside today was the wind. It was now 1221 and we needed to find a location with the least wind, the most sun and the best view to enjoy lunch.

At GR 361 995, we found a perfectly shaped pagoda for the purpose. The views were amazing. To the east we could see the Lost City, while to the west, crest after crest of magic pagodas. The most impressive view was to the south where we could see all the way to Mount Lambie with virtually no intrusion of manmade structures.

After lunch we headed initially north to pick up a ridge that would join with an old access road just below spot height 1132. Some 50m to the north we stood looking at an amazing grouping of pagodas. We counted nine major individual natural stoneworks of art, rising as a platoon of soldiers along a very small tributary creek. Best as I can position them on the map, they are at GR 362 998. I now want to re visit this area under better circumstances and explore this ravine by walking down from the access road at GR 368 003. There are three successive pagoda lined canyons on one side and a major pagoda capped headland to the south at GR 357 995, a walk to do in summer.

Now for the hardest part of the walk today, crossing the heath land between our lunch site and the old access road. This heath is a mixture of *Casuarina nana* (on steroids), *Banksia ericifolia*, *Leptospermum* sp. and various species of *Isopogon*. Between them these plants have created a near impenetrable barrier. All head high intertwined stems, brutally strong and rapier thin stems, shoe pulling branchlets and eye poking leaves contributed to one of the worst exit routes ever. There was one section between two rock platforms, no more than 10m in distance that took so long we thought it would never end.

Finally more open forest was reached, however because of the wind it did not feel much different, we just had a different enemy! At 1305 we intersected with an old access track, which has been commandeered by the biking fraternity. Still it was easier going in the open. Walking up the road to the vehicle we noted the change in vegetation above the 1100m contour, the understorey was now dominated by *Xanthorrhoeas*. The vehicles were reached at 1357. Total distance walked 9km, total ascents 379m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0824	Park vehicle	373 010
0831	Bike track and cut stumps	374 004
0847	Change of grade in creek	372 004
0857	First cliff line, rock walls and semi canyon	372 002
0919	Creek junction	371 998
0930	Another creek junction	371 997

0957	Aboriginal art site + morning tea, 13 minutes	n.a.
1032	Upper reaches of stored water in dam	370 992
1045	On the dam wall	370 991
1102	Small weir	368 987
1112	Discharge air vent /valve	367 986
1124	Crossing Marrangaroo Creek	364 987
1130	Crossing Marrangaroo Creek	363 989
1135	Red flag and restricted area	362 989
1140	Crossing Marrangaroo Creek + pipeline sighting	361 990
1147	Leave the road, cross Marrangaroo Creek and head north	359 982
1203	Slot and ramp up cliffs	359 994
1208	Top of cliff climb	360 994
1221	On pagoda + lunch, 17 minutes	361 995
1305	Intersect with access road	366 996
1319	High point on road	369 004
1357	At vehicle	373 010
1322	Park on Beecroft Fire Trail	358 001
1335	On point and lunch (27 mins) – storm brewing	358 098
1410	Back at vehicle	358 001

7.17 Another exploration of the tributaries of Marrangaroo Creek

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. GPS setting WGS 84.
Walk description and route	Park a vehicle at approximately GR 358 000, the end of a side track off the Beecroft Firetrail. Start exploring to the east and drop down in between the pagodas into a creek. Explore the immediate vicinity and then walk downstream to join an old fire trail parallel to Marrangaroo Creek. We will follow this to approximately GR 352 993 and then a branch track up through the pagodas to the head waters and exit near to the pagodas at GR 349 005 or, if that does not go try an option at GR 347 007. Then return up the rocky slopes to the fire trail and the car. About 3km, lots of little challenges.
Gear issues	GPS, PLB, 2 litres of water, appropriate head and footwear, electrolytes, maps, compass. The leader will carry a tape. Change of gear for afterwards.
Comments	Bring the camera. This is spectacular country. Date walked 14 th April 2008.

The Weather

A cool and cloudy day threatening rain. In the afternoon conditions deteriorated with the wind rising. It became quite cold. Temperature range 10 to 14 degrees.

Background Notes

Exploratory walking took on a whole new meaning as a result of this walk. Steve and I had done some preliminary walking in the area several months previously. One of the identified places for further examination was the complex ravine and canyon system north of Marrangaroo Creek flanking the ridge extension track off the Beecroft Firetrail after it crosses the 66kV power line at GR 350 019.

Track Notes

It was planned to be a party of 4, however one pulled out and one did not front. Steve and I determined not to waste the opportunity so after checking the safety gear we were into it. Parked the vehicle at GR 357 005. It was a little later than usual when we started, as there were a few dead trees to move and or cut through. This trail does not have many visitors.

As we drove in there was, on the eastern side at GR 358 005 an old track that seemed a promising prospect to descend into the canyon. It was a bracing 9 degrees – ideal walking conditions. Clambered down to about GR 358 007. The pagodas were fantastic and the creek was accessible. It was however so scrubby that we turned to each other and said ‘no way.’ Hauled ourselves back up the side of the canyon and headed a bit further south.

Again the pagodas were fantastic, and we found a fine ramp alongside the base of a line of them, which went down and down. No GPS reading was possible, but approximately GR 360 004 would be close. The last bit of the ramp seemed to end in a 4m drop but it was partially obscured by ferns. It did not look promising; however after some scouting among the greenery a way down was found that did not even require a tape assist. It was perfect.

Once down a whole new world was revealed - a huge, magic, dry cave with a soft sandy floor. One of the largest we have seen. The ceiling was a good 3m above the floor. Both were flat and giving the cave the appearance of a real room. A wall of tree ferns curtained the opening, of some 30m in length. Not in your dreams would you imagine a cave like this one. Lots of pictures and then it was time to move outside into a world of pagodas.

Then it was down into the creek with some scrub bashing on the way. Generally, walking/wading in the creek was the easiest option. Most of the time the water was only ankle deep and after about ten minutes you did not feel the cold water – you did not feel anything!

Had morning tea at GR 360 998 on a rock next to a notched stump where in times past timber getters had cut magnificent specimens of red stringy bark (*Eucalyptus macrorhynch*, *ssp. macrorhynch*). The notches, stark testimony to the loggers who stood on boards precariously as they wielded axes or two handed saws.

We observed both styles. The average felled tree had a girth in excess of 1m at head height. What disappointed us most was the number of huge trees that had been felled and then left to rot because they were hollow inside. The further we progressed down the ravine/gully the more numerous were the cut stumps. Rusting plaited steel cable ends. Presumably used for hauling logs were also found.

At 1143 crossed the Marrangaroo Creek at GR 358 992 and then picked up the old road that winds its way up Marrangaroo Creek for over 5km. After observing the high cliffs to the north we started walking down the road. Imagine our surprise when we came across a collection of rusting steel boxes. These were not just any old boxes. There were 40 of them. These were ammunition type boxes some 1000 x 500 x 250mm. Each had an internal panel about half way with 6 regular, 100mm diameter holes. Each hole would have supported one 25 pound artillery shell.

We kept on observing and noting. The closure for each container had a rubber seal and two large locking screws to hold it all in place. Two rectangular handles allowed for ease of carrying between two troopers. Each box was dated 1943.

It was then we saw the sign. It said clearly for anyone approaching up the valley – “Contamination Area – Keep Out.” It was quite clear that the authorities never envisaged anyone entering the valley the way we had come. We took lots of photos and had a good look around. Even though the area looked untouched, it had been cleared a long time ago. A rusted, 5,000 gallon water tank and some other steel items were noted in the area.

Without thought we kept heading down the road. I wanted to follow the map and cross the Marrangaroo Creek and explore another fascinating ravine on the western side of where the vehicle was parked. 1205 we came across a major road junction, GR 353 992. Here there was recent evidence of heavy machinery use. Crossed the Marrangaroo Creek (here it was dirty with a red brown algae).

The road continued and showed evidence of recent earthworks. After about 400m the road was blocked to vehicles by a large fallen tree. We clambered over it and kept on the road. I picked up an odd piece of threaded plastic with a stainless steel swivel with a sign on it “do not fill.” I decided to do the right thing and remove it from the bush. It did not belong here. It was litter. Then I picked up a piece of iron. It also had thread work and was horribly distorted. It was a bomb fragment. Further on I picked up a piece of what I thought was a firing pin. These pieces were photographed and left in situ.

Coming around a bend we were confronted by a pair of pad locked gates, barbed wire and many signs – all-blank on our side. We crossed over the gate and then all was revealed. The main sign said, “Danger Military Range Boundary - Live Firing Do Not Enter,” Other signs said, “Laser Hazard” and “Live Bombs.” The most frequent sign proclaimed, “Australian Government Land -Trespassing on this land is prohibited Commonwealth Crimes Act, 1914 – 1973, Section 89.” The ultimate message was a red flag flying on a pole. There was absolutely no indication coming from the east side that we were infringing the law. There is no indication on the topographic map that this range exists. All that the map advises is that the area is part of the Newnes State Forest.

We were flabbergasted, so much so that we forgot to take a GPS reading. After finding more ordnance up the road we went back and took a reading at the gate, GR 349 000. What an adventure! Pushed on to the point where the road crossed a tributary of the Marrangaroo Creek. More surprises. We came across a lot of metal cylinders that could have easily held Howitzer shells (105mm?) at some stage. The cylinders were 110mm or so in diameter and about 1000mm long. They were stuck in the creek at odd angles. We also spied pieces of pressed metal used for forming air strips on sandy ground, rusting food containers and much more.

Then we returned to the track that showed signs of being recently used by the motorbike fraternity. All along the way we picked up pieces of spent ordnance, even though we were way outside the firing range boundary. The track was a good one, and wound its way up a truly spectacular valley with great pagodas and increasing cliffs. At GR 350 007 we pulled off the track onto a pagoda to have lunch. The views were special and once the edge was off our hunger we started almost inevitably to go looking for ways up, and ways down – pagodas get to you like that. What we did find was by now no surprise - a part of an exploded bomb about 2m away on a pagoda. It was part of a shell casing, twisted and deformed by the force of the explosion. We were by now over 2km from the firing range signage. Either someone is very incompetent with a 25 pounder gun or the fallout area is a lot bigger than the authorities realise.

1350 back on the bike track. As I predicted to Steve, it joined up with the road we had driven out on at GR 352 010. We were back at the vehicle at 1405.

As it was early and I was by now very curious about this whole area, we drove back along the Beecroft Firetrail and parked at GR 341 013. It was no surprise to find that the map does not show a road out along the ridge marked with a contour height 1140, (approximately GR is 341 004). It was by now more than chilly and trying hard to rain. The urge to know was strong so we headed out along what appear to be very recent forestry roads until we reached GR 339 996. This is where the motorbike track exits from the creek crossing with the Howitzer shell cases. According to map, an old track leads out to the end of the ridge another 800m or so.

We decided that we did not need to either go down into the creek or out to the point. Both trips would be miserable in the current conditions. The walk back to the vehicle was fast – the incentive was to make the journey to Bilpin and grab a hot chocolate before *The Pines* closed at 1700. It tastes really good as you wrap your hands around the hot mug and let the aroma of chocolate infuse your being.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0905	Parked vehicle	358 002
0911	In canyon – returned too messy	358 007
1005	Descent - ramp and ravine	360 004
1006	The magic cave	
1050	Morning tea (20 minutes)	360 998
1152	Old logging activity	
1143	Crossed Marrangaroo Creek and on the road	358 992
1155	The ammunition cases	
1205	Road junction	353 992
1222	The gate, flag and signage	349 000
1230	On the track	348 001
1235	Explored to the creek crossing	
1315	Lunch on a pagoda (25 minutes)	350 007
1350	Bike track and road junction	352 010
1405	At vehicle	358 002
1438	New position of vehicle	341 013

1452	Walking east	340 006
1502		341 002
1510	Turn around point	339 996
1535	At vehicle	341 013

7.18 Farmers Creek West to East

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. GPS setting WGS 84.
Walk description and route	Park a vehicle on State Mine Gully Road at GR 393 977 (Spot Height 1190) and another vehicle at GR 421 972 on the Old Bells Line of Road. Return to the first vehicle. Walk south to pick up Farmers Creek and follow this for about 2km before it enters a series of 'S' bends and creek junctions for about a kilometre. As we enter a cliff lined ravine that encloses the upper reaches of a dam, stay on the north side and circle under the cliffs for a further kilometre or so. After a few more twists and turns we head north up Farmers Creek for about 1.5km before a final 1 kilometre stretch back to the second vehicle. About 6km, +&- 100m (many times).
Gear issues	PLB, GPS, maps and compass, tape, (leader only), 1 litre of water, electrolytes, camera and preparedness to have a good day out regardless. Change of gear.
Comments	This walk may involve rock scrambling, rock hopping and possible wet feet. Date walked 27 th July 2011.

The Weather

Fine, but cloudy, occasional blue patches, temperature 4- 8 degrees. Excellent walking conditions.

Background Notes

Over the many years that I have visited sites in the Newnes State Forest and driven past the Old Bells Line of Road corner where State Mine Gully Road becomes the Glowworm Tunnel Road, I have never considered exploring the upper reaches of Farmers Creek located on the south side of the Old Bells Line of Road.

The topographic map shows the area is crisscrossed with hundreds of tracks ranging from State Forests operational access roads, to geo technical survey tracks to the notorious bike tracks that are such a blight and cause so much erosion damage. The proliferation of new tracks of all kinds created since the second edition of the map was issued in 2008 makes it little more than a guide to what is on the ground.

An opportunity to check out the bushwalking possibilities of this area were partly revealed in a walk led by Steve Imrie, 19th December, 2009, when as part of a suite of short walks in the Lithgow district a visit was made to the impounding wall of the first Lithgow Water Supply Dam constructed in 1896. That walk revealed the dams were located in very picturesque country featuring pagodas and complex cliff lines.

From studying the map I realised that a walk could be devised that included the two major tributaries of Farmers Creek. These track notes record our adventures based on that research.

Track Notes

At 0819 a vehicle was left on the Old Bells Line of Road at the planned finishing point of the walk, GR 421 972. Three other vehicles were then driven down State Mine Gully Road and parked at 0826, GR 393 976, near a spot height, elevation 1190m. After completing the walk briefing, we set off heading due south down a broad shallow gully that quickly resolved into Farmers Creek, GR 392 971.

The gully continued to be very shallow and soon opened out as a high level swamp, GR 391 966. We traversed along the western side keeping above the margin of the swamp for quite some distance. Whilst the country looked quite attractive, movement was difficult and slow. At 0906 we took the plunge and crossed the swamp, GR 390 965.

After the crossing I was hoping the understorey would open out and we would start to experience better walking conditions. As it was we had another 40 minutes or so of hard going. During this process several roads and tracks were crossed, none shown on the map. Interestingly nearly all were fairly recent 4WD extensions of former logging tracks and all generally headed towards Farmers Creek where they petered out.

It was a welcome relief to see the first grouping of pagodas although these proved to be quite isolated and flanked the northern side of Farmers Creek. After several more sightings and more trails we came across an attractive pagoda terminal on a ridge. This was special. Farmers Creek has carved a tight, almost circular loop around this high pagoda, 0950, GR 396 960, the distance across the neck being less than 25m. It is too small to show on the topographic map.

Although early, it was a perfect spot for a well earned morning tea break, the top of the pagoda being some 15m above the creek. 1003 with packs shouldered the downstream journey continued, now in more open country. An actively used road was encountered at GR 398 958 and another major road complete with fresh tyre tread marks at 1025, GR 399 957 was followed down towards Farmers Creek. Our progress was halted for a while as we observed (and listened to), one of the largest flocks of Yellow-tailed Black Cockatoos (*Calyptorhynchus funereus*) I have seen for a long time. The free wheeling flock was estimated at between 50 and 100 individuals¹²⁶. The flock 'followed' us for the next hour or so.

At 1042, GR 400 959, crossed Farmers Creek to be on the north side walking in pleasant, low growing open heath. Our field of vision now included several convolutions of Farmers Creek that were marked by fringing pagodas. We continued generally east to GR 403 959, before descending into a north south, parallel sided, ravine flanked by cliffs.

This ravine about 100m wide featured a long, almost continuous overhang on the western side. Steve went over to examine a section of the overhang to see whether there was any evidence of Aboriginal occupation. He drew a blank. Meanwhile we progressed along the eastern side where the cliffs ranged in height from 15 to 25 m. A reading was taken at 1130, GR 404 954 where the first glimpse was made of the water storage for Lithgow - Farmers Creek Dam No. 2.¹²⁷

A slot in the cliff line at GR 405 953, was too tempting to ignore so with a little encouragement Brian scampered up and pronounced it as 'a pass to the top'. I decided that we should go up. A rope was set and then next 10 minutes was spent most enjoyably (for some more than others! – I loved it) as we climbed through the slot and out onto the high, almost Scottish Highlands heather type terrain above.

Emerging from the climb we headed generally south to visit a stunning rocky pagoda point overlooking the expanse of impounded water, GR 405 952. Took great photos that would have been even better if the sun had come out. Our position, about 30m above the water provided views south as far as the top of the road descent of Scenic Hill into Lithgow and glimpses of the Zig Zag Historical Railway. Due to the prevailing wind we could even smell wood fires burning in Lithgow houses.

Turning north to walk up the ridge was also a delight. The heathland is predominately *Allocasuarina nana*, no more than 50cms high. Significant areas of exposed rock platform separate the heath into discrete communities. Occasionally I turned around as we made our way up the ridge. The view framed by ridges and dominated by the impounded water was a delight. Towards the higher sections of the ridge the *Allocasuarina nana* plants had taken on a reddish hue; several stunted gums (possibly *Eucalyptus haemastoma*) with dazzling white

¹²⁶ Morcombe, Michael. The Field Guide to Australian Birds, 2008, p 166, comments that this species forms large groups in winter

¹²⁷ Farmers Creek Dam #2 Water from Farmers Creek Dam is filtered at the Oakey Park Water Treatment Plant and supplied to Lithgow. The original lower dam (Dam #1) which was built in 1896 is no longer used. The upper dam which was built in 1907 has a capacity of 450 ML and has a top water level of 1000m. Farmers Creek Dam has a small catchment area of 12 km². The secure yield of Farmers Creek Dam has been estimated at 400 ML per annum under current environmental flow release requirements. The Farmers Creek Dam system is also provided with a supplementary supply from the Clarence Water Transfer Scheme. When there is insufficient natural water flow into the dam, up to 5 ML/day of water can be transferred from the Clarence Water Transfer Scheme.

stems created glorious picture opportunities. We were headed for an outcrop of sandstone with commanding views south over the ridge and the impounded water. This was to be our lunch destination.

On arrival it exceeded expectations. The view was magnificent, but it was only one aspect of our interest. On the top were two separate groupings of Aboriginal grinding grooves, a natural water hole and a mining survey cairn complete with a decaying shaped wooden peg, possibly circa 1920, GR 406 960.

During lunch further study of the map and our planned route was undertaken. I decided that the scrub in the eastern branch of Farmers Creek would be no better than the western branch, so instead of slavishly sticking to the original plan we would now head due east and exit via a shown (and observed) road network.

Setting off at 1243 we entered an absolute natural garden of colour, for as well as the species already described above, there were stunning examples of *Isopogon* sp., also flush with colour. It was a delight to walk through. As we approached the eastern descent into Farmers Creek, (about 100m), the vegetation changed and soon we were back into open forest with a relatively unattractive understorey. Beneath our feet the rocks were supersaturated with water and slippery.

The view to the east was one of wanton desecration. Huge swathes of heath had been traversed so often by bikes that only rare rock remained. The erosion is horrific. The land title is State Forest and the authorised motorcycle club property located at Happy Valley Springs seems to have claimed this adjoining area as an extension of their territory with little regard for the environmental impact or pollution and siltation of the Lithgow Water Supply.¹²⁸

Whilst motorcycle activity in this area is not a prime cause of the health problems of Lithgow it certainly does not help. Worse pollution was noted as we walked out along the road towards the club property. Discarded containers, drug users requisites, old clothing, burnt out vehicles, take away food containers do nothing to help the image of this sub culture.

If I was doing this walk again, I would not exit this way but continue north on the lunch venue ridge and follow a trail back over spot height 1158, approximately GR 396 967 and then back to the vehicles. This way would be far more scenic.

As it was we walked around the southern and eastern perimeter of the club property and rejoined the Old Bells Line of Road about 150m from the planned finishing point. Total distance 8.92km, Total ascents 347m

¹²⁸ Ben Cubby and Jonathan Dart, Sydney Morning Herald July 15, 2009. Doctors in Lithgow have protested against the use of industrial run-off in the town's drinking water, saying it could be contributing to the area having some of the state's worst rates of cancer, heart disease and other health problems. All the town's general practitioners have signed a letter to the local council saying that plans to increase the amount of recycled industrial water, including water used to flush out a coalmine, could be dangerous. No research has been done on possible links between heavy metals in the water and health effects. The town began to add water extracted from the nearby Clarence Colliery to its drinking supply in 2002, to help make the town drought-proof. The council wants to nearly double the amount to more than 5 million litres a day.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0819	Leave vehicle on Old Bells Line of Road	421 972
0826	Leave vehicles on State Mine Gully Road	393 976
0832	Top of Farmers Creek (west)	392 971
0855	On swamp edge	390 965
0915	On swamp edge	391 963
0920	On a trail and followed it	391 962
0936	In scrub	393 961
0942	Another old road	395 960
0950	On a pagoda, a.m. tea (13 mins)	396 960
1022	On another road (high above creek)	398 958
1025	Yellow Tail Back Cockatoos	399 957
1042	Descent and cross creek	400 959
1052	Traverse ridge down to creek & follow under cliffs	403 959
1130	First sighting of stored water	404 954
1140	Climbing slot (10 mins)	405 953
1155	Spectacular view over Farmers Creek Dam No.2	405 952
1220	Rocky outcrop, Aboriginal grinding grooves, mining lease survey marker & lunch, (23 mins).	406 960
1250	Above Farmers Creek (east)	407 961
1308	Crossed Farmers Creek, took water sample	410 960
1320	Burnt out vehicle, damaged environment	411 959
1344	Corner of motor cycle club property	421 966
1349	Rejoined Old Bells Line of Road	422 970
1354	At vehicle on State Mine Gully Road	421 972

7.19	Dargans Canyon to Hartley Vale exiting via the old Comet Mine Incline Railway
Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. Department of Lands Hartley topographic map, 1:25000, 8930– 4N, second edition. Department of Lands Mount Wilson topographic map, 1: 25000, 8930-1N, second edition, and Department of Lands Wollangambe topographic map, 1:25000, 8931-2S, second edition. GPS setting WGS 84.
Walk description and route	Park a car at the Hartley Vale turnoff on the Darling Causeway, GR 456 856 and another at the beginning of the walk GR 443 915. Walk down a track to beginning of the canyon section, change into wet suit in the cave, track down some 250m before inflating PFD's before the first big drop into the wet canyon. Swim/clamber/rock log hop to the traditional exit point. Here deflate PFD's and then walk, swim/clamber/rock log hop for another 2-300m before changing into old shorts etc., for the rest of the walk. Exit at end of old logging road GR 443 894. Follow road out crossing Kangaroo Corner Creek, a short section of private land before joining Hunters Road. Ascend an unnamed ridge to southeast (approximately 200m). Explore the old Comet Mine incline railway and then walk 2.5km to first car.
Gear issues	2 litres of water, wet suits, PFD's, electrolytes, maps, compass, appropriate head and foot protection, PLB, GPS, tape, waterproof camera. Change of clothes for afterwards.
Comments	This is a walk for the adventurous. It is weather dependent. Date walked 6 th January 2006

The Weather

The day started with light drizzle before becoming a very warm bright sunny morning. Increasing cloud formed during the afternoon turning into rain showers as we exited the walk. Very humid conditions all day. Temperature range 16 to 28 degrees.

Background Notes

Dargans Canyon is a relatively popular canyon, but a short one if the party exits at the usual point GR 442 907, (climbing the tree with spikes), or more commonly exiting by doing the canyon in reverse.

Soon after the point where the road crosses the Great Western Railway Line turn off on a track sign posted 'To tunnels 1,2, 3, 4, 5 & 6', GR 437 930. It is a well- worn maze created by State Rail contractor vehicles and many generations of teenagers seeking the thrills of swimming, diving and cavorting in the dams on Dargans Creek, originally constructed to provide water for thirsty steam engines.

Walk down another much worn 4WD track for 200m to GR 443 915. Here the lower and larger, of the two dams appears on the left. Large cliffs loom out of the water like stranded ocean behemoths. It was noted that the locals have recently erected an elaborate flying fox to dive bomb each other in the deepest section.

Track Notes

Rather than use the old steel ladder installed for dam inspection as a way of entry, we descended the rock face to the east and picked up a series of tracks heading downstream. In the valley the vegetation is lush, the eucalypts grow tall, tree ferns clamour for space. Our 'undulating route, sometimes a track' goes under overhangs and is often hard against the western canyon wall. At a large overhang it was time to change into wet suits, take photos and get serious about enjoying the challenge of Dargans Creek Canyon.

The top section of the canyon seems to be getting a regular work out. Key rocks for stepping on have the moss abraded away; at two places there are very substantial fixed ropes and our progress was rapid. Nature has contributed some new challenges with fallen logs blocking ways I used some 12 months ago. The clambering is challenging but very satisfying.

I failed to mention that the day started off with drizzle and not looking at all flash. Fortunately the amount of rain in the area had been negligible so there was no problem with the canyon being in flood. In the canyon proper it was dark, spooky and almost speleological. We could see, but not very far, the sculptural curves of the canyon walls dwarfed us menacingly.

This is adrenalin country. The canyon walls close in as they reach for the sky and tower above with an infinite variety of convoluted sculptural forms; the sun strained and reached that critical point where light shafts beam down and are reflected rippling from inky black water back up and into nature's sculptural maze.

We swam on...our enjoyment continued as more was revealed. Then the sun emerged and the whole canyon changed. Myriad raindrops reflected light like costly chandeliers; shafts of light filled the canyon voids. Whoops of ecstasy came from members of our party as they revelled in this wonderland. Several sizeable specimens of the native black creek fish, *Glaxia sp.* were seen and then shyly hid themselves. Canyons are great.

All too soon we were at the point where most canyoneers either climb the spikes in a tree to exit or set about reversing their journey. Not for us today. We were going all the way. At this point we deflated the PFD's and proceeded down an ever-widening valley filled with wonderful ferns, epiphytes and huge Coachwood Trees, *Ceratopetalum apetalum*. The King Fern, (*Todea barbara*) seems to thrive in this valley, some specimens exceeding a metre in diameter, their multiple stems forming formidable obstructions.

Another 300m or so and it was time to shed wet suits and don old gear suitable for both getting thoroughly wet but also light enough to dry out for when we resumed 'normal walking'. We changed in a glorious glen, the sunshine now streaming through the tree canopy. Below us the ground fell away with great rocks covered in epiphytes such as *Pyrosia rupertensis*; the size and variety of lush ferns increased. This is wonderful country rarely visited by canyoneers.

For the next section of 400m or so we walked on a way of route above the Dargan Creek (west side), avoiding steep contour changes that would make negotiating the creek bed unpleasant. As it was we enjoyed the waterfalls and had time to look up into the gullies and quite spectacular cliffs.

At about GR 442 892 we were alerted to a significant bend in the creek to the west. Looking up there was, suspended in a small tree, a solid wooden arrow, directing us out of the creek and onto the faint trace of an old forestry road. Time to stop and empty shoes and socks of sand and prepare for a dry forest experience.

Away from the creek we were immediately in a dry sclerophyll forest. The air was heavy with eucalypt and other indefinable smells of the forest. The contrast with the canyon is stark. Through the trees to the west we saw what looked like a building. We investigated.

It was a substantial structure with faux log cabin walls. There were even curtains at the windows. Testing the doors we found it unlocked and went inside. It has a *Marie Celeste* feel. There was cutlery and crockery in a cupboard, a kerosene fridge, sink and all the basics. We found a list of instructions for renters and a copy of a newspaper dated 1996. From the layers of dust it is almost certain no one has been here since then. We shut the door and left after photographing what we think was a failed farm stay holiday investment.

Back on track, we identified beautiful specimens of the Hyacinth Orchid, *Dipodium punctatum*, the rich burgundy stems supporting burgundy spotted pale pink orchid-like flowers. Click, click. The track first crossed Monkey Creek and then Kangaroo Corner Creek. Abruptly at the last crossing the forest ends and open fields appear. It was 1255 and becoming quite hot. We retreated into the shade and had lunch.

On hand nearby our chosen lunch site were two large diameter pipes presumably planned as a future high level creek crossing. These pipes served as a perfect drying spot and halve the weight of our very wet, wet suits and PFD's. We sat in the dry creek bed and reflected as we ate on the diversity of experiences so far. It was a great outing. Somewhat languorously 25 minutes later we packed up and traversed 400m or so of private land, being careful to leave each gate as we found it. Looking back across the fields, we were surrounded by 7 stunning bluffs of sandstone (all unnamed) that circumscribe this valley. What a magic spot. More

pictures. The final gate, which was padlocked sports a sign that asked all visitors to 'please shut the gate'.

Seconds later we were walking on a dry dusty road (Hunters Road) that quickly links to the Hartley Vale Road. What a contrast from 2 hours ago! Underfoot discarded, drying bark from many seasons cracked and crunched, curious mountain dragons (*Tympanocryptis diemenesis*), eyed us off cautiously. They 'freeze' and pretend that we cannot see them.

As we climbed higher the view expanded; the River Lett, (formed by the confluence of the Dargans Creek and Kangaroo Corner Creek), exits from Sassafras Swamp and makes its way west to ultimately join with the Coss River. After about 200m of climb along the ridge, we intersected with the old railway bed which served the Comet Mine. As it was only 1400 we headed south to visit the decaying remains of the former mining operation and enjoyed the views west over the Hartley Vale.

The sun obliged for a short time so we experienced a good opportunity to study the more western ridges. It is clear that many more walking opportunities exist in this area with equally attractive scenery. At the end of the 'standard rail bed' there are the remains of an old static engine site where the trucks hauling Torbanite (Kerosene Shale) up the incline railway would have to be transferred to the standard rail line and then hauled to join what is now the Main Western Line.

We examined old boilers and marvelled at the amount of effort involved in their fabrication including hundreds of hand cut rivet holes, hand forged rivets and hand construction generally. All this now stands as a silent, rusting reminder of the noise and activity that must have resonated around the hills that now only hear the harsh cry of the yellow tail black cockatoos.

The clouds gathered and the sky darkened as we completed the last 2.5km back to the car. Jeff and I left the others while we retrieved the second vehicle. On the way back the rain started, became heavier and then stopped. Then with a rush it started again as we got closer to pick up the rest of the party. Minutes later along the Darling Causeway there was another short sharp shower but now no one cared. We were all dry and headed for the Imperial Hotel at Mount Victoria where refreshments were enjoyed and we mulled over a diverse and enjoyable day.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0820	Turn off to Tunnels 1,2,3,4,5 & 6	437 930
0830	Leave cars	443 918
0840	In Dargan Creek	445 915
0900	Commence wet suit section of canyon	n.a.
1000	End of lilo section and morning tea	n.a.
1200	Leave Dargan Creek and join old forestry road	443 894
1255	Lunch at junction of forest road and Kangaroo Corner Creek	444 879
1340	Hunters Road	443 874
1400	Top of dry ridge	447 867
1410	Intersect with old railway line bed	447 864
1430	At the Comet mine static engine site	445 860
1450	Return to cars	456 856

7.20 Monkey Creek

- Maps, etc. Department of Lands topographic map, Wollangambe, 8931-2S, 1: 25000, second edition. Department of Lands topographic map, Mount Wilson, 8930-1N, 1: 25000, third edition. GPS setting WGS 84.
- Walk description and route Park vehicles at *Hatters Retreat* and under the guidance of owner Mark O'Carrigan, visit a large private cave on Monkey Creek. We will then proceed to explore Monkey Creek, its canyon and part of the ridge between Monkey Creek and Kangaroo Corner Creek. Mark has arranged for the group to visit parts of *Glastonbell* (now named *Bell Trees*), and the territory to the south. Historian, Stephen Imrie will accompany the group. +&- 300m, distance approximately 10km.
- Gear issues 1 litre of water, GPS, PLB will be carried, electrolytes, maps, compass. 30m tape will be carried by the leader in case of need. Change of gear for afterwards.
- Comments This is a singular opportunity numbers will be limited. Possible wet feet. We will try to stay dry. Note this walk cannot be undertaken without prior approval and arrangements with the three landholders concerned.

Date walked 14th May 2012.

The Weather

The weather on the day was crisp and cold with patches of ice on the ground, starting temperature 2 degrees reaching a maximum of 11 degrees, brilliant clear sky and no wind, in short excellent walking conditions for a short winter walk.

Background Notes

This walk is almost entirely on private land. Prior arrangements had been made with three property owners for the walk to take place. This walk can only be repeated with such arrangements being made. The scenery is spectacular and the coachwood forest is one of the most undisturbed mature forests of its type that can still be found.

By arrangement, all vehicles were parked in the grounds of Mark O'Carrigan's new *Monkey Creek Café* on the Bells Line of Road at 0810, GR 460 904. It is worth documenting that this newly completed very modern building enjoys a unique position with panoramic views to the south west of Hartley Valley and north east and east over the Wollangambe River system and the Blue Mountains National Park.

We then moved next door to meet our guide, Henryk Topolnicki, a sculptor, rock climber, and bushwalker who knows this country intimately. As is the case for Mark O'Carrigan, his property stretches across the deeply incised catchment of Monkey Creek. After surviving the shock of the size of our party, Henryk outlined a suggested plan for the morning after which he would leave us to our own devices. This was agreed and we then set out walking north west along the Bells Line of Road to a property known as the *Lyres Loft*, GR 459 908. This property is also owned by Mark O'Carrigan and we had permission to walk through it.

There was not a lot of time to check it out, however from observation it would seem that the Bells Line of Road frontage for *Lyres Loft* is located on a relict dune formation, very similar to that described by Dr Paul Hesse further west on the Newnes Plateau. The location meets the criteria for dune formation as postulated by Hesse¹²⁹.

After taking pictures of the Hartley Valley and Mount York from the deck, we descended the ridge in front of the property down into a tributary creek of Monkey Creek. Monkey Creek is orientated almost north – south, and because it is so deep and narrow, it is shaded and very cold. The trees are huge and the understorey dominated by ferns. Tall, 30m residual pagodas are scattered amongst the trees on the valley floor, it is a truly glorious spot.

The walking is easy, although no attempt has been made to clear fallen timber or to modify the landscape. The owners appear to have an unwritten pact to enjoy the area and not compromise it in any way. There is some evidence of logging many decades ago. One stump of nearly 1.5m diameter, still sported the slots cut by old time loggers who worked balancing on cut boards inserted into these slots about 2m above ground level. The log had been removed and one can only speculate on the effort required to haul it out of the valley whether it was up to the tops or dragged down into Hartley Vale.

Orientation is an issue deep down on the valley floor, and when Henryk advised a soaring 25m high pagoda, in a dry creek bed was on his property and he used it as his private rock climbing wall we readily agreed. He even pointed out a couple of stainless steel bolts he had installed. Later we had plenty of evidence of his prowess as a rock climber.

¹²⁹ Sand dunes on the Newnes Plateau (1000m above sea level), west of Sydney, were active during the Last Glacial Maximum (LGM). The scattered sand dunes are forested under the modern humid, temperate climate regime. Dune types range from parabolic to transverse lee dunes and sand sheets or patches. All point to the presence of conditions marginal for aeolian activity, made possible through wind acceleration on windward slopes, ready sand supply from the weathered sandstone of the plateau and sparse vegetation cover. Modern climate envelopes of sand dune activity in Australia predict that unrealistically drier conditions are necessary to allow wind transport at this site. Only additional impediments to plant growth, such as lower temperature and lower atmospheric carbon dioxide concentrations, appear to allow the necessary conditions for dune formation. These observations and conclusions extend our understanding of the extremes of the LGM climate in humid eastern Australia, confirming that the widespread treeless vegetation was also sparse, even in areas that today have annual rainfall above 1000 mm." "Late Quaternary aeolian dunes on the presently humid Blue Mountains, Eastern Australia" by P.P. Hesse (a), G.S. Humphreys (a), P.M. Selkirk (b), D.A. Adamson (b), D.B. Gore (a), D.C. Nobes (c), D.M. Price (d), J.L. Schwenninger (e), B. Smith (f), M. Tulau (a), I. F. Hemmings (b).

We progressed slowly down Monkey Creek, admiring the delights of the rain forest. Of particular interest was the variety of fungi that have such ideal conditions so that the usual seasonal constraints do not apply. It would be an ideal area to spend a day photographing fungi species. There were particularly fine examples of the almost black, cup fungus, *Plectania campylospora*.

Before we commenced the walk, Henryk reported that like Mark, his property also included a great cave, but not quite as large as the monster on Mark's place. When we visited, it proved to be a pleasant spot complete with basic seating, fireplace and a large area that is always dry, GR 458 906.

As we progressed down the creek area Henryk felt it was time to show us a bit more of his property, particularly the wild craggy section on the western side of Monkey Creek. An embryonic track led steeply up. It was just as well this area was dry, as footholds were at best tenuous. After climbing up about 40m, a rocky peninsula between two branches of Monkey Creek was followed to its extremity. There were great views to the south and an early morning tea here seemed like a good idea.

Beneath us to and to the west of our position were the crowns of great Coachwood Trees, *Ceratopetalum apetalum*, perhaps 20m down. After morning tea, Henryk said he would take us there and show us some of the largest specimens of Coachwood to be found anywhere.

With morning tea gear stashed away we set off down a promising slot. This exercise had to be abandoned down about 15m when it ended in a very long drop. Henryk said there was an easier way but thought we would enjoy trying something a little challenging. The challenge immediately ahead was how to extricate ourselves from a halfway point between the cliff top and the non negotiable drop.

The options were limited, and the down side of one route was that a misplaced step would mean almost certain disaster. Exercising considerable skill, Henryk and Yuri managed to reach the top and set a 30m single tape. In turn, we each then climbed up a 45 degree incline to the top, reaching a point about 5m away from where we had sat for morning tea. At least the blood was now circulating, GR 455 904.

About 20m further west again, a long, graded, litter filled gully enabled us to all make a safe descent of about 60m vertical into one of the most amazing forests I have ever been in. The Coachwood trees here have never been logged and fire has not been in this gully for tens of decades if ever. The biggest single Coachwood was more than a metre in diameter at breast height and close to 50m tall, a truly magnificent specimen. Photos of members of the party were taken against this tree to give an idea of scale.

We walked down through the Coachwood forest, where many individual trees were oversize but nothing quite like the principal tree. The forest understorey also featured magnificent tree ferns and a very pleasant burbling brook located hard against a massive and very attractive cliff line.

Following the creek downstream, we soon encountered red coloured ribbons that were track markers. We had been warned that we would find red markers on Mark O'Carrigan's place and orange ones on the old *Glastonbell* property. The area is dotted with caves and overhangs

and at many different levels. A short distance from the Coachwood forest we came across a double story cave that was marked with red markers. It was attractive to visit.

Our next destination was the 'licenced habitation cave' on Mark's property. To reach this we made a crossing of Monkey Creek followed by a short climb. The cave is unique in that it is perhaps the only local council licenced cave in NSW. Mark hires it out for functions and events. It is complete with toilets, BBQ, kitchen sink, elevated stage and comfortable seating. A very large trapeze swing is suspended from the roof. 18 minutes was spent here. Amongst the artefacts on show in the cave is a hafted stone axe that could be of Aboriginal origin but more likely a modern reproduction.

As we were finishing our cave visit, Henryk indicated he would leave us to explore by ourselves while he went back to work. We would call in on the way out.

We now set off downstream in Monkey Creek where the rainforest was magnificent. After a short distance, the high cliffs close right in onto the creek. The immediate area according to an old map, issued when *Glastonbell* was a quasi religious establishment designates this place as The Portals. After taking many photographs, we moved on. Grid references in this area were impossible to record as signals cannot penetrate the deep rocky sections.

About 200m beyond The Portals, Monkey Creek again widens out but retains its rainforest nature. Given the cold conditions and our desire to see more of the features on the ridge to the east, a conscious decision was made to seek a way of route up through the cliffs. Almost immediately, we found a string of orange markers that outlined a possible route.

The climb was remarkably easy, and after about 40m of gained elevation, we exited the rain forest and entered dry sclerophyll forest. An open rock platform at GR 455 898 was chosen for lunch. The view west was intriguing for we could see more impressive cliff lines and along the base line many caves. Stephen Imrie explained that this was the ridge south of his property and a visit was planned in the future.

30 minutes for lunch in the sun was very pleasant, however we had lots to do so at 1245 climbing resumed. There were many rocky outcrops and some very dramatic spots to take pictures. The ubiquitous orange tapes were everywhere. It was nearby here we came across one tape labelled 'Archers Walk'. There were no direction signs and the name does not appear on the mud map.

We pushed on towards the crest of the ridge that quite suddenly levelled out, and before us was a cave. On investigation, we found this cave to be a very personal shrine with a sealed funeral urn, GR 456 898, presumably containing someone's ashes¹³⁰.

We noted all this and kept on climbing, a high pagoda rock being reached at GR 457 898. Three minutes later, we crossed an old road, part of an amazing network of similar roads that cover most of the *Glastonbell* property. Given the time it was decided to push south along this road and see if we could find a good viewing point over Hartley Vale. It was easy walking and it felt good to actually cover some distance after the slow but very enjoyable progress in Monkey Creek.

¹³⁰ Later Henryk advised these were the ashes of an earlier owner, possibly one of the founders of the quasi religious cult on the property.

As we moved south, we first came to a pine plantation that was presumably a relic of the Federal Government Farm Woodlot Scheme inaugurated in the 1970s. It was quite a large planting. Towards the southern edge of it, the *Glastonbell* house came into view. We noted this and its many outbuildings and continued travelling south. Many strange man made features such as rock groupings, ponds, stone circles and similar items are dotted all over the place. They were probably part of the cult activities that reportedly took place here. These were all rather boring, so we noted them and moved on.

We kept following the road, which slowly was losing elevation as we went further south. We did find a registered utility truck loaded with firewood on the roadside. We called out but could not make anyone hear. We kept on walking for another 500m where we found a cairn. There was no prospect of any views, so at 1353, after a further 300m or so, GR 454 885 we turned around, noting however that we were still above the 1000m contour level.

Despite the early time, the air was already starting to become cold so our pace picked up to compensate. There was little of interest on the journey back to the house except that the vehicle had disappeared from the roadside. Later, when we passed the house, I noted that the vehicle was there and had been unloaded. Two small dogs heralded our arrival but no one came out. We kept walking briskly, arriving back at the vehicles at 1510.

As arranged, we called on Henryk and had a pleasant discussion. He has offered to take us down into Kangaroo Corner Creek, which he says has some magnificent cliff lines. That activity will be scheduled for a warmer day.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0823	Park vehicles	460 904
0830	<i>Lyres Loft</i>	459 908
0847	Monkey Creek	458 906
0853	Henryk's cave	458 906
0910	Monkey Creek	456 905
0910	Survey Peg	456 905
0928	Morning tea and view	456 904
1000	Slot down, rope climb up	455 904
1028	Big Coachwood tree	455 904
1053	Cross Monkey Creek	456 904
1102	<i>Hatters Cave</i>	457 903
1153	The Portals	No reading
1208	Leave Monkey Creek	454 898
1216	Lunch on rock 29 min	455 898
1254	Archers walk and funerary cave	456 898
1311	High rock	457 898
1314	Old road + head south	457 898
1325	Fork in road	458 896
1331	Pine plantation	457 894
1348	Cairn on road	455 887
1353	Turn back point on road	454 885
1417	<i>Glastonbell</i> house	458 896
1510	At vehicles	460 904

7.21 Kangaroo Corner Creek

Maps, etc.	Department of Lands topographic map Mount Wilson; 1:25,000; 8930 – 1N; third edition, GPS setting WGS 84.
Walk description and route	The walk will start at Henryk Topolincki's property on the Chifley Road at Dargan. After a briefing by Henryk, we will position vehicles prior to starting our walk / canyon exploration. The entire walk is on private property and all instructions given by Henryk will be observed. Henryk will be with us for the whole walk. Expect a demanding day in country visited by very few bushwalkers.
Gear issues	Wet suit, have clothes to change into in the car for afterwards. 2 litres of water. GPS, PLB, appropriate head and footwear, electrolytes, maps, compass and 30m tape, (leader only).
Comments	This walk can only be undertaken with permission of the landholders concerned. Failure to do so can result in prosecution for trespass. On behalf of The Bush Club, our guide Henryk had completed all the neighbour negotiations to allow this walk to happen.

Date walked 14th January 2013.

The Weather

A truly remarkable turnaround in conditions from the previous few days when 35 degrees was the norm. On the day, it was grey and overcast, threatening rain in the morning, with a temperature range of 12 to 18 degrees.

Background Notes

Kangaroo Corner Creek is the drainage that separates the Darling Causeway from the south west end of the Newnes Plateau massif. This is emphasised by the road network centred on the village of Bell, which also follows the crest of the three way watershed divide, north and north east to the Wollangambe River, south and south east to the Grose River and south and south west to the River Lett.

The ridge area is all at an elevation in excess of 1100m. It is also canyon country, with well known canyons such as Dargans Creek to the west, Koombanda, and Karamah to the east. The Wollangambe and Bell Creek canyons are legendary. Given the proximity of these canyons, it would be unreasonable not to expect canyon like developments in Kangaroo Corner Creek.

The entire catchment of Kangaroo Corner Creek is on privately held land, although the terrain is so rugged that little development has occurred and most of the bushland is of equal or better quality than adjoining proclaimed national parks. Access to this land is subject to negotiation with the owners and the walk as done today is rarely possible. As a group we were privileged in not only having permission but also in having one of the area landowners, Henryk Topolincki, accompany us.

Track Notes

As arranged, we arrived at Henryk's property at 0800, and were welcomed in for our briefing session. This was followed by a review of gear to take, no wet suits but several ropes¹³¹, and then the placement of two vehicles at the end of the walk on the Hartley Vale Road, at GR 449 871.

Walking commenced at 0850, from Henryk's house, GR 461 905. It was so cool that we all wore fleeces. After about 100m, we met with the caretaker of *Glastonbell* who directed us to a track head marked now only by a long defunct gate, GR 462 902. After walking over the gate lying on the ground, we entered the upper reaches of Kangaroo Corner Creek. The track disappeared completely. A conscious decision was made to follow the left hand side of the creek, as Mark O'Corrigan, one of Henryk's neighbours, who has walked the creek, reported that it is an easier route.

Three hanging swamps on successive tributaries were crossed as we headed south. Two of the swamps showed severe signs of stress caused by underground coal extraction, which in turn had fractured the ground, causing surface water capture. It is not a pretty sight. These swamps were located at GR 463 898, 464 897 and 464 896.

We continued downstream noting several orange red tapes hanging from trees. These tapes or markers were installed by the previous owners of *Glastonbell*, who instigated quasi cult type ritual activities and allocated some extraordinary names to various sites. Consulting a copy of an old sketch map, it appeared we were about to enter the 'Mens Area' and we should see two isolated pagodas, 'Lover' and 'Warrior'. There is also a short section of Kangaroo Corner Creek designated as 'Bindu.' Unfortunately, the sketch map has no scale shown, only the 1000m contour line, so by interpolation, it is possible to guess, post event, when we had arrived at different locations.

Checking all data sources, it would seem that 'Bindu' is at GR 463 894. This site is a large overhang equipped with three separate fireplaces, a spouted billy and four mugs, two ceramic and two metal. In the spouted billy were empty containers that could have contained sugar and or spices. There was also some poor quality graffiti in the form of unidentifiable initials.

¹³¹ None were necessary.

We pushed on downstream sometimes in the creek and sometimes walking a rough ledge about 5-10 metres above it on the eastern side. There is a section of the creek about 50m long, which is full of water and of unknown depth. We bypassed this by walking the ledge. Brian did go down to take some pictures, then returned to the group. At 1020, we elected to climb up to a level rock, GR 462 890, and have morning tea before tackling the next section.

On resumption at 1037, a conscious decision was made to enter the creek and start exploring. Within a very short distance, Kangaroo Corner Creek develops canyon like features and is deeply incised into the strata. At GR 461 887, we had to make decisions about getting very wet or pulling out. We decided without much dissent that we were going on. The rewards were worth getting wet. The canyon features are all very sculptural and the pools of very variable depth. It all depended on where you put your feet.

The canyon adventure was made even more special by the sinuous and convoluted nature of it. The 1:25000 scale topographic map scale is too small to show how the creek wanders in this canyon section, in fact it is not shown at all. The most dramatic part is where, after being submerged to the shoulders, there is a short drop to another pool, and then above, there is suddenly a huge spherical cavern, with walls up to 25m. Shafts of light make this a truly amazing experience. Then equally amazing, the creek makes a 180 degree bend, and in this bend is the section called by the *Glastonbell* people, the 'Birth Canal'¹³².

We spent quite a bit of time in this area, as it is a highlight of the walk. Brian demonstrated his aptitude for strength by sliding down a jammed tree trunk using clasped hands and legs to save a dunking in an otherwise compulsory swim hole. Good stuff Brian. The pictures are gems.

The creek then continues in canyon like format, taking another big sweeping bend, nowhere near as dramatic as the wet stuff, but still very nice. Half an hour passed as we moved slowly from GR 460 885 to GR 460 883. The canyon then finished and we did some pleasant creek walking until 1214, GR 459 882. Then it was a completely new game called rock scrambling with rock hopping. There were water slides to enjoy for the careless, moss slides both controlled and uncontrolled, and many forms of ankle twisting to try. To add to the excitement, low logs, high logs and intermediate logs offered choices of up and over or down and under. No theme park could ever offer games like this.

At 1245, we decided to have lunch in the creek, GR 456 879, a pleasant spot where twenty minutes of refuelling and resting took place. Some of this time was also spent looking at the map. It was noted that after a short distance Kangaroo Corner Creek emerged from the wild terrain and that it swung west to join the River Lett.

100m downstream, at 1305, GR 456 878, we exited Kangaroo Corner Creek onto the east bank and commenced walking south, through dry open forest. At GR 455 875, we reviewed progress and headed west, contouring around the base of a large unnamed bluff. We were in for a surprise at GR 454 875 when we encountered an old, much overgrown road.

The purpose of the road is uncertain, however given the number of coal and kerosene shale oil mines that were opened in the area in the 1880s the road could have been for this purpose.

¹³² Even by the sketch map produced by the *Glastonbell* owners the locality is outside the boundary of their land.

If that was true, then at a later stage, following the advent of bulldozers the road may have been upgraded, as the cut bank is definitely cut by a machine blade, not by hand. Apart from a few fallen trees, the road provided an easy walk all the way to the vehicles, GR 449 871. It was now 1340.

At the vehicles, another old road headed south west up a ravine. Stephen Imrie advised later that this road served what was called the Main Camp Coal Mine in the 1880s. If we had gone to the end of this road, we would have found a few derelict buildings including a washroom, brick powder magazine, several skips as well as the portals for four adits.

Our adventure was not over yet, Henryk wanted to show us another aspect of Kangaroo Corner Creek, so we drove up the Hartley Vale Road, via Hartley Pass to the Darling Causeway. Here we turned north for a while then took an old service road at GR 463 867. The road is in good condition as it is used by power supply companies to service the lines and by the rock climbing fraternity who use the end of the road as access to some impressive 45m cliffs above Kangaroo Corner Creek.

On the drive in, we noted some old brick structures and a concrete slab that later, on the advice of Stephen Imrie, proved to be connected with the operation of the former Main Camp Coal Mine. Photos were taken on the way out.

The vehicles were parked at 1355, GR 459 877, and we then walked to the cliff edge, GR 459 879. The view up the ravine and valley of Kangaroo Corner Creek and down the valley to Hartley Vale is comprehensive. We could from this point, view most of the walk we had undertaken today. It is a photogenic spot with great architectural Xanthorrhoeas and chunky Banksia's growing on the cliff edge. Also to the north west is the cliff line of a side ravine that looks awesome. We spent time at the cliff edge enjoying the view and reliving a great day out.

Then it was back to Henryk's home where we had an inspection of his creative workshop facilities, where he converts his inspiration for metal sculptures into reality. This was followed by an enjoyable cup of tea. Thanks again Henryk for a great day out.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0800	Henryk Topolinck home	461 905
0853	Gate and track head	462 902
0910	Hanging swamp 1	463 898
0913	Hanging swamp 2	464 897
0921	Hanging swamp 3	464 896
0927	Down into Kangaroo Corner Creek	464 895
0932	Overhang and tape	464 895
0943	Bindu	463 894
1020	Morning tea 17 minutes	462 890
1105	In Kangaroo Corner Creek	461 887
1137	In canyon, possibly the <i>Birth Canal</i>	460 885
1157	End of canyon section	460 883
1214	In Kangaroo Corner Creek	459 882
1235	In Kangaroo Corner Creek	457 880

1245	Lunch in creek 20 minutes	456 879
1305	Exit Kangaroo Corner Creek	456 878
1324	Intersect old road	454 875
1340	At vehicles on Hartley Vale Road	449 871
1345	Leave Darling Causeway	463 867
1355	Park vehicles	459 877
1402	At cliff edge	459 879
1423	Back at vehicles	459 877
1440	Henryk Topolinck home	461 905

7.22 Reedy Creek

Maps, etc.	Department of Lands Lithgow topographic map, 1:25000, 8931– 3S, second edition. Department of Lands Hartley topographic map, 1:25000, 8930–4N, second edition. GPS setting WGS 84.
Walk description and route	This walk starts in Donald Street Clarence and quickly moves to Reedy Creek and the old Edgecombe Colliery site with its associated rail infrastructure. After exploring and photographing this unique area we head for an unnamed creek west of Dargans Creek and launch ourselves into Cosmic Country. A spectacular climb out takes us back to Clarence and the vehicles. Length is flexible, possibly 8km, 300m+&-.
Gear issues	1 litre of water, electrolytes, maps, compass, appropriate head and foot wear, PLB, GPS and headlight torch (just in case) Leg protection optional. Gloves could be handy. Be prepared to get wet.
Comments	Note. Permission is required to enter this area. This should be obtained before starting the walk. Rock scrambling, possible rope work, possible exposure.

Date walked 9th January 2012

The Weather

The weather was warm and humid after a wild electrical storm the previous evening. The day was fine with high cirrostratus cloud. Localised wind made conditions bearable, temperature range 22 to 25 degrees.

Background Notes

Whether it lacks the romance of being remote or whether the magnetic pull of the northern parts is stronger, the southern side of the road from Bell to Lithgow has always been bypassed by bushwalkers hankering for the adrenalin pumping experiences that characterise the Newnes Plateau. The closest most adventurous walker / canyoners get to this area is Dargans Creek Canyon.

The Colong Foundation for Wilderness in their over arching plan identifying areas of significance for addition to national parks appreciate the importance of this area; it appears on their action plan map with a designation of being an important part of the Western Escarpment for preservation.

As a result of one of my many discussions with historian Stephen Imrie I began to understand that this area was significant not only for the grandeur of the escarpment, but also for the amount of embedded Aboriginal and European history. After further discussion, Stephen agreed to lead/guide a series of walks in the area from the western Darling Causeway near Bell to Lithgow. This walk is the first of those walks.

Track Notes

Interest in this walk exceeded my expectations with a party of 15 setting out from the locked gate on Donald Road, Clarence, GR 431 914 at 0825. An 80m descent through a forest logged for pit props and millable logs led us down to a railway service road where the Main Western Line enters Tunnel Number 10.

The service road was walked in a WSW direction for about 400m where it was intersected by several service tracks used for power lines, logging and fire protection. Steve, who knows the area well, led us onto one trending generally south. After about 500m of traversing pleasant open forest, we entered an area that was previously frequented by rock climbers as a base camp, GR 427 904. Picking up the rock climbers walking track, we continued down it as the ground dropped steeply away.

Within minutes we had entered the rock climbers world (Cosmic Country), a succession of sheer rock faces. Every few metres painted cryptic alphanumeric inscriptions identified climbing points and there degree of difficulty. Looking up, the cliff faces were embellished with stainless steel bolts and eyelets. Not a pretty sight. By contrast we stopped to photograph a specimen of the Hyacinth Orchid, (*Dipodium punctatum*). This unusual plant is saprophytic being dependent on decaying vegetable matter for nutrition as it lacks chlorophyll and is unable to synthesise it.

After following the cliffs for about 500m and stopping to photograph the imposing headlands on both sides of the narrow valley, we came to a track junction before a small feeder creek cut through the cliffs. Here at GR 423 898, we turned to the west and headed down a steep scree slope to the broad valley floor of Reedy Creek.

Two more water crossings including that of Reedy Creek itself led us to our first historic archaeological site, the Edgecombe No.1 Colliery¹³³, GR 417 893. We headed for the old powder magazine that is still standing and in very good condition. The timber lined walls are intact, as is the steel door fitted with a Yale lock.

¹³³ Edgecombe No. 1 Colliery (1944 – 1947).

1/8/1944 - Colliery opened.

19/2/1945 - Operations by the McCarthy Brothers are discontinued and the colliery abandoned.

27/4/1947 – Colliery leased from Henry McMullen.

15/10/1947 – Lease held by Mr M Poole and Henry Tearle, with Henry Tearle manager. No work done.

19/11/1947 – Joint Coal Board refuses an application by Henry Tearle to reopen the Edgecombe No. 1 Colliery

The next 45 minutes were spent exploring this area and consuming morning tea. We made a systematic tour of inspection as Steve read to us from his notes and displayed copies of the underground tunnel network. Various adit openings were visited and photos were taken of old buildings, concrete machinery footings, electrical items and the still intact detonator safe. A special photo was secured of the mechanical device used for emptying full skips of coal. Steve says it is only one of a handful still in existence.

After morning tea we climbed up about 10m to a broad bench created from spoil from the adits. This multipurpose bench once provided access to the various adits, mine buildings and also space for a service road to Edgecombe Collieries, numbers 1 & 2.

We moved slowly along this bench examining old equipment, skips in various states of disrepair and several minor structures. About half way between the two mining areas we came across a scene of utter devastation. Steve was distraught. The several dozen skips and associated handling equipment that we were hoping to see had been piled together and burnt destroying so much valuable heritage and history. What we saw were piles of skip wheels and tangled steel. Whoever vandalised this site should be brought to justice.

Where previously it was possible to reconstruct how the mine operated, this was now lost forever. Steve does have some photos but it is a sad indictment that we, and future visitors will never be able to view this site as it once was.

The main building, a workshop for the Edgecombe No 2. Colliery¹³⁴ was very interesting, containing two, abandoned power driven units mounted on skips and once used for coal extraction. These units are the precursors to modern day automated coal mining. Outside, and to the north of the main building a low concrete wall and parallel steel rails marked where a gantry would have been employed to move heavy gear. This area is now scattered with various metal items and old specialised batteries.

A visit was made to the main adit used for coal extraction. Rodney was able to crawl in a distance, and using his headlight torch in conjunction with the camera flash, take a couple of photos. He reported feeling a current of cool air as well as ankle deep water. A brick wall was also noted but not photographed. At 1123 we finally left the historic mine sites and made a quick visit to the location of a former house and stockyards. There was little of interest except a decaying caravan.

We now crossed over Reedy Creek and made our way down the valley for about 400m. The going was slow and the vegetation around Reedy Creek thick and unpleasant. At 1145, GR 421 887 it was decided to change the walk plan and head due east up the talus slope and onto the narrow finger ridge that stretches south for about 2km from spot height 1076.

The climb was a good work out and we covered 100m of steep ascent in 150m of map distance. The reward at the top was worth the sweat of getting there. At 1208 we assembled

¹³⁴ Edgecombe No. 2 Colliery (1945 – 1952).

7/3/1945 – Mining discontinued due to poor quality coal but not abandoned. E. J. McCarthy, manager

8/5/1948 – Last coal produced

14/3/1951- Notification of ceasing coal production due to a landslide, which covered the adit entrance. Waiting on a bulldozer to open up two new entrances into the mine.

1/8/1951 – Austin and Butta take over the operation.

9/10/1952 – Application by Messrs Austin & Butta to operate the mine deferred for 12 months from 26/6/1952

on a high pagoda rock at GR 425 886. The view was commanding, encompassing the full width of the Hartley Valley and, as far south as the Great Western Highway. On the far distant horizon the range that forms Kanangra Walls could be seen in profile. Our high point had another great benefit, a single tree that cast enough shade for those who wanted it. It was deemed a perfect spot for lunch.

At 1235 it was time to move along and explore the extended rocky ridge that formed the cliff edge for the best part of a kilometre. We stopped at several key points, GR 424 891, GR 425 896 to take photos and note that we could see Colletts Inn and other significant Hartley Valley features. Near GR 424 891 we also were able to look down on the eastern side of the narrow ridge into a tributary of Dargans Creek. This was the connecting ravine originally planned to be a part of our exit route. While it would have been interesting the 3km walk around the nose of the ridge would have been quite boring.

At GR 429 898 we came across a 'cairn and lockspit' that could well have been a surveyors mark for a mineral lease. After some photos we moved on. Our way of route, now a track leading to an old access road, kept climbing and climbing as it followed the main ridge towards spot height 1116 shown on the first edition, 1:25000 topo map. The further north we went the more defined the track became until GR 429 908 when it joined two other tracks and merited a tumbledown gate made from two mattress frames and signage about trespass. More pictures before we moved on.

The last leg of the journey, an 80m climb was through the forest back to the vehicles. Some of the group delayed doing this final ascent as they went to inspect the Number 10 Railway Tunnel entrance. By 1445 we had all returned to the vehicles. Total distance walked 10.9km, total climbs 599m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0825	Park vehicles, locked gate on Donald Road	431 914
0832	Railway access road	432 910
0837	Road junction and Roger leaves the party	429 909
0847	Rock climbers camp area	427 904
0903	Head west from the rock climbers wall	423 898
0920	<i>Dipodium punctatum</i> sighting	420 894
0959	Edgecombe No 1. Powder Magazine + morning tea (46 mins)	417 893
1110	Edgecombe No 2. site (13 mins)	417 890
1145	Cross Reedy Creek and start climb	421 887
1156	Pause during the climb	423 887
1208	High pagoda and lunch (27 mins)	425 886
1314	On cliff edge	424 891
1332	On ridge	425 896
1344	Lock spit and cairn	429 899
1351	Track junction	430 903
1400	Major track junction and signage	429 908
1403	Road junction	429 909
1412	Railway access road	432 910
1445	Vehicles, locked gate on Donald Road	431 914

7.23 Clarence Arch

Maps, etc.	Department of Lands, Lithgow topographic map, 1:25000, 8931– 3S, second edition. GPS setting WGS 84.
Walk description and route	This is a special walk with a whole raft of unexpected additions. Something that Stephen has only just shared with me is that Marie Byles brother, Cyril Beauzeville Byles, at one stage purchased Clarence House. Marie used to go and visit him, and of course went exploring. Stephen now has a copy of an intriguing letter that suggests she found a cave in the area that bears her name. Depending on circumstances we will be going sleuthing for this cave; we will also search for a lost construction village; search for the Blacksmiths Cave, and for the remains of an old incline railway. It is a day to be prepared for almost anything. Expect up to 14km, 300m+&- . Note this walk requires parking on and proceeding through private property. It should not be undertaken without prior arrangements being in place.
Gear issues	2 litres of water, electrolytes, maps, compass, volleys, PLB, GPS and headlight torch (just in case) Leg protection optional. Gloves could be handy. Be prepared to get wet.
Comments	Rock scrambling, possible rope work, possible exposure. If time permits, we will add other challenges to the list.

Date walked 6th February 2012.

The Weather

A fine, warm day with increasing cloud, about midday several rolls of thunder were heard in the vicinity, the humidity was oppressive when the light breeze dropped, temperature ranged from 18 to 22.

Background Notes

After greetings on arrival at Clarence, Steve Imrie our historian / archaeological wizard, called me aside for urgent consultations. Overnight, he had been thinking about the fine detail of the walk and the collection of many sites to visit. He had come up with substantial revisions to the original plan that involved some trade offs. I was not concerned. It would be a full day of exploring and discovery.

We then formed an introductory circle and after the niceties were completed, Steve explained the new plans to all. The highlight of the day would be our first destination, the Clarence Arch. The rest of the selection offered included an old incline haulway, an Aboriginal art site and stunning views - no one disagreed with the changes. Minutes later the vehicles were parked on private property on the corner of Donald Street and Ray Crescent. Stephen is a friend of the owner.

At 0818, GR 415 918 we set off down a well made and maintained dirt road. This road is one of dozens that have been pushed through to provide maintenance access for the State Rail 11kV power line. A brief stop was made at GR 416 916, the site of an old quarry. As an aside, Steve explained that he had considered buying this site and the adjoining 35 acres to build his house. The views are very pleasant. All went well with the application until the fire brigade overruled council approvals on the grounds that, in the event of fire the risks were too great.

We moved on for several hundred metres when Steve said that we needed to be lower. After clambering down a distance, a mighty cliff was encountered, so a retrace back to the access road was undertaken. We then walked north to a track junction, GR 416 915, and headed down another similar road in a SW direction to its terminus at a power pole, GR 413 914. This decision also proved incorrect, as Steve saw the Clarence Arch to the south and about 100m away on the far side of a steep ravine.

Before heading off for the arch, we took stock of our position and noted that there were great views of the upper reaches of Reedy Creek that would only get better as we moved around the headwaters. Also Emanuel and I both thought we had seen another arch off to the west about 100m back up the road, so before heading off to find Clarence Arch this was investigated. It proved not to be an arch but a leap over that looked like an arch from a distance.

Getting to the arch from our position at GR 413 914 involved a descent into a ravine and then a corresponding climb up the other side. The understorey was dense and the rock faces wet and slippery, it is the old story, you have to work to earn a good experience. Arrived at the Clarence Arch at 0906, GR 413 913. We would spend 45 minutes here, as there was so much to see, photograph and appreciate. It was also an excellent spot for morning tea.

To set the scene, Steve pulled out of his pack a copy of an old photograph, circa 1905, of a group of hatted and suited railway workers sitting and standing on the Clarence Arch. It was a great photo and one we intended to replicate. What was even more interesting was that the photo showed below the arch several tents that were presumably worker accommodation during the construction of the line and the building of the tunnels. In the hundred plus years that have passed, there have been a few changes, a huge tree to the west has died and collapsed without trace. Where the tents were pitched is now a forest of Black Wattle (*Callicoma serrata*), and on the east side of the arch, multi stemmed Brigalow type trees have

grown up and obscured a large part of the dramatic view of the arch when viewed from up the hill.

Given all those changes we still managed a whole series of excellent photos showing the full extent of this amazing natural arch. For the statistically inclined, the arch is about 15m high, 14m long and about 1.5m wide. It is easy to walk on and off at the northern end, but the southern end involves a pagoda climb. The south end also is undercut with a very pleasant ochre coloured, curved semi cave. Taking photos with this feature included are very nice indeed.

At 0945, we climbed down into the creek system below, noted the total obliteration of the former campsite, and then pressed on wanting to reach the railway line near the entrance to Tunnel No. 7. At GR 413 912, we came across a small section of excavated ground and a rock wall that appeared to be part of an abandoned road. Steve plans to come back and trace the route of it as far as possible. We pushed on down the creek system to GR 412 912, encountering several hand cut steps in the sandstone on our way to view the western entrance of Tunnel No. 7. It was unclear as to why such effort would be made in such a remote place. It could well be related to an access route for tunnel construction works.

After viewing the drop between our position and the railway line, it was quickly determined that we were not going to make it down to the railway line at that point, so we threaded our way back up the creek system to the track terminus at GR 413 913. After a quick drink stop we then headed west seeking a way across the north south valley and ridge system, and hence down to the railway line that we needed to cross. At 1057, we came across a dry stone wall designed to provide a level area within an overhang, GR 411 914. Again questions as to why someone would expend so much effort in such a remote place. Hard to tell but it appeared to be a similar age to other stonework. Perhaps it was built by a railway worker who wanted to be alone.

After gaining a ridge, we headed south and encountered a multi strand steel and wire fence, designed to prevent animals from venturing onto the railway tracks, GR 410 914. This location was directly above the western entrance of tunnel No. 8. By walking out onto a nearby rock platform, views were obtained of the tunnel entrances, No. 8 (western), & No. 9 (eastern). A graded path led down to a levelled area and several railway maintenance buildings. There was no one around. We inspected the west end of tunnel No. 9 while Steve explained some aspects of the railway signalling system. Having this knowledge is important for crossing the lines safely.

At 1148, we started a short walk up the bed of the former incline railway. This incline stretches for just over 100m in an east west alignment from GR 407 916 to GR 406 916 at a very steep gradient. The incline railway was built to bring in all the several million bricks and other building materials required to lining the tunnels. Steve produced a copy of a picture of the incline railway when it was operational. This helped us to understand the rock retaining walls and the occasional rail line that we walked over as we climbed all the way to the top. As well as the image of the actual incline railway, Steve had a picture of a device called a Dreadnought.

actively using it. At 1310, we resumed our adventure, walking back up the road to the Mount Clarence turnoff and then turning slightly east of north down the modern service road to tunnels No. 8 and No. 9. As we walked down there was a lively discussion about Wilf Hilder's grandfather, who did an oil painting of three of the tunnels, possibly No.7-9, when they were either under construction or soon after they were completed. The painting shows a completely denuded landscape. I know Wilf tried on several occasions, without success, to try to locate the spot where his grandfather could have sat to execute the painting.

As we moved along the railway line, Steve invited us to look up to the north at an unusual sight. Perhaps 80m above us was an overhang under a pagoda that had been 'made safe' by the installation of eight brick pillars. Irresistibly, it reminded me of the Porch of the Caryatids¹³⁵ annex of the Parthenon on the Acropolis in Greece! Steve advised that we would have a closer look shortly.

Our next exercise required crossing the railway line. Heeding the advice from Steve, we checked the lights and having determined it was safe to cross did so smartly. We then had to walk up a parapet sandwiched between a railway line cutting and a steep flowing drain. It is a right of way used regularly by railway maintenance staff, but it is a bit hairy, particularly the section with no railing. This right of way becomes a crude track that joins yet another access road for the railway power line, GR 406 918. During this climb, the sun poked through the cloud and the humidity soared. We sweated buckets.

The access road we had joined at this stage runs parallel to the Bells Line of Road but below it so it is not seen from the highway. To reach the Porch of the Caryatids, as interpreted by State Rail engineers, we needed to cross yet another tributary of Reedy Creek. At GR 407 922, an inviting ridge to the east was followed. We were all rather surprised to come across a very rundown and seemingly abandoned tiny dwelling and skirting rubbish that reeked of poverty and decay. We hurried on although there was little reason to do so.

Almost inevitably, we came across another power line service road at GR 410 921. This road quickly took us south towards our objective, the Porch of the Caryatids. Predictably the road finished at a power pole. We then did a bush bash for about 50m to reach the Porch of the Caryatids, GR 408 916.

Forget the classical references; this is an amazing and surprising piece of engineering that has to have been a retrofit demanded by modern OH&S requirements, to prevent the collapse of the pagoda down onto the railway line. If the overhang had been considered an issue in 1905, or earlier a stick of gelignite would have solved the problem. As it is, at great expense eight substantial brick columns have been built to stabilise a natural structure that really needs no stabilising. The bringing in of men and materials to build these columns must have been a major exercise. We took many photos, including a series looking down onto the railway line.

Energetic Brian then suggested we should go and explore the series of pagodas that cover the crest of the ridge to the south. This was one of the highlights of the walk. From a height of 1072m, there are views down the valley of the western arm of Reedy Creek all the way to

¹³⁵ Caryatids are female figures serving as supports. The most likely derivation of their name is from the young women of Sparta who danced every year in honour of Artemis Karyatis ('Artemis of the Walnut Tree')

Mount York. To make for a delightful situation, the sun kept disappearing and then reappearing out of the clouds, illuminating successive ridges, and at times the whole catchment of the River Lett.

After a generous twenty minutes of exploring, and photographing we headed back towards the vehicles using the service road network. While on the high ridge there were several attempts to rain but it came to nothing. The walk finished at 1445. Total distance walked 11.7km, total ascents 517m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0818	Park vehicles	415 918
0825	Quarry	416 916
0830	Fork in road	416 915
0850	Road terminus and power pole	413 914
0906	Clarence Arch + morning tea 34 min	413 913
0958	Old road in gully	413 912
1005	Rock steps	412 912
1020	Road terminus and power pole	413 914
1057	Dry stone wall in overhang	411 914
1124	Fence above tunnel Nos. 8	410 914
1134	West end of tunnel No. 9	408 915
1148	Bottom of incline railway alignment	407 916
1202	Top of incline railway alignment	406 916
1230	Twin Aboriginal art caves and lunch	405 907
1312	Road junction	405 909
1322	Power pole	406 919
1339	Old dwelling	407 922
1358	Road	410 921
1413	Porch of the Caryatids	408 916
1430	Road junction	409 918
1445	Vehicles	415 918

7.24 Blacksmiths Cave

Maps, etc.	Department of Lands topographic map, Lithgow, 8931 –3S, 1: 25000, second edition. Department of Lands topographic map, Hartley, 8930 – 4N, 1: 25000, third edition GPS setting WGS 84.
Walk description and route	This is another fascinating walk in the area immediately south of the village of Clarence. Stephen Imrie, bushwalker, historian and industrial archaeologist will lead us on a convoluted walk visiting 10 sites of interest.
Gear issues	1 litres of water, GPS, PLB will be carried, electrolytes, maps, compass. Change of gear for afterwards.
Comments	This walk is an additional walk in an area that is full of history as well as bushwalking destinations. If you are a photo nut bring the camera.

Date walked 16th April 2012

The Weather

A brilliant autumn day with some light cloud, light variable winds in the afternoon, temperature range from 13 to 21 degrees.

Background Notes

When I first discussed with Stephen Imrie, historian, and bushwalker, the planned walk series on the Newnes Plateau generally to the south of the Chiefly Road, also known as the Bells Line of Road, I had no idea what a rich historical and archaeological heritage was hidden in this small area.

On the day, the walk Stephen guided us through was truly remarkable, revealing aspects of our recent past seen by few. It was also a robust walk with climbs exceeding 654m, and a

distance of more than 12.9km. Add in our supplementary excursions to the old infrastructure for the WWII, Glen Davis to Newnes Junction petrol pipeline, and the 1910 Newnes Junction Signal Box and we had a remarkable day out.

Track Notes

The group met at Clarence at 0800, and by 0820, we had parked the vehicles at the start of walk, the locked gate on Donald Road, GR 431 914. Formalities completed, the walk started at 0825, heading down an old track that links up with a local service road for the Main Western Railway at GR 435 912. This road was followed for a short distance, but up and down several steep hills.

An interesting group of pagodas with cave potential was seen at GR 425 906. Exploration of this area was immediately undertaken. The result, discovery of a large cavern pierced at the rear by a window so that the whole appeared as a lopsided arch. Dimensionally this arch is 20m long, 14m wide, 2m high at the rear window and over 6m high at the front opening. It is unusual to say the least. It contained no Aboriginal art.

Leaving the arch, we pushed westward to a major track junction, GR 423 905 and then down an old, overgrown track network to a complex of campsites, caves and overhangs, once a vibrant railway construction campsite, but today smothered with a dense thicket of Black Wattle (*Callicoma serratifolia*), and decaying cut tree stumps interspersed with dry stonewalled platforms.

It is not an Angkor Wat, but in comparative terms, it is an equally impressive site. Whilst there are no ornate carvings of deities, there is the most amazing collection of painted rock art advertising. It is known from the construction dates of the railway that this advertising was created between 1900 and 1910.

An enterprising salesman used the dry rock walls of the caves and overhangs to advertise his company's clothing products to the railway workers. Proximity to the men as they came and went to work meant the message was there constantly reminding them where to buy suits, flannels and boots.

The company name was Ashleys. Some of the advertising reads as follows. 'They fit well, look well, wear well, Ashleys tailor made suits'. A separate piece of signage reads 'Ashleys for good flannels,' yet another proclaims, 'Ashleys for good boots – Lithgow and Clarence.' Each of these advertisements was executed in simple, sans serif text in black lettering, about 150mm high, on a cream background.

It is impossible to assess how many men were camped in the area, or whether this area may have had a communal function. Kay Skirt, The Local Studies Librarian at Lithgow City Council, as confirmed from the data base that Ashleys was a tailoring business in Lithgow, and first advertised in the Lithgow Mercury 16th January 1914. The business was later sold, and traded as J. Glass. A copy of the original Ashleys newspaper advertisement is in the mail.

After such an extraordinary revelation, and insight into century old marketing techniques, we sought a high pagoda nearby for morning tea. The views to the south are extensive and include Mount York, Sugarloaf Mountain, and on the near horizon, the sandstone escarpment of Gibraltar Rocks Range. A tumble of crests on the far horizon, almost lost in the haze, was probably Rip, Rack, Roar and Rumble, part of Mount Cloudmaker.

From our morning tea site, we headed north up a scrubby ridge to intersect with an old access road at GR 419 906. This was followed to the SW for some distance before we again headed north. A most unlikely hole in the trackside scrub was then followed down in a watercourse for about 40m before sidling around a curving cliff line. This terminated in an unusual open cave, which has been modified for use as a blacksmiths forge. The cave is located at GR 416 908.

The cave contains an unusual feature, a small, naturally formed oval perforation in the rear wall about 50cm by 30cm. Next to this natural opening is a drill hole of unknown use. Across the drip line, a dry stone retaining wall has been built. The cave walls feature several drilled holes that once contained dowels for hanging tools. Stephen advised that until recently, old blacksmithing tools lay on the cave floor. These have since disappeared.

The Blacksmiths Cave is quite close to the railway line. Downhill from the cave is a creek that was dammed to provide a water supply for the forge, GR 416 907. The dam is constructed under an overhang and is not readily visible. The planned storage is now largely filled with sand, however the retaining wall is intact. Searching for artefacts, we located a coarse, circular galvanised iron strainer that was probably associated with filtering the water. There was no evidence as to how the water was taken up to the forge.

An old access track leads from the dam down to the present Main Western Railway line. We followed this down to the railway tracks to one of the most unusual sights on a railway line anywhere. A high level arch bridge has been constructed over a deep ravine to carry the twin tracks. Taking all precautions, we stood between the tracks and look alternatively up and down the line. Our location was between tunnels 4 and 5. Looking down the line towards Sydney, both ends of tunnels 3 and 4 could be seen. Looking up the line towards Lithgow, the ends of tunnels 5 and 6 could both be seen – four separate tunnels at the turn of your head.

After taking a picture or two, we smartly left the area. Exploring a dry rock ledge above the line, we found a pile of dry wood, and a 2011 train timetable. We guessed this is a favourite hideout for fettlers when it is raining.

Leaving all this behind, it was time again to climb uphill and find another road junction at GR 418 911. We were on our way to revisit the Clarence Arch¹³⁶, GR 414 913. A picture, circa January 1908, of this extraordinary natural wonder complete with 21 railway workers, suited and hatted, featured as the front page of the Lithgow Mercury when celebrating the 120th anniversary of the founding of the newspaper, Tuesday, July 28th 1998.

This arch was frequented by the workers on the railway between 1900 and 1910. I could not help but wonder how many of them were wearing suits, flannels and boots courtesy of Ashleys of Lithgow and Clarence. Half an hour was spent at this site. The group returned to GR 414 910 where there was a good view down Reedy Creek into Hartley Vale. It was now 1218 and time for lunch. During lunch, a light wind sprang up reminding us that winter is on its way. At 1100m +, even a light wind has an edge.

We now had quite a bit of walking to do to reach our next destination, a former rock climbers camp, now closed off to vehicle access. It was while we were walking this section, that we

¹³⁶ Also known as Natural Bridge on the Zig Zag Deviation.

had an amazing encounter with a snake. Two members of the party had already stepped over the creature, and I was about to step on it when I was luckily and forcibly restrained by Stephen. The snake was quite unperturbed. We stood around it on three sides, but it made no attempt to escape. It allowed photos to be taken, including some very good close ups.

What type of snake was it? There is a school of thought, which believes it was a Tiger Snake, *Notechis scutatus*, while another school opts for it being a Highlands Copperhead, *Austrelaps ramasyi*. I belong to the latter school based on the physical shape and under body colouring. Once we have some detailed images I will send them to a herpetologist for a verdict.

At 1317, GR 428 908, the group headed down a track to the rock climbers former campsite. From here, we walked south along a ridge noting the cliffs and sheer rock walls that originally attracted the climbing fraternity. A number of us also noted that down on the valley floor was the site of the former Edgecombe No 2. Colliery. Several high points were visited to take photos, the southernmost at GR 427 901.

There was one final site to visit. This is a mystery in the form of a burnt out, and partially collapsed, two room, double brick dwelling set deep in the forest at GR 433 909. The age is hard to assess although there are few clues including the presence of very large gum trees growing very close to the walls and the use of second hand bricks, some of which have never been cleaned of surface render before reuse. Early 1950s seems plausible.

In terms of position, the front of the building faces north, although there is no view. There is a feeble attempt at a garden edge, also in brick, that may indicate a woman's touch. Brian Fox found an old glass jar with a set of embossed numbers and symbols. Assuming this is from the period, then a closer date for construction may be possible. We returned to the vehicles at 1440.

As we were walking back to the vehicles it was decided to make a visit to some of the old infrastructure sites related to the Newnes Junction terminal for the original Commonwealth Oil Corporation Wolgan Valley Railway, and the later Glen Davis – Newnes Junction petrol pipeline. The first edition Lithgow map shows three adjoining sites labelled Abandoned Petrol Storage Tanks.

Subsequent research by Stephen into the history of these tanks, undertaken at Lithgow Library, using Leonie Knapmans documents, has revealed the following facts¹³⁷.

¹³⁷ Extracts of two documents are worthy of note

NOP departmental memorandum, 17/10/1944. There are two – 500,000 gallon petrol storage tanks at Newnes Junction, together with a 12,000 gallon run down tank. These storage tanks are connected, through the run down tank to a drum filling point, a road wagon filling point and two rail car filling points. The rate of pumping from Glen Davis is approx 80,000 gallons per day of 24 hours. The rate of dispatch is 200,000 gallons per working week. Using the storage tanks alternately, i.e. one being filled from Glen Davis and one filling rail cars etc., continuous dispatches can be carried out. By this means we would always have a minimum of 500,000 gallons petrol in storage at Newnes Jct. Messrs. COR have installed three – 1,000,000 gallon storage tanks also a 12,000 gallon run down tank. Their filling facilities are 6 rail car tank car headers to be used in conjunction with our siding. Also a half completed road filling point on the new Lithgow Road for road wagons. COR made arrangements in their layout for both depots to be connected, so they can be used conjointly or singly. To use the COR storage tanks a pump and motor would have to be installed to pump the petrol from the tanks to the filling points, also an inhibitor that is not water soluble would have to be used as these tanks are water bottomed.

Department of National Development (Closure) 10/1/1958.

The concrete tanks in question appear to be those constructed by the Commonwealth during the war as part of a scheme to provide bulk petroleum storage facilities to accommodate the greatly increased supplies of motor spirit for army use. These concrete tanks at Newnes Junction were not associated in any way with National Oil Pty Ltd.

- National Oil Pty Ltd (NOP) built 2 x 500,000 gallon, steel tanks on top of the hill at Newnes Junction sometime prior to 1942. This is the site visited. All that is left today are the two concrete bases.
- The Commonwealth Government built 3 x 1,000,000 gallon, steel lined concrete tanks in 1943. We drove past these tanks located adjacent to the coal loader.
- Commonwealth Oil Corporation (COC) was nominated to operate these tanks.
- They were built as part of war supply to the army.
- When the assets of NOP were auctioned in 1953, all their assets at Newnes Junction were sold and removed.
- The 3 x 1,000,000 gallon tanks were owned by the Government and not part of the auction. However it appears that the steel lining of the 3 x 1,000,000 gallon tanks was sold and removed, leaving the concrete shells we see today.

While these welded steel tanks¹³⁸ have long ago been recycled, the concrete foundations for one of them is still visible on the surface at GR 440 933. After taking photographs and noting how the area had changed, the group then drove to another site nearby which is a curved rock cutting made for the original Wolgan Valley Railway. A length of about 300m was walked. At the south end, this cutting flattens out, and on the eastern side adjoins the present coal train loader loop from the Clarence Colliery. At the same point on the western side, the 1970s Dargan deviation for the Main Western Railway joins. It is also the terminus where the private, Wolgan Valley Railway ended, and trains, loaded with torbanite and oil shale products from Newnes transferred to the Main Western line. This is literally a place of historical junctions.

After absorbing the history, we walked the Dargan deviation with some difficulty. For some unknown reason, the Dargan deviation cutting has been used as a dump for ballast materials. Stephen recalled driving through it not that long ago. Again, it was a walk into history.

After this, we returned to the vehicles to visit one final site, the new, Newnes Junction Signal Box. Stephen advised that this facility was opened 16th October 1910. A short section of the Dargan Deviation Railway was retained from the new (Second) Newnes Junction to the old (First) Newnes Junction, for the Commonwealth Oil Company's Wolgan Valley Railway.

When constructed the installation at Newnes Junction comprised three steel lined concrete tanks each of one million gallons capacity, pumping equipment, pipelines and associated fittings, small buildings, fencing, etc.,. These tanks and buildings were erected on land owned by the NSW Govt but occupied by the Commonwealth under a wartime hiring arrangement. In February 1947, the whole installation was declared surplus for disposal by the commonwealth disposals commission. Because no oil company was interested in purchasing the installation as a going concern the recoverable equipment (including the steel lining within the concrete tanks) was sold to COR Ltd, for dismantling and removal. There then remained the concrete tank shells, concrete pump houses, office and foam generator house which were withdrawn from sale in 1949 following advice from the disposals commission that those items were unsaleable. Subsequently, an area of land embracing the concrete structure was acquired from the NSW Govt as this was considered more economical than demolishing the tanks, etc., in order to return the land in its original condition to the NSW Govt. The land and concrete structures thereon were then declared surplus, to the department of the interior either for sale, or if that was not possible for abandonment of the concrete tanks and buildings.

We have had no advice from The Department of Interior since that action was taken in April 1953.

¹³⁸ These tanks were manufactured by A. G. Gonnian and Co, metal fabricators of Newcastle. Personal communication from John A. Cooper 20th April 2012.

This remained in use until about 1932, although intermittently. The Second Newnes Junction Railway was integral to the operation of the Commonwealth Oil Company's Wolgan Valley Railway.

This signal box is accessed from a short stub road off the Bells Line of Road. After parking the vehicles, we walked up to the level crossing and onto the main platform that includes the occasionally manned signal box. The signal box is an old fashioned one with an array of large moveable levers to change the signals up and down the line. The State Rail guy on duty made us welcome and willingly answered all our questions and allowed us to take photos of anything and everything. Brian and I were keen to complete the rail record, even though the current signal box post dates the Wolgan Valley Railway.

It was just on 1600 when we said our thanks to Stephen Imrie for sharing his amazingly comprehensive, and detailed knowledge and dispersed to go home.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0820	Park vehicles, Clarence	431 914
0834	Railway service road	435 912
0846	Area traffic service sign	428 909
0857	Lopsided natural arch	425 906
0909	Track junction	423 905
0916	Workers campsite and advertising 40 min	420 904
0957	Morning tea on pagoda 18min	420 904
1025	Intersect road	419 906
1045	Blacksmiths Cave	416 908
1050	Dam	416 907
1101	4 railway tunnels 3,4, 5, & 6	416 906
1127	Track junction	418 911
1133	Clarence Arch	414 913
1218	Lunch 22 min + view Hartley Valley	414 910
1257	Snake encounter	412 909
1317	Road to Climbers Camp	428 908
1324	Climbers camp	427 906
1339	Viewing platforms over Reedy Creek and Hartley Vale	427 901
1410	Mystery house	433 909
1440	Vehicles	431 914

7.25 Doctors Gap - Ida Falls circuit

Maps, etc.	Department of Lands Topographic Map 1:25000 Lithgow, 8931 –3S, second edition. Department of Lands Topographic Map 1:25000 Hartley, 8930 –4N, second edition. GPS setting WGS 84.
Walk description and route	From the Clarence Zig Zag turnoff off the Bells Line of Road drive in convoy as Bush Club member and historian, Stephen Imrie takes us to some rarely visited Aboriginal and European historic sites on the south western corner of the Newnes Plateau. Start/finish at the old airstrip on Scenic Hill. Route, old emergency airstrip Scenic Hill-Doctors (Browns) Gap-Honeysetts Colliery-Blue Mountains Colliery-Mount Sinai-Ridge between Zig Zag and Ida Falls Creek-Ida Falls-Gun Emplacements. Items of interest-Heffernan Lookout (c1930s)-old track in Doctors Gap-mine features associated with-Vale of Clwydd Colliery- Honeysetts Pit-Several unnamed adits-Blue Mountains Colliery-Mount Sinai Aboriginal sites-old picnic infrastructure in Zig Zag Reserve-Ida Falls and graffiti-WWII gun emplacements.
Comments	Stephen Imrie knows this area and its secrets better than anyone else. If you like a few lashings of history with your bushwalking this day is for you.

Date walked 11th February 2013.

The Weather

It was a dense, mist shrouded morning following a night of 30mm of rain in the area. Visibility was less than 50m when we started walking. Lines of sight gradually improved, but did not finally lift until midday. Even after the mist had lifted, the sky remained cloudy with only the barest hint of patches of blue sky in the mid afternoon. By 1500, the mist curtain had lowered once more, this time with frequent showers.

Background Notes

Layer upon layer of history was the hallmark of this walk. This history started as soon as we parked the vehicles. We were on an emergency landing ground built as part of a spectrum of real and fictitious infrastructure during WWII. For a landing ground built over 70 years ago, and never maintained it is in remarkably good condition. We drove nearly 500m of its length to park at GR 391 907.

Track Notes

Walking commenced on a very new access road, pushed through by heavy equipment less than 6 weeks earlier to provide fire fighters with ground support for a fire threatening Lithgow. The new road more or less follows the original track to Doctors Gap, cut by Thomas Brown in 1834, as a horse track. There has been little respect for history or the environment by the new track makers.

En route we did have a perfunctory search for Heffernan Lookout, c1930s. The density of the mist made this a pointless exercise, for even if we had found this lookout, visibility was close to zero. Along the new access road we did find some unusual sites. The Lithgow Archery Club has an area where they set up static targets for members to test their skill. These targets comprise large bales of straw, with over cloth images of animals, both native and exotic. They also have set up coloured distance markers for each target, presumably based on skill and accuracy, the furthest away scoring more points. We identified at least 6 such targets.

Below these archery targets we left the recently enlarged track and followed a pad down into a valley. This area is a maze of very overgrown roads, some almost parallel to each other. A number of trees had insulators inserted into them. Given the layers of development in the valley it is not possible to identify whether they were related to a coal mine or some other enterprise. We came across several telephone pits and Stephen, being a telecommunications expert was able to identify the time period based on observed technologies. One of the pits had at least two generations of development. All installations appeared to have been abandoned. Stephen said it was possible we had stumbled on remains of the original telephone trunk line to Lithgow¹³⁹.

Also in the floor of this valley, almost in a creek, we found a 4", (100mm) pipeline. It was decided to follow it back upstream and see where it went. At GR 386 895, 0951 we had the answer. The pipe disappeared into a grated, and now flooded ventilation shaft. Stephen had been here before and explained that it was a ventilation shaft for the old Vale of Clwydd Colliery. The grating and steel meshwork was recent and had been installed in the last ten years.

We then crossed the creek to the east, and soon sighted artefacts from the 1950s when the area was being exploited for coal. From his notes, Stephen was able to advise what we would find, including the remains of an old hut at GR 386 895, and soon after at 1003, a brick detonator store followed closely by an explosives store, both buildings were of sturdy brick

¹³⁹ Stephen Imrie has further advised, "I have consulted the local linesman in regards to the telephone lines we found in Browns/Doctors Gap, Lithgow. Mark Roots recalls working on both ends of them (in the Hartley Valley and the Vale of Clwydd) in the early 1980's, but had not been along the section that we walked. He was interested in the route as he did not know how they crossed into the Lithgow Valley. He is sure that they were in use till the mid 1980's. In the mid 1980's a fibre optic cable was laid into Lithgow and this replaced the old trunk cables. Mark is the oldest (about 45) and keenest of the Linesman left.

and concrete construction, timber lined and the doors sheeted in galvanised steel. Faint signage could still be seen. All this was at GR 388 894. We were now approaching another major mine, known as Honeysetts Mine. As we walked along a loading area we found a major structural steel item, possibly used to tip skips into a hopper; we also found the blade of a square ended shovel, a horse shoe, and sighted a section of large diameter, riveted steel pipe that Stephen advised had been used as a water tank.

This item is of interest for several reasons, firstly it is representative of technology used at Newnes in 1906, later transferred to Glen Davis, and secondly it was very likely recycled from Glen Davis, as the mining industry before 1960, and the advent of OHS and more rigorous engineering principles, was notorious for reusing whatever it could with little regard for its suitability, safety or any other considerations. If it could be made to work, then it probably would be used.

It was now 1017, and time for morning tea, GR 389 893. We had much to look at including copies of Stephen's own maps of the underground workings of this mine. Decades ago, before mine entrances were sealed or grated Stephen went in with gas detection and other safety gear and mapped all the drives in many of the coal mines in the area. His records of underground workings are probably more accurate and comprehensive than those held by the NSW Department of Mines. These underground plans are matched by detailed drawings of surface and head works, most only now identifiable from foundations. Various sealed adits and ventilation shafts were noted as well as the coal seam.

By 1034 we were on the move again and heading south east, finding and photographing an old electrical sub station, and then we came across a bizarre find, a dozen or so 1990s style, outdoor moulded plastic chairs, turquoise green in colour complete with cushions! All in the middle of nowhere, and just left to rot; how or why they were transported in, a mystery. Ian was able to date the chairs from the injection moulding data, July 1990.

We moved on, and passed another semi sealed ventilation shaft and then circled around the side of a steep slope while descending into the valley below where a well made road hugs the base of the slope and separates the slope from the valley floor. This is the valley of Blackmans Creek. The road used to provide access to the Blue Mountains No. 1 Colliery. The colliery road is of particular interest because it was used to connect with Browns Gap Road for the delivery of coal by truck, presumably for customers in the valley, and at the top end, it connected to the Bells Line of Road where trucks could have readily delivered coal to an old rail spur line (now removed), or to Newnes Junction for loading onto rail together with coal from the Clarence Colliery. Stephen is still researching the records¹⁴⁰.

At 1052, GR 392 893, we commenced walking along the old road towards the Blue Mountains No. 1 Colliery. A great deal of time and effort has been expended to try and 'rehabilitate' the former site. Stephen reported that in the process many interesting artefacts have been removed, and as well the area has a strange feel to it. It is odd to see planted forests of native species growing in a churned substrate and in between lengths of electrical cable and blocks of concrete. It will be hundreds of years before this site looks anything like normal.

¹⁴⁰ Currently records of the Blue Mountains No. 1 Colliery are currently embargoed as there is a new development application covering the former lease area. The embargo will only be lifted if the development application expires or is allowed to lapse.

An old dam, presumably used for capturing mine tail water, was sighted at GR 395 895. We walked around this to the east, and followed the recently graded road up the valley through more bizarre planted forest to the sealed adits of the Blue Mountains No. 1 Colliery, GR 398 899. The area has a sense of forlornness and utter devastation. Empty cable tracking is still attached to the cliff face; chopped up mixed pieces of old infrastructure project from the ground; sterile areas are bleached; shallow dank pools are lifeless, in all it is not a pleasant place.

According to Stephen, who last visited over a decade ago, the adits have recently been strengthened to prevent illegal, and indeed unsafe entry to the mine, outside one adit there has been a recent substantial rock fall. We hurried with our picture taking before moving on. Our way was up a short connecting ramp to the road uphill under the cliffs. The road rises quickly and the coal seam that was mined is also exposed in a cutting. The former bitumen road surface has recently been torn up so that it is now able to revert to bush.

At GR 396 900, the topographic map shows a locked gate, This has recently been replaced by twin artificial ridges of tens of cubic metres of fill divided by a deep cut culvert so that even the most determined 4WD could not get through. It was difficult enough trying to clamber over them on foot! A hundred and fifty metres further up the hill and on the western side of the road is a large, roofed, concrete water tank, approximately 15m in diameter and about 3m high. It was undoubtedly built to supply the needs of the colliery.

The road has been cut very close to the cliffs and for the next kilometre is almost directly under them. There have been many small, recent, landslips and the area, being so undermined is likely to trigger more such falls as rainwater seeps in and further destabilises the softer substrates. At about 950m elevation, the mist /low cloud really descended once more and we walked up the hill seeing very little but each other and the road immediately ahead.

By the time we reached the site of the twin Aboriginal art caves, GR 403 907, 1100m we were almost through the cloud mass and indeed the day improved markedly. It was now 1158. Given that there is so much to see in these two caves, lunch was called, and time set aside to view all the art works. I must confess to some disappointment at the deterioration of many of the images since my last visit and the appearance of new, inappropriate graffiti. I was particularly disappointed with the deterioration of the dancing figures in the western cave. Exfoliation of the rock under the painted surface is a major problem. At the present rate of deterioration the images will be completely unrecognisable in ten years.

The improved weather was great for walking, and now that we had completed the big climb for the day, it was good to be heading off for the next phase of our adventure. At 1230, we reached the Bells Line of Road on the south side of Mount Sinai, walked west along it for about 300m, GR 401 916, before crossing over to the north, then following a track down to connect with the historic Zig Zag Railway. Our next stop was Mount Sinai Halt, a railway stopping point on the Zig Zag Railway line, GR 401 918. Photographs were mandatory as there are not many 'halts' as opposed to stations on the NSW network. Stephen explained that the term 'halt' was applied to stations, which were not manned for at least one hour per week.

We moved on following a track to the west that looped around and then headed north along the top of a broad, flat ridge down towards the Great Zig Zag. Stephen explained that we were entering an area that possibly in the 1930s, was developed as a popular picnic area. We

should look out for old infrastructure. In due course we discovered the first of ten concrete tables and seats and a corresponding number of BBQs in the low herbage, GR 398 918.

Also featured in this area were two toilet blocks constructed of dimensioned sandstone. These were located about 100m further east at approximately GR 397 919 and about 50m apart. Both buildings had been pillaged for sandstone blocks and the tiled roofs had collapsed. We suspect a lot of tiles were also stolen, as the quantity of broken tiles on the ground was small. While trying to get the best photograph of the remotest building, and thanks to a quick alert by Stephen, I narrowly missed stepping on a Copperhead Snake, (*Austrelaps ramsayi*). I was maybe less than 50cm away from the snake, and I think it was terrified. It hung around while I got out the camera and took several photos.

We pushed on down the road to a junction at GR 395 922. Here, the western branch track was followed to a point above Ida Falls Creek, GR 393 922. The ravine above the falls is steeply sided and forms an 'S' shaped canyon with walls about 30m high. With the rocks being wet it was a slow progress in a south west direction down to the top of the falls. Stephen advised that the falls were running the best he had seen them. We clambered right down to Ida Falls Creek and then across it to the western side.

Here the party split into two groups. A group prepared to crawl into the falls canyon, follow a ledge and then drop down to search for historic graffiti. The second group stayed and called out advice and support. There is a huge amount of graffiti in the area and a further, dedicated visit would be required to document it all. The most significant graffiti is written very large and reads, 'Ida Falls' in letters 50cm high. Above is a name and date, 'J Partridge 1893'. Also nearby, and with more precision is the date and names, 9-10-1893, G. Clifton and J. Everett. Several examples of red stencil hands were photographed, however, these may turn out to be fakes. Some exploration of the long undercut was done but a full day trip exploring the Zig Zag Railway and Ida Falls needs to be done while the railway is temporarily out of action.

At 1419, we continued the walk, this time up a ridge to the south west; the destination, the old gun emplacements built to defend Lithgow during WWII. We arrived at this site at 1439 and spent time exploring these structures, now very much overgrown, and partially deliberately destroyed. The story of these structures is well told by Colin Southall in his book, 'The Defence of Lithgow' set out below,

"The 9th Heavy Anti-Aircraft Battery

Early in December 1941 Lithgow was included in the Sydney Fortress Area. The proposed anti-aircraft defences were in the form of two 4 gun 3.7 inch anti-aircraft Batteries, plus a Lewis Machine Gun detachment. They were positioned strategically to protect the large munitions factory in the centre of the Lithgow Valley, plus the Ammunition Depot at Clarence (old Clarence tunnel).

The 'B' troop was located on top of the 'Scenic Hill' at the eastern end of the valley and had 4 guns and a Command Post, named 'Clwydd' gun emplacement.

To man the defences, the 9th Heavy A.A. Battery was formed.

During Christmas week, 1941, an advanced party of 5 erected a tent on both gun emplacement sites, followed by additional tents and meagre structures as the remainder of the gunners arrived to make the full battery early in 1942.

Workmen from the Water Conservation and Irrigation Commission prepared the concrete form work and poured the concrete bases and made sure the 8 holding-down bolts for each gun were correctly located.

The guns were on the skids and jacks at the 'Clwydd' gun emplacement by the 2nd January, 1942, and in one day had completed the location of the 4 guns.

Temporary sand bags were placed to form revetments. As soon as possible the sand bags were removed and the workmen formed and poured the concrete revetments which also became the ammunition bays or storage areas and being essential protection from bomb blasts for the gunners and in addition the Command Post.

The Command Post, centrally located a short distance from the guns and of concrete construction, contained various rooms in the form of a WWI 'Block House'. From the centre room protective passages extended to flat concrete areas of platforms where on one the 'Predictor' was located and on the other the 'Barr and Stroud', 'Height Finder', and 'Telescope' identification with gunners to operate them. To give protection to the instruments from the elements, an open timber and iron roof was constructed to swing on its hinges from the closed position to the open when required, prior to action.

The Command Post was also manned by the Gun Position Officer and the Gun Position Officer's Assistant, who commanded the guns, with a telephonist located in the plotting room below for communications.

Relevant information on the guns was as follows –

3.7 inch Static Heavy Anti-aircraft Guns, manufactured in Australia.

Weight: 10 ton cwt. (11.4 tonne)

Muzzle velocity" 2,667 feet per second (183 metres/sec)

Round (weight): 63 pounds (28.6 kg)

Propellant (weight): 28 pounds (12.7 kg)

Explosive Charge: Amatol 21 pounds 12 ozs. (1.25 kg)

Lethal area: 60 feet (18.28 metres)

Rate of Fire: 10-12 rounds per minute each gun.

Gun crew: 11

Relevant information on the Command Post was as follows-

Gun Position Officer (GPO) – Captain/Lieutenant

Gun Position Officer Assistant (GPOA) – Lieutenant

Relevant information on the Command Post was as follows-

Gun Position Officer (GPO) – Captain/Lieutenant

Gun Position Officer Assistant (GPOA) – Lieutenant

Predictor 'Vickers' – crew of 6

Height Finder 'Barr and Stroud' – manned by 2 Gunners

Telescopic Identification – manned by 1 NCO

Telephonist – usually 1 – Gunner

The two Lithgow gun emplacements, Bowenfels and Clwydd, were operational on a 24 hour basis by the end of January 1942.

On completion of the two gun emplacements, a Special Army Unit camouflaged both battery areas.

The tents used to accommodate the Artillerymen, located some distance away on the north-western side of the guns, were hidden in the bush and scrub.

To further mislead the Japanese, at a suitable distance away from the gun emplacement on the eastern side and on the edge of the gravel road to Bell, a 'Hokes' village was erected with make believe houses and occasional shops and dummy animals. The village construction was commenced in 1942 and completed finally in early 1943.

After June, 1943, when Australia was no longer considered under actual threat of invasion the operation of the Batteries was taken over by the 23rd Battalion Volunteer Defence Corps.

By 1500, we had completed the circuit walk so well crafted by Stephen Imrie to showcase the incredible mix of history in this very small area. It is also fortunate that Stephen has photographed so much of what no longer exists so that there are images to back up this rich and complex historical walk. Total distance 13.8km total ascents 464m.

Table of Times, Locations and Grid References

Time	Location	Grid Reference
0815	Park vehicles – landing ground	391 907
0829	New road over old track	390 905
0840	Off track	388 902
0849	Track to Doctors Gap	384 900
0859	Archery area, five minutes	383 900
0905	On old track	384 898
0913	Old road, insulators and telephone pits	385 895
0925	Another old road, more insulators and telephone pits	385 893
0938	100mm water pipe	386 893
0951	Drainage + ventilation shaft Vale of Clwydd Colliery	386 895
0953	Hut site	386 895
1003	Old road junction, detonator + explosives huts + coal seam	388 894
1017	Morning tea, 17 minutes + mining artefacts	389 893
1052	Substation + chairs + descent to road + Blackmans Creek	392 893
1059	Old dam	395 895
1111	Blue Mountains No. 1 Colliery	398 899
1132	Major road block	396 900
1137	Water tank	397 902
1158	Twin caves = Aboriginal art + lunch, 18 minutes	403 907
1234	Bells Line of Road	404 916
1240	Head north on Zig Zag railway access road	401 916
1241	Mount Sinai Halt	401 908

1251	Track junction	398 916
1255	Old infrastructure picnic tables, BBQs	398 918
1304	Toilet blocks + Copperhead Snake	397 919
1328	Above Ida Falls	392 922
1357	Exploring Ida Falls + graffiti, 22 minutes	391 922
1439	Anti aircraft gun emplacements	389 914
1500	Back at vehicles and landing ground	391 907

7.26 State mine Gully and Hassans Walls

Maps, etc.	Department of Lands topographic map, Lithgow, 8931 –3S, 1: 25000, second edition. Department of Lands topographic map, Hartley, 8930 –4N, 1: 25000, second edition. GPS setting WGS 84.
Walk description and route	Leaving from Clarence we will be in the hands of historian and industrial archaeologist, Stephen Imrie who will take us to visit old infrastructure, some dams, mines and more, (walk 1). Later we will drive to Hassans Walls where Stephen will lead us on a visit of the best of this area including the Undercliff Track, (walk 2). Details of the walk are yet to be finalised. Be assured of surprises. We will climb and we will walk. How far and where will depend on what options we follow.
Gear issues	2 litres of water, Volleys recommended, PLB will be carried, electrolytes, maps, compass. 20m tape will be carried by the leader. Change of gear for afterwards.
Comments	<p>Walk 1. Information from Stephen Imrie. The Middle River Dams were built in 1910 and used until the 1980's. Water was supplied to Lithgow via a 10" cast iron main. The condition of the pipes in later years limited supply to 1.6M litres per day. Platforms were built at the dams in the 1970's.</p> <p>State Mine Air Shaft located some three miles from the State Mine Pit Top. Built in 1940/1941 and used for air, water, power and access. Problems with rock falls in the shaft caused a second 6" shaft to be sunk for a power assisted air supply.</p> <p>Walk 2. Fellow walker, Graeme Holbeach advised, 'I have an association with Padleys Pass (the Undercliff Track) which was constructed between 1915 and 1920. It is a very interesting walk, quite different to your usual Blue Mountains tourist track.</p>

Some latter day history. Back in 1990, Jim Smith had come across a single photo labelled something like "The Undercliff Track at Hassans Walls". I think this is the first he had heard of it. The two of us went to look for it. He figured it would probably be somewhere near the main lookout. From the look out, I spotted a benched track heading down a gully. Except where the track crossed coal mining induced landslides, it was easy to follow, as the area was very dry. We found four entry tracks including a magnificent buried set of cut stone steps, as well as caves, rock seats and a bush table and seat. Jim, the late Wilf Hilder and I overhauled the track system and completed the unfinished western section. I did the heavy work of creating the sections across the landslides using a sledgehammer and mattock. I took two sickies and camped beside the track to finish it by the 'deadline'. Jim subsequently researched the history of the track and Padley. He found the names of various features, many named after local industrialists, but no map locating them. He eventually filled in most of the blanks, and subsequently produced two maps plus a two page info sheet with time line (I have copies) for the reopening on 24/11/90 by the Lithgow mayor. We had over 100 attending, I remember Wilf pointing out Ron Compagnoni. I also have a couple of dozen photos (coloured prints) taken on the day, and some newspaper articles. I will bring the stuff on Monday, though I assume Stephen Imrie would have most of it.

Unfortunately within two years, another small landslide occurred and came to the councils attention before I was able to clear it. Council panicked and closed the track.

The timeline generated by Jim Smith

Some Dates in the History of the Hassan's Walls Reserve

1900	Reserve Dedicated
1902	James Padley arrives in Lithgow
1903	Lithgow Progress Association makes first improvements
1912	Shelter Pavilion erected
1913	Well and fireplaces constructed
1915-1920 made	Undercliff walk constructed, access tracks from Lithgow
1917	Trustees appointed to manage Reserve
1918	Padley dies
1929	First cracking in area due to mine subsidence
1930	Padley's Pedestal Monument unveiled to honour Padley's work in the Reserve
1930's	Road access from Lithgow constructed by unemployed
1936	Plan to construct Eiffel Tower replica on cliffs approved
1939	Road access provided from Brown's Gap Road
1964	More cracks appear
1967	Reserve enlarged, Lithgow Council resumes control from Trustees.
1977-78	Questions raised about the safety of the Reserve due to subsidence

1982-83	More cracking -one lookout fenced off 1985 Rockfalls
1988	Council proposes to transfer Reserve to National Parks and Wildlife Service
1990	Undercliff track renovated by volunteers and re-opened at the Festival of the Valley
1993	Landslides force LCC to again close the track
2012	Track still officially closed and in poor state

The Weather

A perfectly clear sky in the morning began to fill with cloud from about 1000 onwards, high humidity all day following violent electrical storms overnight, by 1130 the sky was 7/8th cloud and by 1400 it was raining steadily. Temperature range 16 to 25.

Track Notes

Walk 1. The big wet of summer 2012 continued. The Newnes Plateau was again deluged by heavy rain the night before the walk. The unsealed road and track network is seriously potholed and slippery. We made a slow and at times bumpy progress down State Mine Gully Road to approx. GR 380 965. Turning west, we entered a maze of tracks and degraded land generously fouled by rubbish. There is something mentally awry and perverse with the local population which has free access to a LCC recycling facility but which still drives into the bush and dumps rubbish.

The vehicles were parked at GR 374 969 in lay byes off the track. We could have driven further but the track we were on soon after this point becomes steep and rutted. Packs on, we headed north along the road to a three way junction at GR 370 975. Not shown on any published map, but researched by me, with personnel from the Commonwealth Department of Defence in 2008, the eastern, unmarked and unfenced boundary of the bomb disposal and firing range lay three hundred metres ahead at GR 367 975. We continued north along another access road.

At 0907, the vegetation thinned and extensive and superficially beautiful views over the pagodas of the Marrangaroo Creek system could be seen. To achieve an uninterrupted view for photographs we made our way to a nearby cliff edge at GR 371 981. Almost on the track, we came across a large, apparently solid block of concrete, 2m x 1m x 1m. It had no attachment points of any kind and appeared unrelated to anything else. The only additional clue was a sawn off pole centrally positioned half a metre to the western side. Took photos and wondered.

We continued on the road downhill, noting the position of a collection of pagodas, which is known as the Lost City. The Snow Gum Flora Reserve¹⁴¹ boundary is in places co-incident with this boundary.

¹⁴¹ This reserve is located 2.5km SW from Bungleboori Camping Ground and in the vicinity of the Lost City. It lies within Newnes State Forest. Lithgow Topo Map. 375 991. Snow Gum Flora Reserve No. 166, Named after *Eucalyptus gregsoniana*, commonly known as Wolgan or Mallee Snow Gum that are growing in this area. Part of the Bathurst Forest Management Area. Covers an area of 102ha. The area was suggested for preservation in December 1984 and the proposal

Our destination, the old airshaft and associated infrastructure for the State Mine Colliery is reached via a set of crudely formed cut steps and an overgrown pathway, GR 370 983. Signage in the form of yellow painted words on a pagoda reads, 'mine 7 min' plus an arrow. The way is through a cliff line that today was very wet and slippery. During the descent, we saw the top of a power pole with a cross beam and an insulator poking out above some trees.

At 0932, GR 370 984, we arrived at the site. It is absolutely mind blowing. Here and abandoned in the bush is a set of huge, geared wheels, a winding drum, brake mechanism, auxiliary braking system and more set on an elevated, raft like platform made of squared timbers 30cm x 30cm. The sensation I experience on arrival is a bit like finding a piece of space junk, it is alien and unexpected. We slowly explored every element of this machinery and then the associated crumbling built works.

A hole has been cut into the side of the former airshaft tower. Brian found his head light torch and peered in. The shaft is circular, about 6m across and reportedly some 600 feet deep. A chain wire fenced platform was seen inside. After twenty minutes or so of exploring and photography, we descended the scree slope below the shaft base, formed with some of the rock removed to make the vertical hole.

At the bottom of the slope, there is an access road that would have been used to bring in the materials for construction and the winding gear. This road would also have been used to construct both the 'Middle River Dams,' our next destination.

We commenced walking along the road and upstream in relation to the creek that was flowing strongly. About 100m on the road had been washed away and we walked on sodden ground that with a bit more rain would again become part of the creek bed. At 1000, we arrived at the dam wall. The wall is designed to be a spillway as well as a dam. On the day, water was pouring over it in a continuous, roaring torrent. We climbed on top noting the dam is now almost completely silted up. Great photos were taken. The dam is incorrectly shown on the first edition topographic map. The actual position is GR 372 987.

Back at the bottom of the scree slope and below the air shaft we have a discussion about visiting the second dam. Given the time we wish to spend at Hassans Walls it was decided to give it a miss and return to the vehicles. Morning tea was now on top of everyone's agenda, so at 1030 and above the steps to the air shaft we found a good view and took a short break, GR 370 984. By 1110, we were back at the vehicles.

Twenty five minutes later, we had relocated to Padleys Pedestal on Hassans Walls, GR 353 882. Before starting out on this walk, Stephen Imrie produced some historical pictures and did a recap of the history. Set out below, are extracts from several documents to set the scene.

Louisa Anne Meredith¹⁴² 1839 description of Hassans Walls

was accepted February 1985. Ref: Working Plan Snow Gum Flora Reserve No. 166, Part Newnes State Forest No. 748. Gazettal Notice 22nd July 1994.

¹⁴² Nee Atkinson

"A singular range of perpendicular cliffs form a striking feature in the landscape at a place called "Hassan's Walls". These walls or cliffs rise, I should think, to a height of about 300 feet perpendicularly above the road, and their summits, broken and fissured in various fantastic forms, exactly resemble a ruined castle crowning the brow of the sheer precipice, with here and there a stunted tree or graceful shrub growing from crevices in the dark rock. Had I been travelling in an old country, I should at once have decided that these were truly the ruins of some mighty mountain fortress of former days; loop-holes, arches, battlements, and buttresses were, as it seemed, so clearly remaining, and extending far along the airy heights of these genii-haunted crags, for such I half fancied them, especially when a turn in the road gave to view a colossal head standing well out against the clear, bright, blue sky, and bearing a strong resemblance to the venerable and veteran Duke of Wellington. We paused to contemplate the rude though striking likeness; and then, as we slowly drove on, the features changed, and a judge with a flowing wig stood frowning down on us; another turn, and another change came over the mountain statue, and then it again resolved itself into a mere turret of the hoary ruin. I thought of the mysterious castle of St. John, with its wizard transformations, and of how much romance would attach to these fantastic crags in a romantic or legendary country; but the existence of poetry or imagination in New South Wales is what none who know and have felt the leaden influence of its ledger and day-book kind of atmosphere would believe it guilty of suffering."

Hassans Walls Track

In the 1880s there was a bridle track to Hassans Walls up the gully. This was very steep in places but was picturesque. Prior to 1916 a six foot wide track was made by volunteer labour mostly along the side of the mountain. In 1930, during the Depression, conditions locally were at a low ebb. In 1933 relief work in lieu of the dole was found more satisfactory and a vehicular road to the Walls was started. About 200 men were put on single men worked 12 hours a fortnight and received 18/19 in lieu of 11/- dole, as the food relief was called. Married men with one child worked 22 hours a fortnight for which they received £2/0/6 (food relief £1/7/0) and the highest rate was 48 hours work for £3/14/10 (food relief £2/11/2). The unions were opposed to the scheme as it was cheapening labour but were eventually induced to give it a trial. The job was carried out by the Works Department as, at the time, the Lithgow Council would not have anything to do with it. There were many arguments after the work started, but when they settled down the men proved themselves splendid workers.

Hassans Walls Road

With the continuance of the Depression and the need for relief work, the Lithgow Council undertook certain improvements to the vehicular road to Hassans Walls built in 1933. This latter work was carried out under The Emergency Relief Scheme and completed in September 1936 at a cost of £3,499, exceeding the estimate by £1,200. This left the road much as it is today, but continuous maintenance goes on improving drains, clearing culverts, grading etc. the scenic roads at the Zig Zag and from Browns Gap to Hassans Walls were carried out under the same scheme by the NSW Public Works Department. More money was now available for material than formerly and it

was possible to build excellent shelter sheds, fireplaces and other conveniences at both places. These roads were completed near the end of 1940.

Copies of maps drawn by Michael Smith, based on information compiled by Jim Smith and Wilf Hilder, for the 1990 re opening of the Undercliff Track, a.k.a. as Padleys Undercliff Walk were shared. Counter intuitively Stephen then led us north to pick up the beginning of the Undercliff Track that runs south under the cliffs. The track has been deliberately let fall into disrepair and locating the starting point requires previous knowledge.

The first feature we picked up was Sandfords Cave, GR 355 883. It has had a later day fireplace installed and is now somewhat degraded in appearance. Checking the field notes against the map, it was noted that we missed finding an historic fireplace built by John Merrick in 1913, and the Natural Throne.

One of the most appealing historic features is a table and seat arrangement installed in Gannons Cave, GR 355 882. This picnic table, c. 1915 has a definite school desk feel about it, and indeed two of us acted out a scene of seeking the teachers attention. The design is very distinctive and it is amazing that such an important piece of history remains intact. Many pictures were taken.

We then continued our progress south under the cliffs. We noted with concern many significant rock falls and the high frequency of rock cracking portending even more falls. The views east over Hartley Valley and Hartley Vale are very attractive. The Darling Causeway profiles the eastern horizon. It is truly a very pleasant walk.

The southern tip of the peninsula surmounted by an isolated pagoda is identifiable from many points both on the walking track, and from the Great Western Highway down in the valley. This feature is known as King Georges Head, GR 354 878. We walked out beyond this point for some distance to try to achieve a better view. Unfortunately the ground drops away too rapidly and the tree cover is too high for this to happen.

Having reached the southernmost point of the walking track we now headed slightly west of north. The old track has been damaged quite a lot by recent rock falls and several deviations are necessary. The cliffs along this section are significantly higher than those on the eastern side while the fracturing and cracks appear more menacing and likely to collapse. It is fair to say we did not hang around in this area.

At 1232, we headed up a gully on some very old stone steps known as the Hay Steps. These led to the top of the cliff line and a very old fenced look out complete with cut stone steps in the pagodas and a concrete and timber seat facing west. The views were stunning and we decided to have lunch while watching gathering storm clouds, GR 351 884.

Lunch was kept short so more exploring could take place. Stephen identified another descent point, further west, GR 350 885. Before reaching it another old, fenced look out was visited. We also noted that there were major cracks in the ground surface very close to the road. Dave Dash explored a newly fenced area. It was fenced to stop anyone from venturing out onto a pagoda that has developed a major vertical crack some 20m high.

The track taken down goes passed Hurley's Cave before descending into Rutherfords Glen and rejoining the Undercliff Track. From this point westwards the track is in reasonable

condition although the terrain becomes less interesting. The track also changes its name along this section to become Heffernan Pass. Whilst walking along here the first rain associated with the storm cell began to fall. At 1340, GR 345 887, we decided to pull out and return to the vehicles via the road network. By the time we reached the vehicles, the rain was falling steadily. Originally, it was intended to visit several other lookouts however with the rain there were no views so the idea was abandoned and the walk concluded.

Jim Smith notes twenty two names have been recorded in old records for locations at Hassans Walls. However, as no map showing their position has been located, the challenging task of mapping them for the first time is now being undertaken.

1. Ridges

Anzac, Wilton, Clwydd, Coerwul

2. Lookouts

Finnegan's, Braceyls, Pillan's

3. Glens & Gullies

Rutherford, Hassans, Pavilion, Nellie's

4. Caves

Hurley, Hoskins, Ryan, Gannon, Cook, Ronald, Sandford

5. Tracks

Heffernan Pass, Undercliff Track

6. Features

King George's Head, Quaker's Hat, Padley's Pedestal, Hay Steps

Table of Times, Locations and Grid References

Walk	Time	Location	Grid Reference
1	0840	Vehicles	374 969
	0900	3 way road junction	370 975
	0907	Concrete block	371 981
	0915	Head of track & steps to mine	370 983
	0932	Mine winding gear and more	370 984
	0952	On road below mine air shaft	371 984
	1000	At dam wall	372 987
	1015	On road below mine air shaft	371 984
	1030	Morning tea above steps, 8 min	370 984
	1110	Vehicles	374 969
	1135	Padleys Pedestal car park	353 882
2	1143	Sandfords Cave	355 883
	1150	Gannons Cave	355 882
	1202	King Georges Head	354 878
	1230	On the Undercliff Track	357 883
	1232	Hay Steps	351 884
	1235	Lunch, lookout, 30 min	351 884
	1315	Hurleys Cave, Rutherford Glen	350 885

1340	Heffernans Pass and exit to road	345 887
1400	Padleys Pedestal car park	353 882

7.27 **The Zig Zag Railway and Ida Creek Falls¹⁴³**

Maps, etc.	Department of Lands 1:25000 topographic map, Lithgow, 8931 – 3S, second edition with 20m contours. G.P.S., WGS 84
Walk description and route	The group will meet at the Zig Zag Railway car park and then move in convoy to Mount Sinai Halt (Station). From Mount Sinai we will walk the length of the Zig Zag Railway to Bottom Points. Stephen will point out many historical sites. We will then walk through an 1869 sand stone viaduct before heading up Creek to the Falls.
Gear issues	A PLB will be carried by the leader, GPS, appropriate head and footwear recommended, 1 litre of water. Definitely bring the camera. Bring a change of gear for afterwards.
Comments	This walk is a walk through history. Date walked 25 th August 2013.

The Weather

The day was a perfect prelude to spring, clear skies, little wind and a temperature range from 7 to 17 degrees.

Background Notes

¹⁴³ Australian Town and Country Journal, 13th January 1894, p. 31; col. 2.

"Lithgow-favourite holiday resorts.....The most noteworthy of these are.....Ida Waterfalls. The last mentioned, strange to say, although but 2 ½ miles from the town, were only discovered by some old fossicker, I believe, a few months ago."

The following historical notes were prepared by Stephen Imrie from various research sources. Stephen's meticulous attention to detail, and his extensive working knowledge of railways in NSW provided an added dimension to a remarkable walk.

In 1866 a contract was let to Patrick Higgins for the construction of the railway from 1km west of Clarence Tunnel to Wallerawang. At one stage over 700 men were working at over 30 different locations. The Zig Zag section was to include 4 major stone viaducts (the one between Mount Sinai Halt and Edgecombe was built as an embankment) and 2 tunnels (one developed faults and was subsequently opened up as a cutting). Stone for the viaducts and tunnels came from a quarry near Mount Sinai and was set in imported Portland cement mortar.

The shelf between No. 2 & No. 3 viaducts was blown out in a single blast of 40,000 tons, the first electrically fired blast in Australia (5/1/1867). The number 2 tunnel was removed in an electrically fired blast of 45,000 tons on the 16/9/1868. The Zig Zag was opened without ceremony on the 18/10/1869 when a passenger train passed over Zig Zag.

After leaving Mount Sinai Halt there is a passing loop, with signal box, named Edgecombe (opened 29/10/1901). Beyond Edgecombe the line enters two small cuttings before reaching No. 1 viaduct (2 x 15' and 5 x 30' arches on a 10 chain curve). A cut sandstone ledge leads to Top Points.

Top Points, (3362'). Originally there was only a single reversing spur rising away from the points on a 1 in 66 grade to terminate on the edge of Ida Falls Creeky (500' deep). This was only long enough for half length goods trains. On 1/7/1895 run around facilities were provided for passenger trains. On 23/5/1908 an extended wing, to accommodate full length goods trains, was opened. This wing featured a 60' deep cutting on a 7 chain curve.

After leaving Top Points along the middle road the line crosses Viaduct No. 2 (9 x 30' arches) then No. 3 Viaduct (8 x 30' arches on a 7 chain curve) before reaching No. 1 Tunnel (225' long on a 8 chain curve). The line then continues past the site of No. 2 Tunnel into the gully to terminate at Bottom Points.

Bottom Points, (3260'). When opened there was a reversing line and a stone cottage to house the pointsman (which was removed in 1910 during the track deviation work). On 15/4/1878 a crossing loop and a platform for tourists were built. The wing was extended on 17/5/1908 to take full length goods trains. The original bottom road was originally single track and was duplicated on 21/10/1880. It was the first country line to be duplicated.

Zig Zag Cooperative. In 1972 a group of railway enthusiasts formed a co-operative, started to rebuild the track and buy suitable rolling stock. The Zig Zag Railway Co-op Ltd. still owns and operates the railway. Trains first ran again in 1975 on Middle Road only. In 1986-7, with the aid of a NSW Bicentennial Grant, the track was extended along Top Road to Clarence, opening in 1988.

Ida Falls Culvert 10' wide stone structure was opened 18/10/1869.

New Vale Colliery Siding. Located to the left of the western line, it was built to serve the New Vale Colliery and its associated coke ovens. It operated from 1/5/1889 to 1900. South of the above siding was the New Vale Colliery and coke works; a siding to this was laid up Ida

Falls Creek under Zig Zag Top Points on 1/5/1889. It had a very short life, being removed in 1900.

Oakey Park Colliery received a rail siding in 1888. This left the main up line opposite the brewery and dropped over Ida Falls Creek then crossed Bells Road and Farmers Creek to the colliery, it was extended up the waterworks gully to a battery of coke ovens. Later it was connected to the up shunting neck on the "new" yard, this section is electrified and is still used, the rest was pulled up after the mine closed in September, 1941.

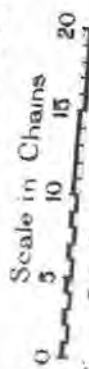
Oakey Park Colliery siding. Located to the right of the western line, it was built to serve the Oakey Park Colliery and its coke ovens. It operated from 1888 to 1941.

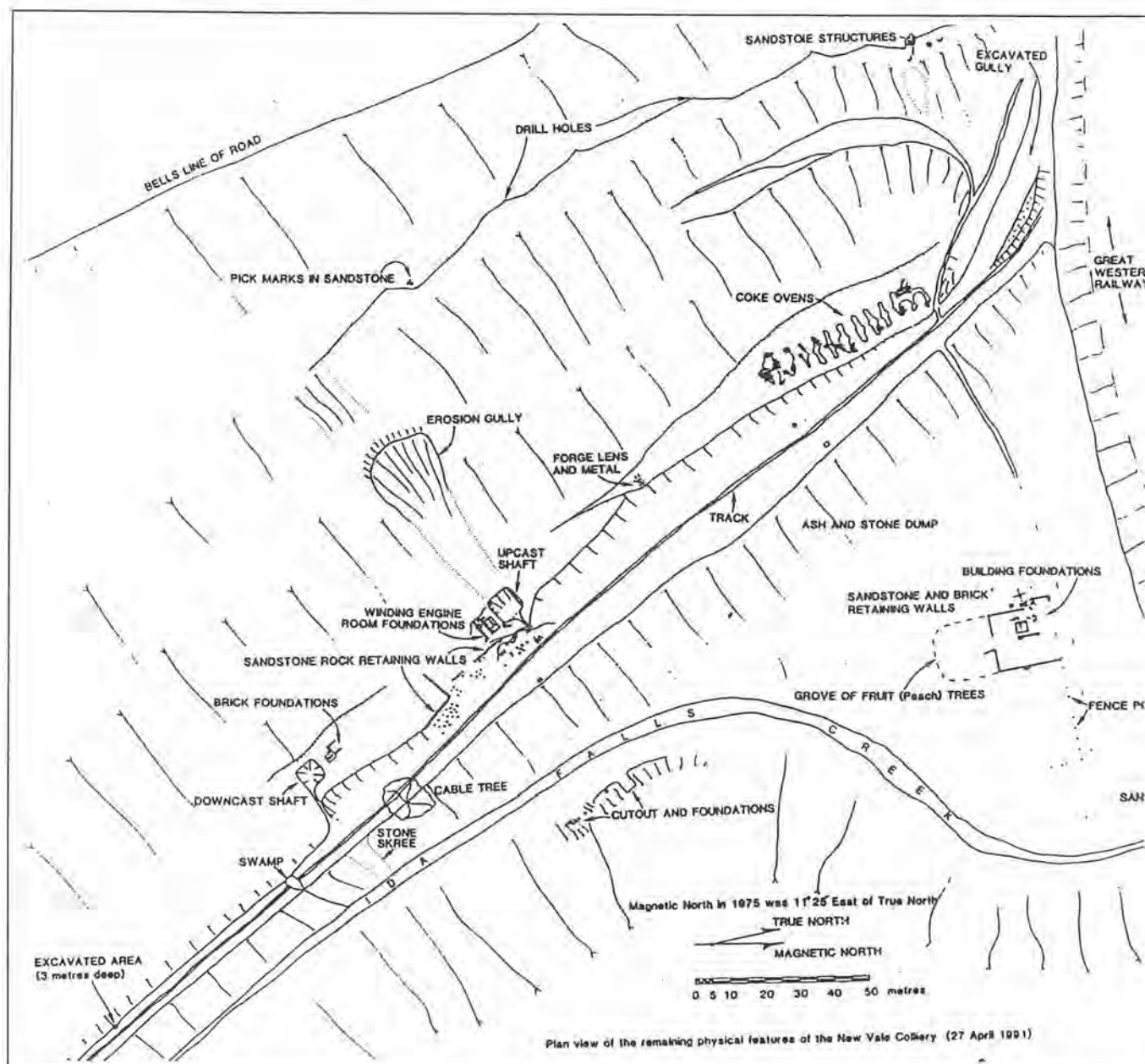
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Original Line
After Additions





The Vale (New) Colliery (a.k.a. Vale and Easter RP), 1888 -1900 is situated on the western slope of Ida Falls Creek, in the eastern end of the Lithgow Valley, south of the Main Western Line. The colliery was operated using two separate shafts. A railway siding constructed in 1888 linked the colliery to the main western railway. Coke ovens were constructed, north of and adjacent to the colliery, with the company installing the first coal washing plant in the district. This consisted of an American Diester washing plant, used to wash the coal prior to charging the coke ovens. The colliery was sold to the Lithgow Coal Association in 1899, but due to a thinning of the coal seam to only 15 inches, it was forced to close and was abandoned in 1900 (Brown 1989, 119; Department of Minerals and Energy, various registers; Downey-1972, 29, 31; Genders 1967,4-5; Schmitz 1988, 159).

The head works and the coke ovens have been demolished with the most of the materials removed or fossicked. The features remaining are as follows: the foundations of the coke ovens constructed of sandstone rocks and brick, located to the right of the building; winding

engine room foundations and a shaft depression; a brick foundation structure south of the winding engine room and a second depression immediately adjacent to this feature; a disused shaft located, to the south along the north to south orientated track, use undetermined; and on the eastern slope of the valley in alignment with the winding engine room, a group of unidentified features.

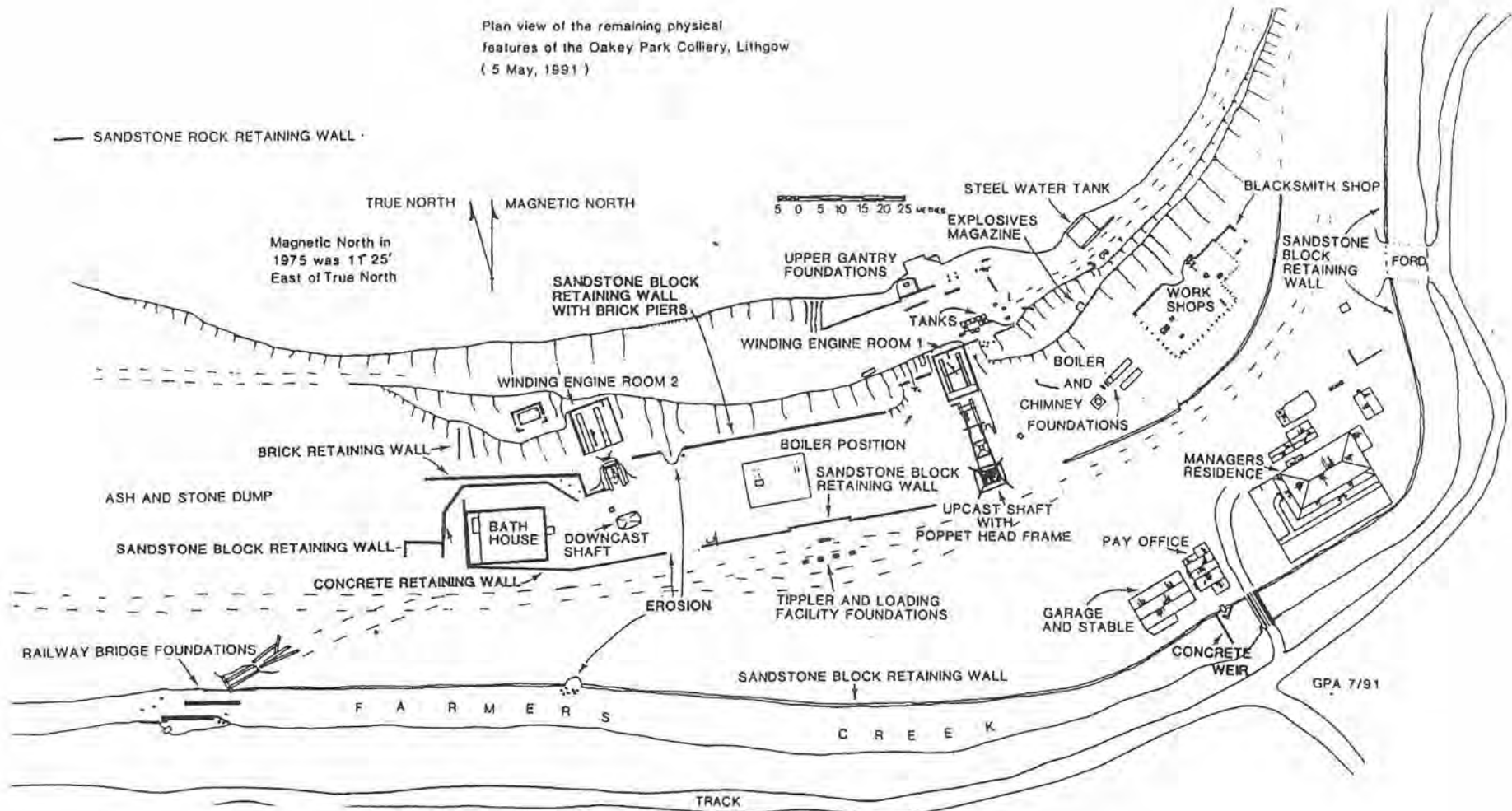
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State Archives, Registers of accidents in coal mines. 1902 to 1924; series 10039. 7/147A-B.

Oakey Park Colliery is situated at the north eastern end of the Lithgow Valley on the northern side of the Great Western Line, facing Farmers Creek and the Bells Line of Road. It was operated using two shafts, with the main shaft being 327 feet deep to the coal seam, and the air shaft being 340 feet deep. A railway siding was constructed to the colliery in 1889, which linked the colliery to the main Western Line. Two styles of coke ovens were constructed on the site: the beehive style was constructed between 1899-1900, of which there were thirty two. The rectangular style was constructed in 1906, of which there were forty. All of the coke production was used in the blast furnace at the Hoskins Steelworks. From 1888 the workforce increased from 9 to a maximum total of 222 in 1919. From generating equipment installed at the colliery, electricity was supplied to the Lithgow and Blaxland Shire Councils. This colliery closed in 1937, eventually being abandoned in 1948 (Brown 1989, 119; Department of Minerals and Energy, various registers; Downey 1972, 29; Genders 1967,4; Schmitz 1988, 125-126).

Many of the site features have deteriorated with some materials being removed or fossicked for reuse. More recently, the wooden poppet headframe (still extant) has been stabilized with restoration work being carried out by the Lithgow Historical Society. The major features which remain on the site are as follows: the managers house; the general office, the pay and stump office with a skillion roof, a garage and stable; four concrete plinths from the coal loading bins, a stone masonry retaining wall, the wooden poppet head frame (note the smaller frame inside the main frame), and the winding engine room No. 1; recent stabilization repairs to the poppet head frame supports; winding engine room No. 2 general view, note the depression area of the No. 2 shaft; a masonry retaining wall facing the northern bank of Farmers Creek, the wall is fragmented in many places, stopping one hundred metres north of the managers house; masonry and concrete foundations with timber baulks from the railway siding bridge; the general area and remains of the boiler house; the general area of the blacksmiths shop, workshops, engine and chimney foundations; a small magazine built into the side of the hill above the workshop area, the internal area is brick lined with a semi-circular roof; above and to the south are ten ships tanks; there are two disused shafts evident, the first directly north of and approximately ten metres higher than winding engine room No. 1 (functions unknown), with the second on a level track, at the sites extreme northern point, approximately fifteen metres above the main site floor.

Plan view of the remaining physical
features of the Oakey Park Colliery, Lithgow
(5 May, 1991)



Stopping one hundred metres north of, function also unknown; located high on the hill north of the managers house is a large steel tank capable of holding a calculated capacity of approximately 50,000 litres. Other minor features exist on the site with most of these being noted in the table listed in Appendix 1, and described in detail in Appendix 5. Armstrong, Gary Partick. *The Archaeology of Coal Mining*, November, 1991.

Track Notes

For safety the vehicles were parked at the disused Lithgow WWII emergency landing ground, GR 389 912 at 0818. A briefing for the day was outlined before we moved off walking east along the Bells Line of Road to GR 398 916 where there is a track junction. We followed the north east track that winds its way down a short hill to Mount Sinai Halt¹⁴⁴, a short 'station' on the Zig Zag historical railway, GR 401 917. This is best described as a quaint anachronism, making for unusual photos. It is entirely appropriate in the context of the Zig Zag Railway.

As the railway has currently suspended operations it was quite safe for us to walk down the track. We had only progressed about 150m when we heard a helicopter overhead. The need to remove trees hanging over the Main Western Line had also resulted in the line being closed for the day. Because of the terrain, a helicopter was employed to lift cut trees out and take them to a disposal area. We had ringside seats to a very dangerous operation and watched in awe as the helicopter lowered a wire rope to workers deep in the valley outside No. 10 tunnel, who then attached this to the cut trees, which were then hauled up into the sky and away to the east.

After photos we continued walking and at 0910 arrived at Edgecombe, GR 400 924. A picture for the record and our walk continued to a sign 'Whistle', GR 400 927. This is an instruction to a train driver to sound the horn/whistle. Nearby there is spur line where a number of old carriages are stored. Regrettably these have been vandalised.

We moved on and at 0922 came across some concrete picnic shelters and water tank, GR 398 929. Stephen advised that these were built in 1976. There are a number of almost identical shelters scattered along the length of the Zig Zag. None are currently used as picnic shelters and most have found a use as storage for service equipment.

Also at GR 398 929 there is a natural spring. An improvised trough made from a large diameter terra cotta pipe sunk into the ground enabled water to be conveniently collected. The trough has now silted up and is just a curiosity. I did note that later when we visited Bottom Points that there is a soak. A study of the map would seem to indicate that these two water sources are connected.

At 0927 we passed a white post with the number 90 written on it. Stephen explained that this post was exactly 90 miles from a marker at the end of platform No.1 at Central Station in Sydney. Three minutes later we reached No. 1 Viaduct. This is one of three viaducts that made the Zig Zag Railway an engineering possibility. Fulsome descriptions of each of the viaducts are given in the Background Notes. We spent quite a bit of time here taking photos and marvelling at the workmanship of the stonemasons who created the amazing arches and the total structure.

¹⁴⁴ 'Halt' was used rather than platform or station where the facility was only manned for restricted hours

Next it was a lesson in railway signals. Stephen and Chris climbed up to the high platform where in times past the signaller would have had to climb to replenish the kerosene supply that lit the lights. The signals have since been electrified.

At 1000 we arrived at Top Points. The original Top Points was removed in 1910. The Zig Zag Coop built a new one at a latter stage, so the signal box is not the original. The current signal box was rescued from demolition at another station and then installed with all the gear. It has an impressive array of levers and display boards.

We then moved onto the buffer stop, GR 388 930. It was here on 4th April 1901 that the engine was on a train heading west when its brakes failed to hold. In those far off days the only brakes on a train were on the engine, and the brake van (hence the name). This did not provide much braking power. It was common practice to stop the train before a steep grade and manually apply the brakes to the carriages before descending the grade. (The brakes on the engine/brake van could be applied when the train was in motion by the driver/guard). In this instance the engine almost toppled over the cliff edge into Ida Falls Creek. The picture of this event is widely circulated.

After a brief look around we had morning tea in this historic precinct. Later, Stephen regaled us with stories and information about the mines and coke ovens in Ida Falls Creek, New Vale Colliery, and also those in Oakley Park¹⁴⁵, which could be seen from this same vantage point.

After some time appreciating the scale of this event, we walked south along the Top Points Wing at GR 389 928. This is an amazing place where the railway line literally stops at a sandstone wall some 15m high. On a spur line there are several old carriages and the internal boiler tube assembly of a railway engine steam boiler and firebox. This is a massive item, and also a very photogenic one. Lots of pictures were taken.

Walking back up the line towards Top Points Station, we walked under a wooden pedestrian overpass bridge. This bridge used to be installed at Coerwull, in Lithgow. While it looks impressive it also looks out of place with modern brick supports. Pushing on we continued back down the line to where the upper and lower gradients of the first zig zag diverge, GR 391 930. We also photographed some interesting hand cut steps that enabled linesmen and others to access one track to the other.

Viaduct No. 2 was then crossed. As before we marvelled at the fine workmanship of the stonemasons and their ability to lift and move such large pieces of dimensioned sandstone into position, high above very difficult terrain. As we passed under Viaduct No. 1, we looked up and took pictures of the beautifully proportioned stone arches. The stonemasons working for Patrick Higgins also built the lining for the tunnel just up from Rosegardens Station, GR 397 929, again magnificent workmanship.

As a station Rosegardens is like so many Sydney suburban railway stations with tended lawns and gardens exhibiting a great variety of exotic plant species. A few hundred metres further on was Bottom Points Station, GR 400 929. This is a full scale railway station with a waiting room, toilets and a cafeteria – all closed as is normal on any suburban station. What is different is that the Main Western Line is adjoining. Today, although it was closed to rail traffic it was a buzz of activity. It was from here the tree cutters had entered to work near

¹⁴⁵ See Background Notes at the start of this report.

Tunnel No. 10. In addition there were dozens of workers and a great deal of equipment deployed on repairs to the line.

At 1151 we negotiated with the site foreman to allow us to cross at the public right of way at Bottom Points, GR 394 930. As we passed through, I took a note of all the sheds and other gear that the Zig Zag Railway Co-op had in this area. We had now walked the Zig Zag Railway.

Walking out along the access road we stopped and noted still extant buildings of the Oakey Park Colliery including the Mine Managers House, the payroll office and the head brace of the mine. Note was also taken of the road to the Farmers Creek dams visited previously.

After a short walk along Bells Road, we went feral and descended into a creek, Ida Falls Creek, and then walked through another great sandstone culvert, c.1869, GR 386 932. We had now entered the lower catchment of Ida Falls Creek and walked into the historic site of the The Vale (New) Colliery (a.k.a. Vale and Easter RP), 1888–1900. It is a rather mournful and depressing area. Huge tailing piles covered with frost browned bracken, a rusting wrecked car body and piles of crumbling masonry characterise this wasteland. The lower creek bed is a jumble of detritus.

By 1221 we were walking along the rail spur alignment that serviced the mineshafts and coke ovens. A massive concrete block with erect steel bolts stood in testimony of where the winding gear was once positioned, GR 386 930. As we moved upstream in the valley, some natural regeneration was evident. We chose a relatively pleasant spot at GR 387 928 to have lunch.

Moving on at 1255, GR 388 927 we reached the old Ida Falls Creek Dam. This tiny structure, essentially a double brick wall some two metres high was probably built to provide water for quenching the coke from the coke ovens and water for the boilers that powered the coal mine. Below the dam wall is a small pool that Stephen states used to be OK for swimming. The water has a hard almost metallic brilliance, and blue green cast that makes me suspicious of its quality. No life of any kind was seen in the length of the creek.

Post lunch there was a significant amount of clambering and negotiation of fallen trees and rubbish vegetation. A side creek from the east enters at GR 389 924. While it looks a little more inviting, I would not want to drink it. As we moved further upstream there was plenty of rock hopping adding to the adventure. By 1329 we had made good progress and rounded a major bend, GR 389 922. At this point we climbed high to the base of the encircling cliffs on the northern side.

The area we now entered is well known for early signature graffiti, c. 1880s. Also there are three possible sites where hand stencils occur. These are of dubious authenticity as one shows an unusual position of the fingers; also the chosen substrate is not in keeping with other genuine sites. Proof one way or the other is not possible. These sites are clustered around GR 391 922.

We next made our way into a dank recess, GR 392 923. Growing here was a clump of small trees that I have identified as Black Sassafras, *Atherosperma moschatum*. This tree is relatively uncommon except at high altitudes in ferny gullies.

Next we had the natural highlight of the day, a view of Ida Falls sparkling in the sun. This two tier waterfall was at its very best although you could tell from the bleaching of the rocks below the falls that all was not well with the water. It was also at this juncture where we had to make a decision about our exit from Ida Falls as to whether we would negotiate a very narrow, high level ledge with exposure or not. The consensus was that we would not as it involved pushing packs in front of you for some 30m along a ledge that often narrowed to less than 15 cm. Some of the party had previously done the ledge crawl without packs.

Having made this decision we opted to retrace our steps to a ramp exit at GR 390 922. This ramp does not show on the topographic map. It was 1412 before we all made it to the top, GR 391 923, elevation 1027m. Our position was now on a small plateau, shown on the topographic map as Lithgow Valley Reserve. This area was once the major recreational playground for the people of Lithgow. It had this status before universal car ownership and when the principal recreation was walking and picnics.

A brisk walk to GR 396 923, and we intercepted an old track that we knew was once the hub of this social activity. Concrete chairs and tables, massive fire places and the footings of shelter sheds and the ruins of elaborate stone amenities blocks stand as relics of a time when the heath land was mowed and hundreds of visitors made regular pilgrimages.

By 1431 we reached the fork in the track passed several hours earlier in the day, GR 395 921, and minutes later we were back at the vehicles. Total distance 13.7km, total ascents 388m.

Table of Times, Localities and Grid References

Time	Location	Grid Reference
0818	Lithgow WWII landing ground	389 912
0833	Road junction	398 916
0850	Mount Sinai Halt	401 917
0906	Helilogging in action	400 920
0910	Edgecombe	400 924
0915	Whistle siding	400 927
0922	1976 picnic shelters + spring	398 929
0927	90 mile post	398 929
0930	No.1 viaduct	396 929
0956	Signal set	392 930
1000	Top Points	388 930
1011	Buffer stop + Morning tea, 14 minutes	388 930
1041	Exploring terminus + Old boiler	388 928
1101	Change of gradient between zig zags + No. 2 viaduct	391 930
1122	No. 3 viaduct + site of No. 2 tunnel collapse	398 930
1126	Rosegardens Station + Bottom Points station	399 929
1151	Crossing Main Western Line at Bottom Points	394 930
1158	Oakey Creek Colliery -managers house	391 934
1209	Walk through old sandstone culvert	386 932
1226	Observe various relics from Oakey Creek Colliery	386 930
1232	Lunch on extension of former rail siding to Vale Colliery	387 928
1300	Ida Falls Creek Dam	388 927
1312	Side creek entry	389 924

1321	In Ida Falls Creek	389 923
1329	Big bend in Ida Falls Creek	389 922
1335	Aboriginal stencil art site (questionable)	391 922
1355	Black Sassafras	392 923
1400	View Ida Creek Falls	392 922
1406	Ramp exit bottom	390 922
1412	Ramp exit top (1027m)	391 923
1427	Old road	396 923
1431	Fork in road	395 921
1444	Bells Line of Road	398 916
1450	Lithgow WWII landing ground	389 912

GGOS Volume 7 06052014-1/MK