

H SPRING REPTILES SURVEY (DECEMBER, 2004)

FINAL REPORT

Crookwell II Wind Farm - Spring Reptiles Survey

Prepared for

WFJV

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URS

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As part of the Environmental Impact Statement (EIS) for the proposed Crookwell II Wind Farm, flora and fauna surveys were undertaken across the project area between March and May 2004.

Appendix H of that EIS provides full details of those surveys and the associated flora and fauna impact assessment. Section 4.2.1 of Appendix H details the threatened species identified from the initial literature search, which included two species of reptile:

- Tablelands Worm Lizard (*Aprasia parapulchella*) also referred to as the Pink Tailed Legless Lizard; and
- Little Whip Snake (*Suta flagellum*)

The original site survey work included searching for these species, but as noted in Section 4.2.2 of Appendix H, “*the Yellow Whip Snake and Pink Tailed Legless Lizard were not recorded at turbine/river sites considered most suitable [habitat] despite dedicated searches for [these] species.*”

The timing of the survey was not considered optimal for the potential detection of the species and hence a spring survey was recommended to confirm the findings. During the spring, the breeding season for these species, they are more active and hence most likely to be seen. This spring reptile survey recommendation was part of the mitigation measures presented in Section 11.6.2 of the EIS.

Biosphere Environmental Consultants Pty Ltd were engaged by URS Australia Pty Ltd (URS) on behalf of Wind Farm Joint Venture (WFJV) in October 2004 to carry out the follow-up reptile field survey and assessment (with particular focus on the Yellow Whip Snake). The aims of the survey were:

1. to determine the range of reptile species that occur on the project site; and
2. to determine whether either species of threatened reptile was present, and if so, to recommend mitigation measures to help conserve these species.

Biosphere Environmental Consultants Pty Ltd is fully licensed by the NSW National Parks and Wildlife Service (Scientific Licence F10193) to carry out flora and fauna surveys for all animal and plant groups. In addition, the fauna survey methods have been approved by the NSW Department of Agriculture’s Animal Ethics Committee and Biosphere has been accordingly licensed for these survey methods.

2.1 Timing of Surveys

The survey was timed to maximize the chances of detecting target reptile species. For the two threatened species potentially on the site, this meant selecting a period in the later spring/early summer when ground conditions were not too dry and air temperatures were not too hot. Favourable weather conditions were experienced in mid-November and so the initial site visit was carried out on the morning of the 16th of November 2004.

Good rains in October had provided some much needed ground moisture and produced some run-off for the small streams and runnels on the site. Day temperatures in mid-November were typically in the mid 20s with night temperatures remaining mild, between 14°C and 16°C.

2.2 Survey Methodology

Four-wheel drive vehicles were used to traverse the paddocks and ridge tops of the site so that potential habitat areas could be identified. Farm tracks allowed vehicle access to almost all parts of the site, except the extreme north-east; this area had to be accessed by foot.

During the inspection it became readily apparent that native ground cover was almost completely absent from the site, and shelter materials such as a rocks and fallen timber were also in short supply. Any areas where rocks protruded above the ground, or where there were fallen logs or timber piles were noted on a field map.

2.2.1 Reptile Surveys

Reptile surveys commenced on the afternoon of 16 November and were completed by the afternoon of 18 November 2004. As ground cover was so scarce, all areas where exposed rocks were present were visited and loose rocks were overturned to try to locate sheltering reptiles. Rock piles and cairns were taken apart and later rebuilt. Crevices in large rocks were examined using a head lamp. Logs were overturned and split apart to try to locate sheltering reptiles. Timber piles were taken apart and later restacked. All habitat structures were restored as best as possible after they had been thoroughly searched.

Most potential reptile habitat was located in the deeper gullies away from the ridge-top sites where turbines are to be located. As these areas were habitat for reptiles they were traversed at least twice during the survey period. A long handled rake was used to uncover reptiles from long grass and sedges along the creek banks. All reptiles caught were identified and released. Some were photographed before being released.

The areas surveyed were as follows:

- 16 November: Pigmans Hill area, Wollondilly River valley from Gundowringa pumphouse to southern boundary;

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- 17 November: Stony Creek valley, native woodland, eastern boundary. Wollondilly River valley from ford to northern boundary. Wollondilly River valley from ford to southern boundary. Savannah homestead, sheds, outbuildings and yards;
 - 18 November: Monument Hill Area. Rocky ridge west of Ahgunyah including native woodland. Gundowringa Homestead, buildings, shearing shed, feed bins etc. Various wood heaps, scrap metal etc. around homesteads.

These areas are shown on Figure 1.

2.3 Frog Surveys

The habitat searches for reptiles produced several frogs which were identified and released. On the night of 16 and 17 November 2004 frog surveys were carried out along the creeks and dams on the site. The survey consisted of:

- auditory survey: areas of fresh water were visited during the evening and all calling frogs were identified and recorded; and
- headlamp search: areas along the Wollondilly River and its tributaries were traversed on foot. Non-calling frogs were searched for using a headlamp. Logs, rocks or other items of solid ground cover were overturned to search for sheltering frogs.

3.1 Threatened Reptile Species

Areas of native woodland with dense leaf litter or ground cover were almost completely absent from the site. Two small areas of this habitat were present:

- the first on the western side of the Crookwell Road near the Ahgunyah homestead;
- the second on the eastern side of the road near Table Mount.

These represented the most likely habitat for the Little Whip Snake. Habitat for the Tableland Worm Lizard was not evident on the site, weathered and layered rocks were not present and layered rocks on the ground did not exist on the site (Cogger, 2000).

Neither the Tablelands Worm Lizard or the Little Whip Snake were detected during the surveys, and there was very limited habitat areas present at the site for either species.

3.2 Reptiles Detected

Twelve reptile species were found during the surveys, these included seven species of skink, one dragon, one turtle and three snakes, as shown in Table 1.

Table 1: Reptiles Located during Survey

Species	Locations	Relative Abundance
Eastern Snake-necked Turtle <i>Chelodina longicollis</i>	Farm Dams	Only two were seen but the turtles are likely to be common as there were many dams scattered across the site.
Eastern Bearded Dragon <i>Pogona barbata</i>	Stony Creek	Only one dragon found near wood heap.
Cunninghams Skink <i>Egernia cunninghami</i>	Present in most areas where granite outcrops were present, especially along the deeper gullies.	The most commonly seen reptile.
Black Rock Skink <i>Egernia saxatilis</i>	Granite tors near Ahgunyah	Only one found
Eastern Blue-tongue Lizard (a skink) <i>Tiliqua scincoides</i>	Near Gundowringa homestead	Only one found
Eastern Water Skink	Present along creeks or watercourses	Relatively common

Species	Locations	Relative Abundance
<i>Eulamprus quoyii</i>	that had water in them	
Grass Skink <i>Lampropholis guichenoti</i>	Present in grassy areas in lower gullies. Absent from the higher and more exposed areas of pastures.	Uncommon
Garden Skink <i>Lampropholis delicata</i>	Only found around Gundowringa Homestead	Uncommon
Wall Skink <i>Cryptobelpharus virgatus</i>	Found on log piles, wood rows or larger fallen trees.	Uncommon
Mainland Tiger Snake <i>Notechis scutatus</i>	Along banks of Wollondilly River and Stony Creek	Three seen, may be common
Eastern Brown Snake <i>Pseudonaja textilis</i>	Near sheep yards Gundowringa.	One seen
Copperhead <i>Austrelaps superba</i>	Wollondilly River near pumphouse; Stony Creek	Two seen

All of the above reptiles are regarded as common or secure species. None are listed as threatened, endangered or vulnerable under New South Wales or Commonwealth statutes

3.3 Frog Species

Seven frog species were located; these comprised one tree frog species and six species of ground frog as shown in Table 2.

Table 2: Frog Species Found

Species	Locations	Relative abundance
Verreauxs Frog <i>Litoria verreauxii</i>	Most farm dams and larger pools on Wollondilly River.	Common
Eastern Banjo Frog <i>Limnodynastes dumerilii</i>	Larger waterholes along Wollondilly River and Stony Creek	Common
Spotted Grass Frog <i>Limnodynastes tasmaniensis</i>	Present in larger dams and in Wollondilly River and Stony Creek	Common
Striped Marsh Frog	Boggy areas along Wollondilly River	Common

Species	Locations	Relative abundance
<i>Limnodynastes peronii</i>		
Common Eastern Froglet <i>Crinia signifera</i>	Boggy areas along Wollondilly River and Stony Creek	Common
Beeping Froglet <i>Crinia parinsignifera</i>	Most dams and shallower areas along river	Common
Dusky Toadlet <i>Uperoleia fusca</i>	Present in three dams	Relatively uncommon

All of the above frogs are regarded as common or secure species. None are listed as threatened, endangered or vulnerable under New South Wales or Commonwealth statutes.

3.4 Discussion

3.4.1 Threatened Reptile Species

The Little Whip Snake and the Tablelands Worm Lizard were not detected in this survey. There are also no historic records of these species from the immediate area of the site of the proposed wind farm. The failure to find these reptiles was not unexpected as habitat for both species was lacking. Although granite outcrops were present in some of the deeper gullies, they did not weather to produce laminar rock shards or other weathered pieces that could be used as shelter by these legless lizards. The granite tors either split to create deep angular cracks or weathered down to a mushy gravel. Neither of these substrates provide viable habitat for the Tablelands Worm Lizard.

The Little Whip Snake prefers eucalypt woodland or native grasslands in stony country. However, at the site, almost all of the native woodland had been historically cleared from the site and the native grasslands replaced by exotic pasture. The absence of this type of habitat is exemplified by the scarcity of small lizards on the site, such small lizards being the prey items for the Little Whip Snake. Hence the site lacks habitat that is capable of either providing sufficient food or shelter for the Little Whip Snake.

3.4.2 Reptile Diversity

The diversity of reptiles on the site was low. The site totally lacks goannas, pygopodids and geckoes. The abundance of most of the reptile groups present was low, with only two species readily seen, namely the Cunninghams Skink and the Eastern Water Skink. Most reptiles were found close to the two watercourses that contained water (Wollondilly River and Second Creek). Away from the creeks, reptiles became very scarce or totally absent. The large predatory snakes were also confined to the creeks where frog abundances were relatively high.

The low diversity of reptiles is a reflection of the paucity of habitat areas across the site. Extensive land clearing means only a few native ground cover plants remain and the majority of the vegetation cover is provided by exotic plants. The only areas not completely cleared were the creek banks where some sedges and native grasses remained. However, the native trees had been removed and only exotic trees (mostly willows) were present in these areas.

In the few areas where granite boulders were exposed and split, rock-haunting lizards were present in high densities.

The results of the spring reptile survey for the site of the proposed Crookwell II Wind Farm show that:

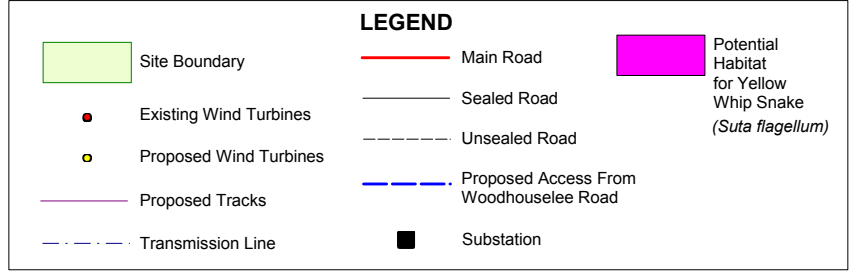
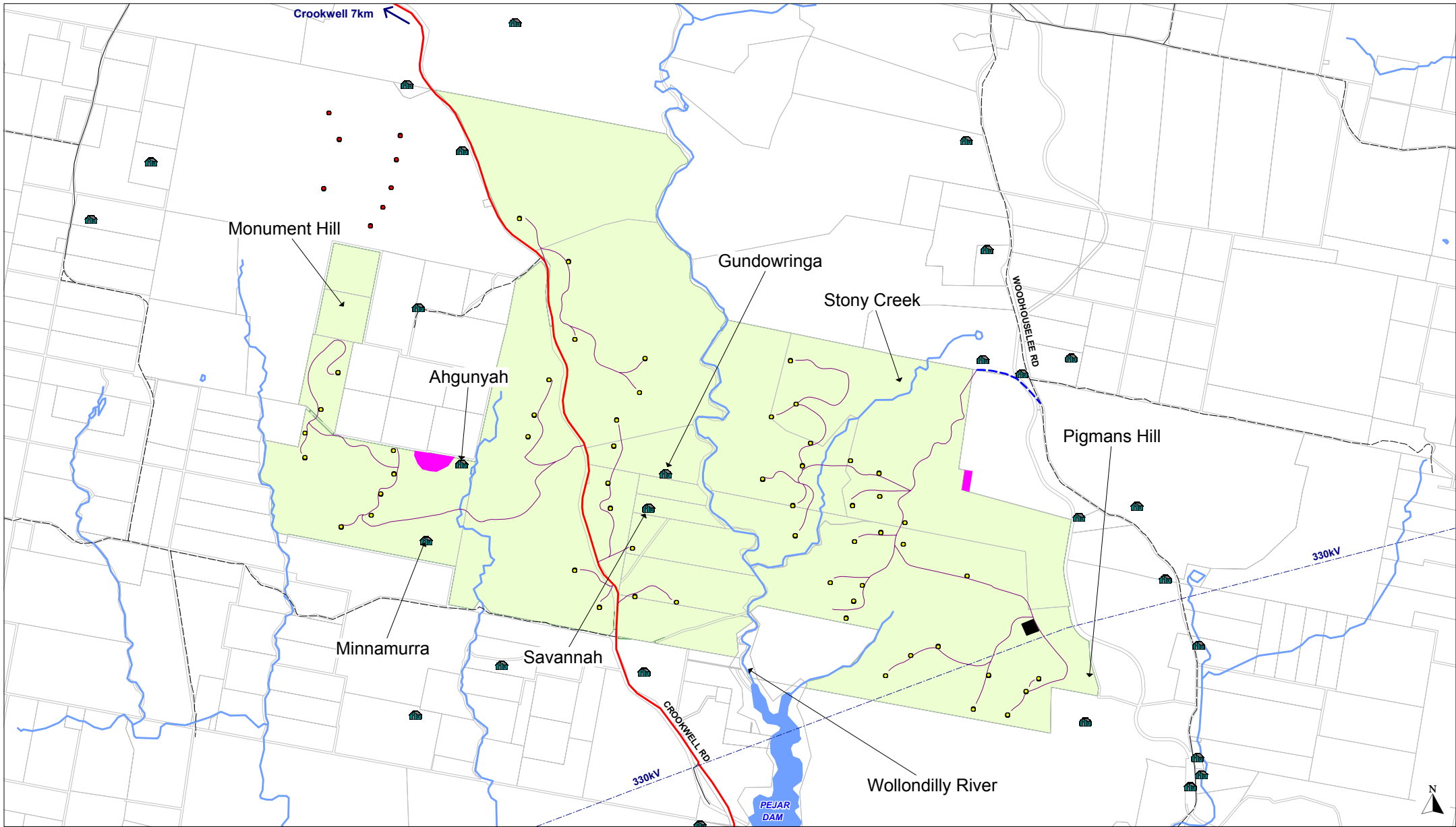
- the project site is a highly altered landscape where most native vegetation has been removed and replaced with exotic vegetation;
- there are only tiny, isolated areas of potential habitat present that could be used by the Little Whip Snake. These areas do not have any proposed turbine locations within them;
- there are no areas of potential habitat for the Tablelands Worm Lizard; and
- it is highly unlikely that either species is present on the site, given that the survey failed to find any evidence of either species.

Hence it can be concluded that:

- as the proposed development areas for the wind farm (turbine sites and access tracks) do not cross or impact on habitat areas for Little Whip Snake, no modifications to the site layout are required;
- as none of the few viable habitat areas for the Yellow (*presumably Little ?*) Whip Snake are not in the vicinity of the proposed development areas for the wind farm, no further mitigation or management measures are required to protect these habitat areas; and
- given the suitability of conditions and the findings of this reptile survey, no further survey work is required.

Cogger, H.G. 2000. Reptiles and Amphibians of Australia. 6th ed. Reed Books, Frenchs Forest.

Figures



Map compiled using MapInfo StreetPro. © 2004 MapInfo Australia Pty Ltd and PPSMA Australia Ltd. URS Australia, MapInfo Australia or PPSMA Australia do not warrant the accuracy or completeness of information in this publication and any person using bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

		URS Australia Pty Ltd	
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Fig: 1	Approved: CDS		
Client: Wind Farm Joint Venture		Status: FINAL	
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			Projection: AGD66 Zone 55