

References

- Biosis 2011. *Response to Letter from Trade and Investment, Minerals and Resources Re: "Dendrobium Mine – Subsidence Management Plan Area 2 – Impacts to Swamp 1"*. Report to BHP Billiton Illawarra Coal. Authors: Garvey, N. Biosis Pty Ltd, Wollongong. Project no. 14211.
- Biosis 2012. *Elouera and Dendrobium Ecological Monitoring Program. Annual Monitoring Report Financial Year 2010/2011*. Report to BHP Billiton Illawarra Coal. Authors: Reed, K.
- Cardno 2012. *Longwalls 4 and 5; Maingates 6, 7 and 8. Application for s75W Modification 1 to MP 10_0046 – Preliminary Works Project*. Report for Gujarat NRE.
- Comur Consulting 2012. *End of Panel Report for Longwall 7 at Dendrobium Colliery*. Report for BHP Billiton Illawarra Coal.
- DEH 2005. *Map of Temperate Highland Peat Swamps*. Map published by the Department of Environment and Heritage, Canberra. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>. Accessed 20/08/2012.
- DoP 2008. *Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield: Strategic Review*. NSW Department of Planning, Sydney.
- DSEWPaC 2012. *Temperate Highland Peat Swamps on Sandstone SPRAT Profile*. Department of Sustainability, Environment, Water, Population and Communities, Canberra. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>. Accessed 20/08/2012.
- EartTech 2003. *Swamp of the Woronora Plateau. Program 1: Understanding Swamp Conditions*. Report for BHP Billiton Illawarra Coal.
- ERM 2011. *NRE No. 1 Colliery Stage 2 Environmental Assessment*. Report to Gujarat NRE Coking Coal Ltd.
- ERM 2012. *NRE No. 1 Colliery Proposed Wongawilli Seam Longwalls 4 and 5 Ecological Assessment*. Report for Gujarat NRE Coking Coal Ltd.
- Keith, D., Rodoreda, S., Holman, L. and Lemmon, J. 2006. *Monitoring Change in Upland Swamps in Sydney's Water Catchments: The Roles of Fire and Rain*. Department of Environment and Climate Change, Sydney.
- MSEC 2012. *Dendrobium – Area 3A – Longwall 7. End of Panel Subsidence Monitoring Report for Dendrobium Longwall 7. MSEC545 RevA*. report for BHP Billiton Illawarra Coal.
- NPWS 2003. *Native Vegetation of the Woronora, O'Hares and Sydney Metropolitan Catchments*. NSW National Parks and Wildlife Service, Sydney.
- NSW Scientific Committee 2012. *Coastal Upland Swamp in the Sydney Basin Bioregion – Endangered Ecological Community Listing*. NSW Scientific Committee, Sydney.
- OEH 2012. *Upland Swamp Environmental Assessment Guidelines. Guidance for the Underground Mining Industry Operating in the Southern Coalfield*. Office of Environment and Heritage, Sydney. Draft August 2012.
- PAC 2009. *The Metropolitan Coal Project Review Report*. NSW Planning and Assessment Commission, Sydney.
- PAC 2010. *Bulli Seam Operations PAC Report*. NSW Planning and Assessment Commission, Sydney.
- Seedsman 2012. *Gujarat NRE No. 1 Colliery. Management of Subsidence Risks Associated with Wongawilli Seam Extraction*. Report for Gujarat NRE Coking Coal Ltd.

Tompkins, K.M. and Humphrey, G.S. 2006. *Evaluating the Effects of Fire and Other Catastrophic Events on the Sediment and Nutrient Transfer Within SCA Special Areas. Technical Report 2: Upland Swamp Development and Erosion on the Woronora Plateau*. Sydney Catchment Authority – Macquarie University Collaborative Research Project.

TSSC 2005. *Commonwealth Listing Advice on Temperate Highland Peat Swamps on Sandstone*. Threatened Species Scientific Committee, Canberra.

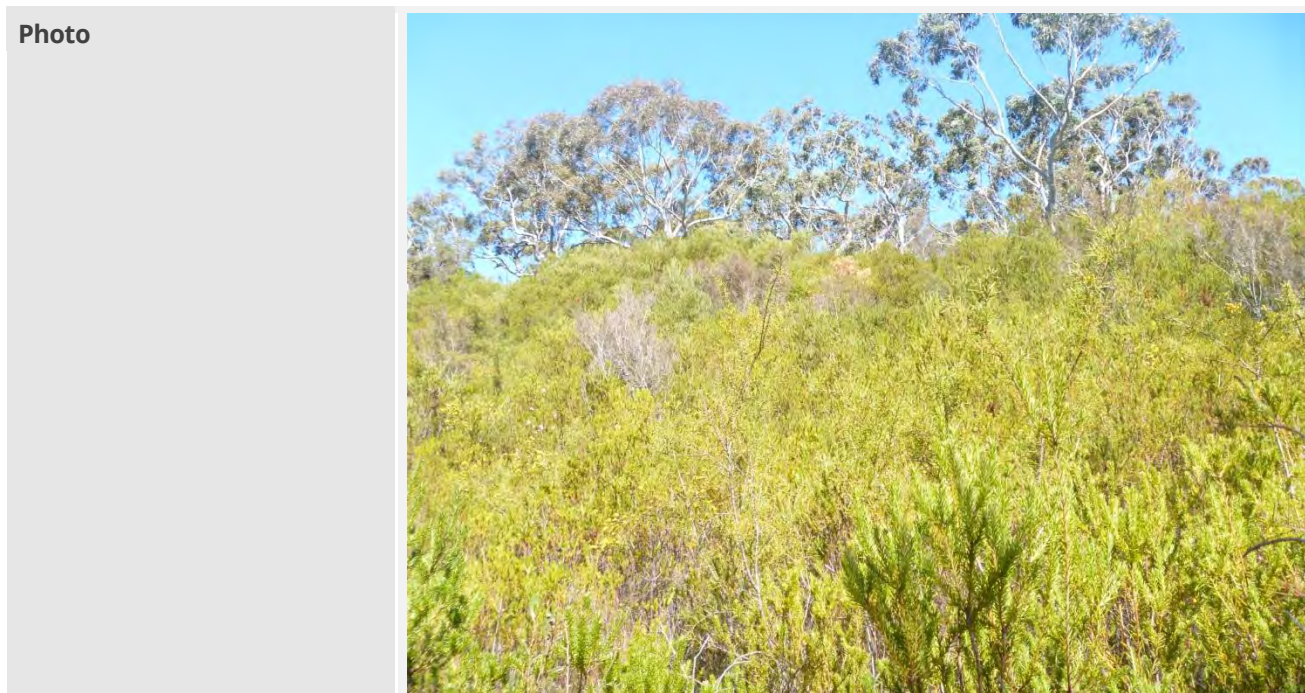
Young, A.R.M. 1982. *Upland Swamps (Dells) on the Woronora Plateau*. PhD Thesis, University of Wollongong.

Appendices

Appendix 1: Detailed Data for Upland Swamps

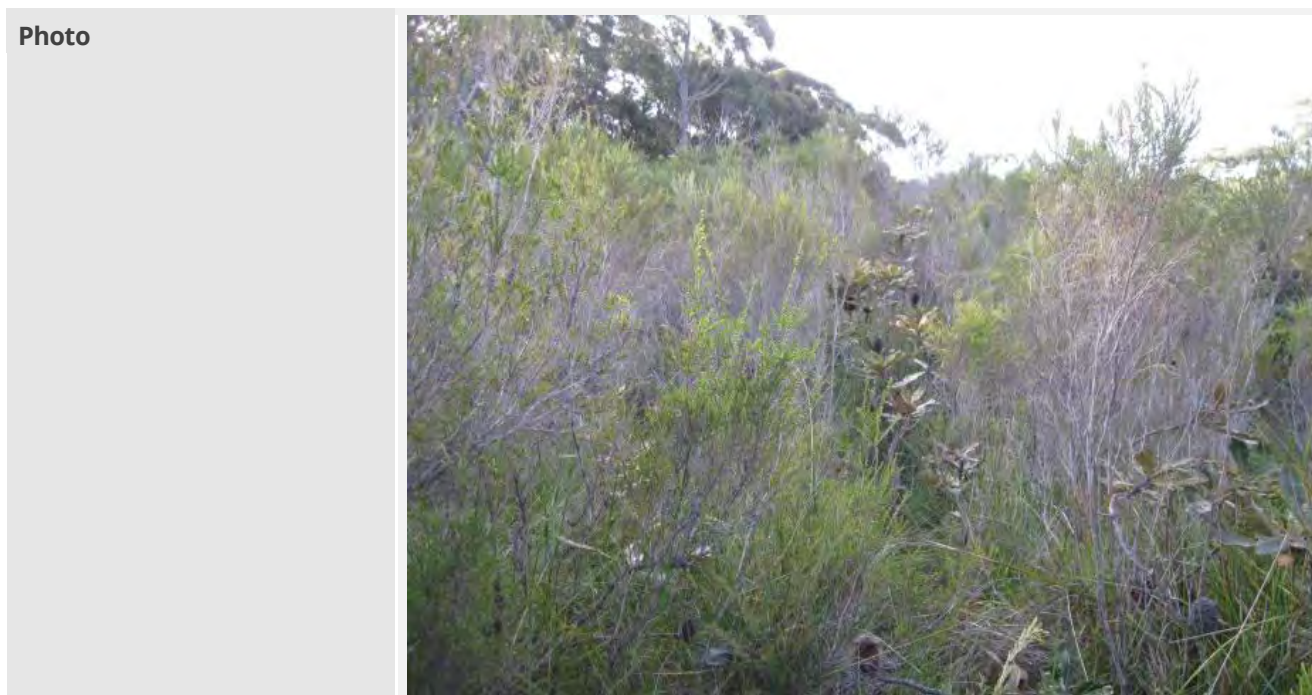
Bellambi Creek Upland Swamp 1 (BCUS1)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.16
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	

Bellambi Creek Upland Swamp 2 (BCUS2)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.89
Vegetation communities	Banksia Thicket (MU42)
Special significance	No



Bellambi Creek Upland Swamp 3 (BCUS3)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.12
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Bellambi Creek Upland Swamp 4 (BCUS4)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	2.20
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43)
Special significance	No



Bellambi Creek Upland Swamp 5 (BCUS5)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.96
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43)
Special significance	No
Photo	

Bellambi Creek Upland Swamp 6 (BCUS6)

Area	Wonga East
Swamp type	Headwater
Size (ha)	1.37
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43)
Special significance	No
Photo	

Bellambi Creek Upland Swamp 7 (BCUS7)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.62
Vegetation communities	Banksia Thicket (MU42)
Special significance	No



Bellambi Creek Upland Swamp 8 (BCUS8)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.66
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Bellambi Creek Upland Swamp 9 (BCUS9)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.27
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Bellambi Creek Upland Swamp 10 (BCUS10)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.41

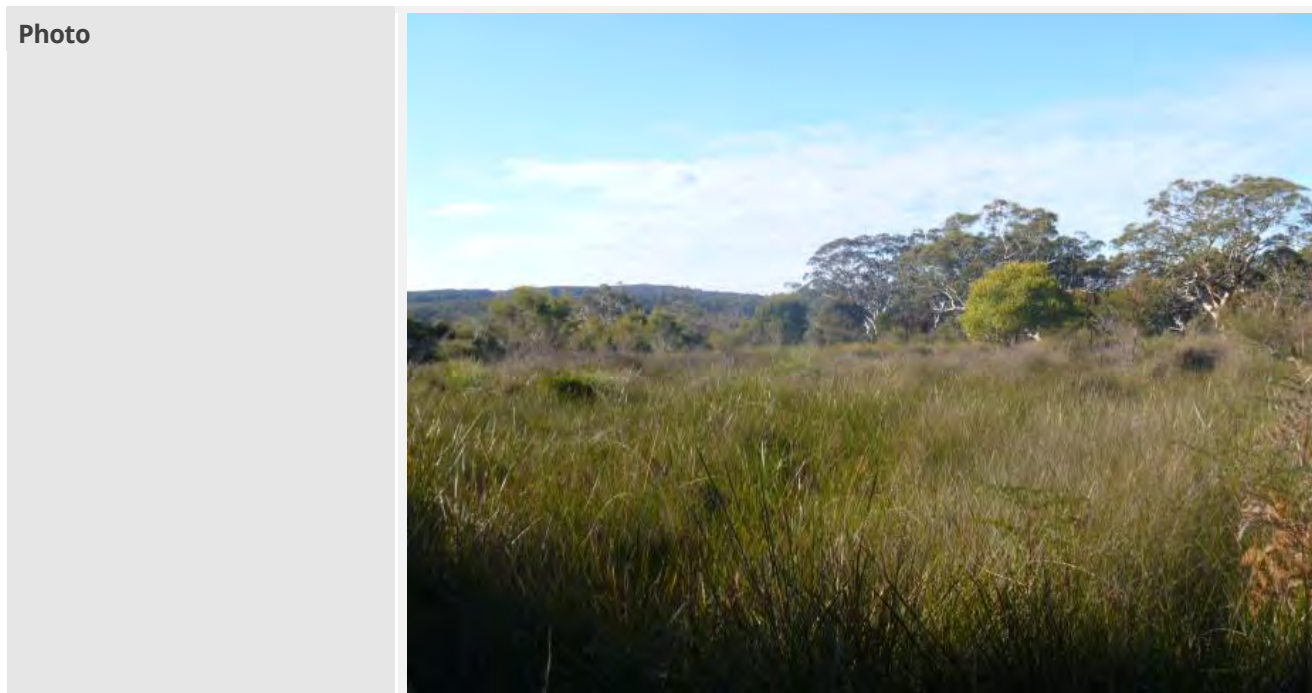
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Bellambi Creek Upland Swamp 11 (BCUS11)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.26
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No
Photo	

Cataract Creek Upland Swamp 1 (CCUS1)

Area	Wonga East
Swamp type	Headwater
Size (ha)	4.81
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Restioid Heath (MU44b), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity



Cataract Creek Upland Swamp 2 (CCUS2)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	1.21
Vegetation communities	Sedgeland (MU44a), Restioid Heath (MU44b)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 3 (CCUS3)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.55
Vegetation communities	Banksia Thicket (MU42), Sedgeland (MU44a)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 4 (CCUS4)	
Area	Wonga East
Swamp type	Headwater

Size (ha)	1.77
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	No

Cataract Creek Upland Swamp 5 (CCUS5)

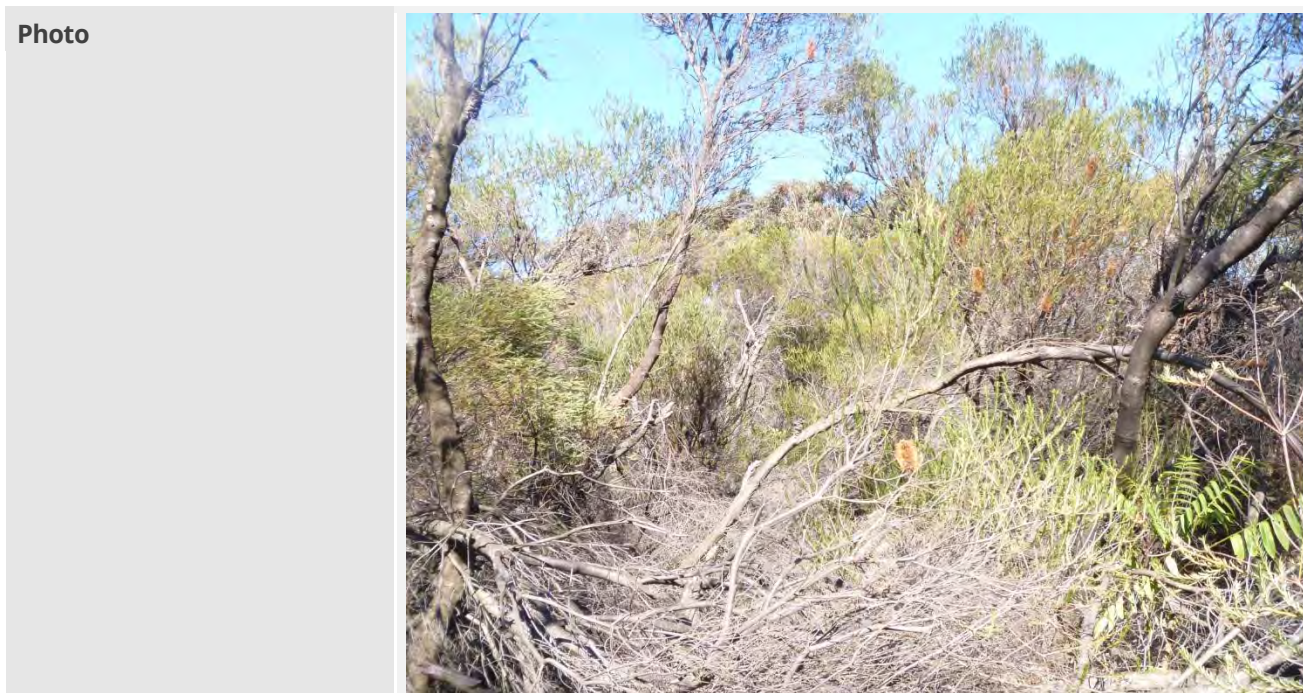
Area	Wonga East
Swamp type	Headwater
Size (ha)	3.45
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Sedgeland (MU44a)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	

Cataract Creek Upland Swamp 6 (CCUS6)

Area	Wonga East
Swamp type	Headwater
Size (ha)	2.05
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 7 (CCUS7)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	1.32
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	

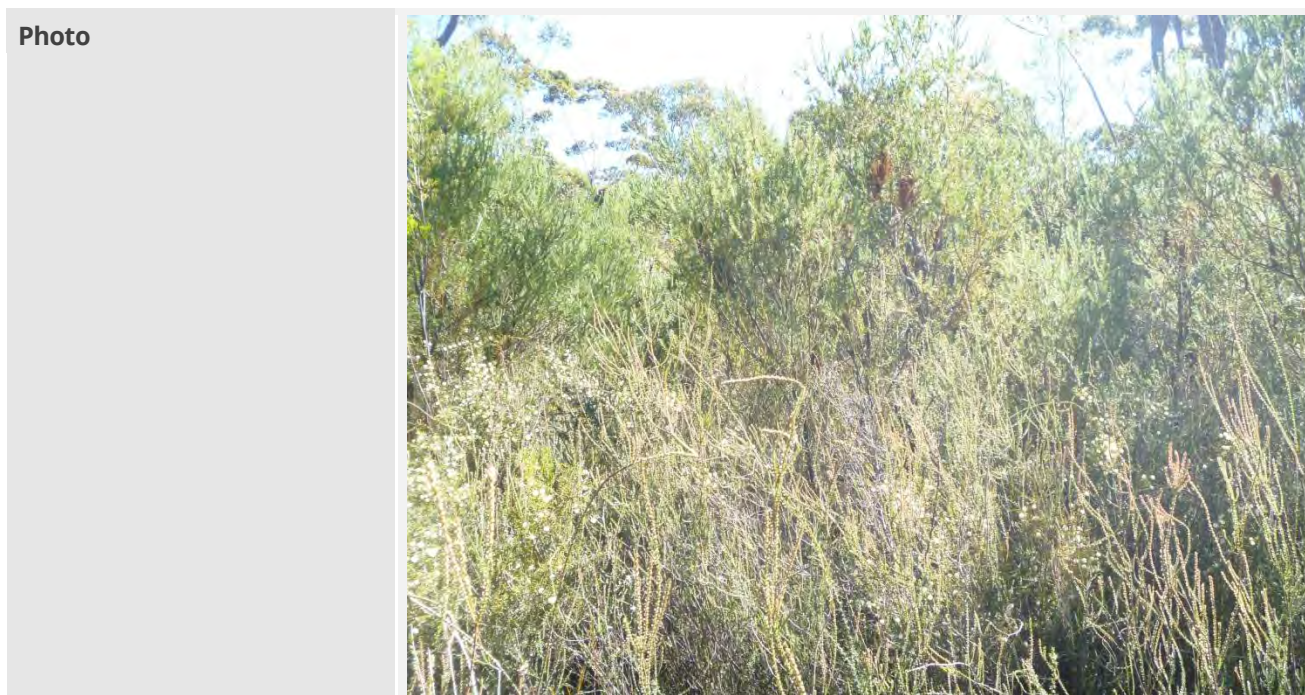
Cataract Creek Upland Swamp 8 (CCUS8)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.46
Vegetation communities	Banksia Thicket (MU42)
Special significance	No



Cataract Creek Upland Swamp 9 (CCUS9)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.76
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	

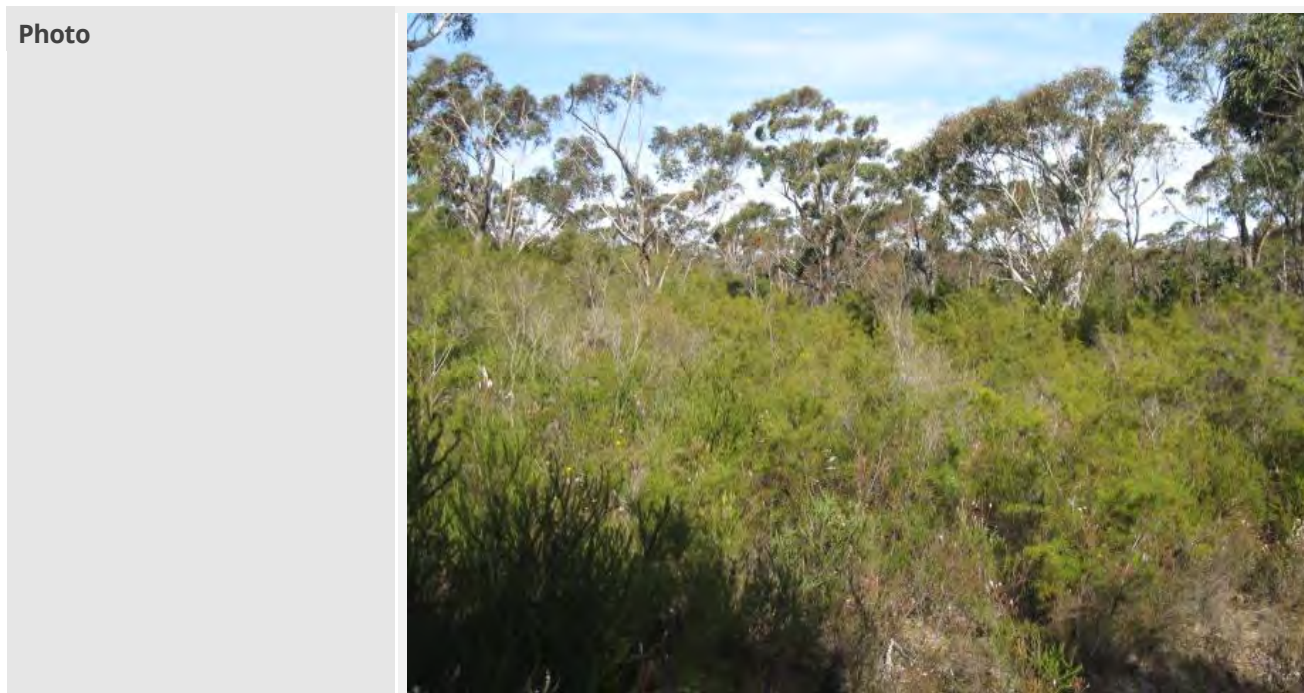
Cataract Creek Upland Swamp 10 (CCUS10)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	1.63
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	

Cataract Creek Upland Swamp 11 (CCUS11)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.34
Vegetation communities	Banksia Thicket (MU42)
Special significance	No



Cataract Creek Upland Swamp 12 (CCUS12)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	1.84
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 13 (CCUS13)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.26
Vegetation communities	Banksia Thicket (MU42)
Special significance	No



Cataract Creek Upland Swamp 14 (CCUS14)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.37
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	

Cataract Creek Upland Swamp 15 (CCUS15)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.06
Vegetation communities	Tea-tree Thicket (MU43)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 16 (CCUS16)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.87
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	

Cataract Creek Upland Swamp 17 (CCUS17)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	0.07

Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 18 (CCUS18)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.05
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 19 (CCUS19)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.04
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 20 (CCUS20)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.55
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 21 (CCUS21)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.05

Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Cataract Creek Upland Swamp 22 (CCUS22)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.31
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No
Photo	

Cataract Creek Upland Swamp 23 (CCUS23)

Area	Wonga East
Swamp type	Headwater
Size (ha)	1.44
Vegetation communities	Banksia Thicket (MU42), Sedgeland (MU44a)
Special significance	No
Photo	No

Cataract River Upland Swamp 1 (CRUS1)

Area	Wonga East
Swamp type	Headwater
Size (ha)	9.84
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Size
Photo	

Cataract River Upland Swamp 2 (CRUS2)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	3.12
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	No

Cataract River Upland Swamp 3 (CRUS3)	
Area	Wonga East
Swamp type	Headwater
Size (ha)	3.42
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Sedgeland (MU44a),

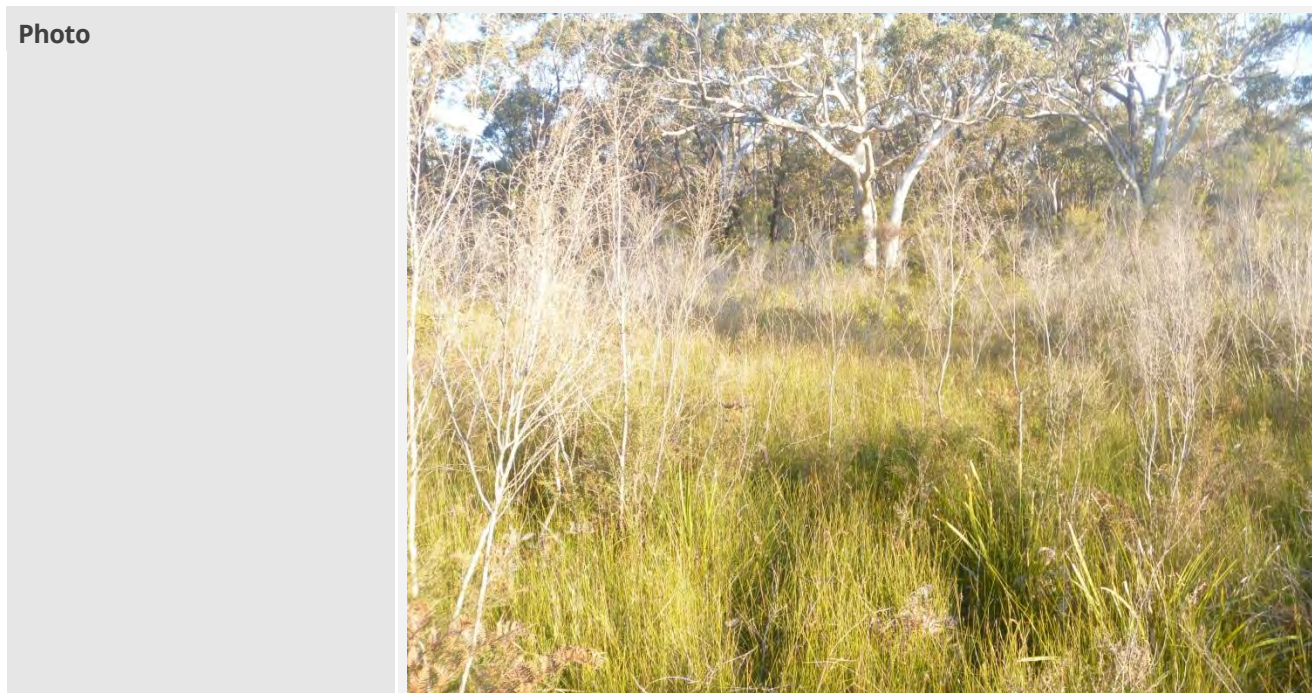
	Restioid Heath (MU44b), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	No

Cataract River Upland Swamp 4 (CRUS4)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.37
Vegetation communities	Sedgeland (MU44a)
Special significance	No
Photo	

Cataract River Upland Swamp 5 (CRUS5)

Area	Wonga East
Swamp type	Headwater
Size (ha)	0.13
Vegetation communities	Sedgeland (MU44a)
Special significance	No



Lizard Creek Upland Swamp 1 (LCUS1)	
Area	Wonga West
Swamp type	Headwater /Valley infill
Size (ha)	129.89
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Restioid Heath (MU44b)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Size, Complexity
Photo	

Lizard Creek Upland Swamp 2 (LCUS2)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.74
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 3 (LCUS3)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.56
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	

Lizard Creek Upland Swamp 4 (LCUS4)	
Area	Wonga West
Swamp type	Valley infill
Size (ha)	0.83

Vegetation communities	Tea-tree Thicket (MU43)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 5 (LCUS5)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.60
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 6 (LCUS6)

Area	Wonga West
Swamp type	Headwater / Valley infill
Size (ha)	3.74
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Sedgeland (MU44a), Restioid Heath (MU44b), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	

Lizard Creek Upland Swamp 7 (LCUS7)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.41
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 8 (LCUS8)

Area	Wonga West
Swamp type	Headwater / Valley infill
Size (ha)	2.09
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Sedgeland (MU44a), Restioid Heath (MU44b)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	No

Lizard Creek Upland Swamp 9 (LCUS9)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.20
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 10 (LCUS10)

Area	Wonga West
Swamp type	Headwater
Size (ha)	2.71
Vegetation communities	Banksia Thicket (MU42), Sedgeland (MU44a), Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 11 (LCUS11)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.35
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 12 (LCUS12)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	1.68
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 13 (LCUS13)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.22
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

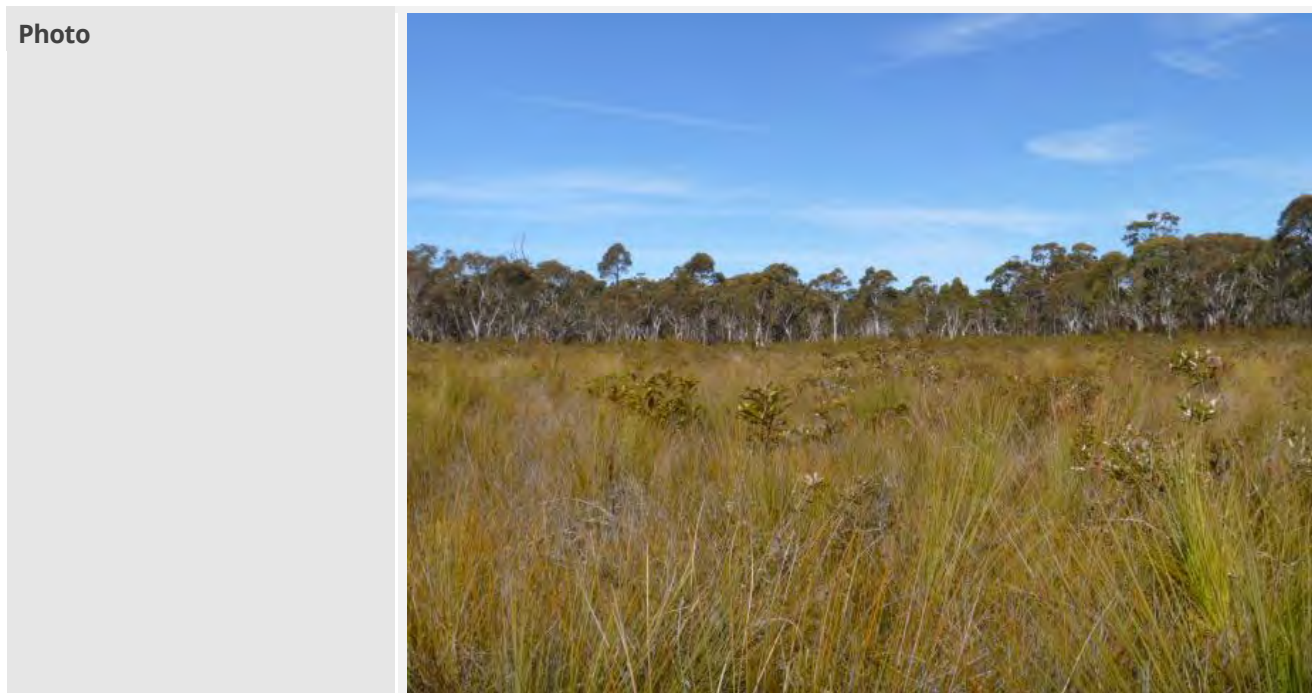
Lizard Creek Upland Swamp 14 (LCUS14)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.91
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 15 (LCUS15)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.43
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 16 (LCUS16)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.06
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 17 (LCUS17)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	1.16
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 18 (LCUS18)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	2.53
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No



Lizard Creek Upland Swamp 19 (LCUS19)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.21
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 20 (LCUS20)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.24
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 21 (LCUS21)	
Area	Wonga West
Swamp type	Headwater

Size (ha)	0.11
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 22 (LCUS22)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.26
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 23 (LCUS23)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.08
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 24 (LCUS24)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.35
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 25 (LCUS25)

Area	Wonga West
Swamp type	Headwater

Size (ha)	3.34
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No
Photo	

Lizard Creek Upland Swamp 26 (LCUS26)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	3.09
Vegetation communities	Tea-tree Thicket (MU43), Restioid Heath (MU44b)
Special significance	No



Lizard Creek Upland Swamp 27 (LCUS27)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	1.04
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Restioid Heath (MU44b)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	

Lizard Creek Upland Swamp 28 (LCUS28)

Area	Wonga West
Swamp type	Headwater
Size (ha)	1.00
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 29 (LCUS29)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.34
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 30 (LCUS30)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.07
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

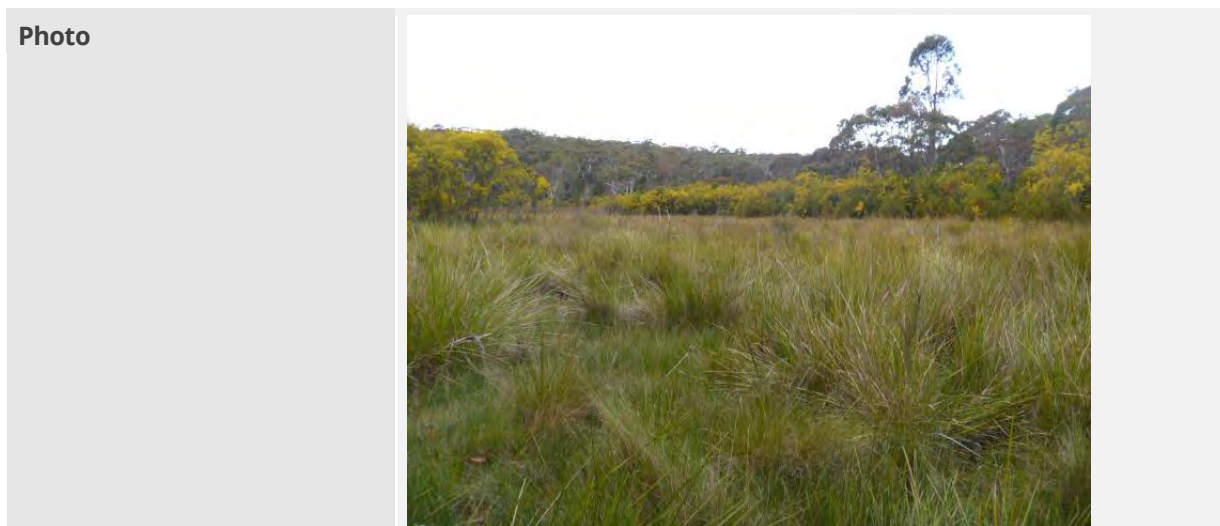
Lizard Creek Upland Swamp 31 (LCUS31)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.25
Vegetation communities	Banksia Thicket (MU42), Restioid Heath (MU44b)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 32 (LCUS32)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.31
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Lizard Creek Upland Swamp 33 (LCUS33)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.35
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Wallandoola Creek Upland Swamp 1 (WCUS1)	
Area	Wonga West
Swamp type	Valley infill
Size (ha)	36.16
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Size, Complexity



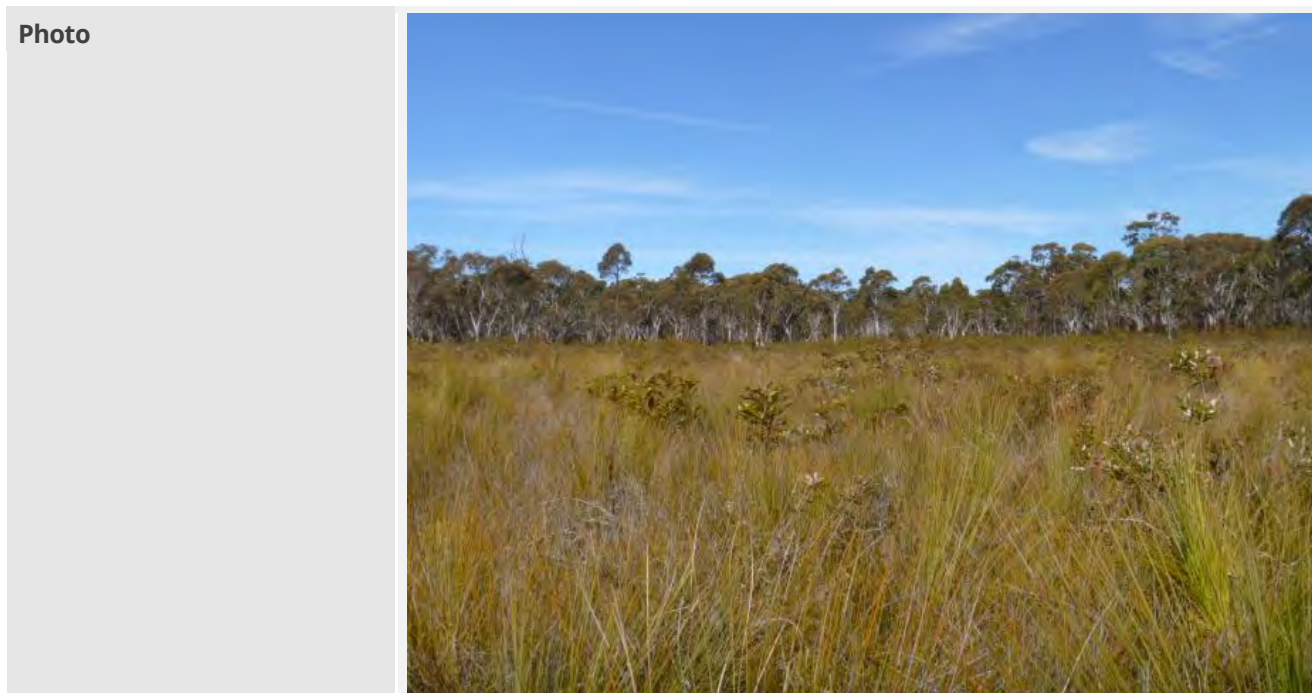
Wallandoola Creek Upland Swamp 2 (WCUS2)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.52
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	

Wallandoola Creek Upland Swamp 3 (WCUS3)	
Area	Wonga West
Swamp type	Headwater

Size (ha)	0.71
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	

Wallandoola Creek Upland Swamp 4 (WCUS4)

Area	Wonga West
Swamp type	Headwater / Valley infill
Size (ha)	11.08
Vegetation communities	Tea-tree Thicket (MU43), Sedgeland (MU44a), Restioid Heath (MU44b), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Size



Wallandoola Creek Upland Swamp 5 (WCUS5)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.23
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Wallandoola Creek Upland Swamp 6 (WCUS6)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.55
Vegetation communities	Tea-tree Thicket (MU43), Restioid Heath (MU44b)
Special significance	No
Photo	No

Wallandoola Creek Upland Swamp 7 (WCUS7)	
Area	Wonga West
Swamp type	Valley infill

Size (ha)	1.97
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Cyperoid Heath (MU44c)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	No

Wallandoola Creek Upland Swamp 8 (WCUS8)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.24
Vegetation communities	Banksia Thicket (MU42)
Special significance	No
Photo	No

Wallandoola Creek Upland Swamp 9 (WCUS9)

Area	Wonga West
Swamp type	Valley infill
Size (ha)	0.27
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43)
Special significance	No
Photo	No

Wallandoola Creek Upland Swamp 10 (WCUS10)

Area	Wonga West
Swamp type	Headwater
Size (ha)	0.21
Vegetation communities	Restioid Heath (MU44b)
Special significance	No
Photo	No

Wallandoola Creek Upland Swamp 11 (WCUS11)

Area	Wonga West
-------------	------------

Swamp type	Headwater
Size (ha)	2.79
Vegetation communities	Banksia Thicket (MU42), Tea-tree Thicket (MU43), Restioid Heath (MU44b)
Special significance	Yes – Statutory threshold, Closely proximate habitat, Complexity
Photo	

Wallandoola Creek Upland Swamp 12 (WCUS12)	
Area	Wonga West
Swamp type	Headwater
Size (ha)	0.82
Vegetation communities	Tea-tree Thicket (MU43), Restioid Heath (MU44b)
Special significance	No

Photo



Appendix 2: Swamp Matrix

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
BCUS1	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.16	MU42	Wallandoola	No		No	282	0		-	0.00	0.00	0.00	0.00	0.00
BCUS10	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.41	MU42	Wallandoola	No		No	317	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS11	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.26	MU42, MU44b	Wallandoola	No		Area 1 LW11	299	149	2.01	Bulli bord and pillar	-0.88	4.14	-7.43	17.07	0.00
BCUS2	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.89	MU42	Wallandoola	No		Mainroad	286	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS3	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.12	MU42	Wallandoola	No		No	288	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS4	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	2.20	MU42, MU43	Wallandoola	No		Area 1 LW11	282	149	1.89	Bulli bord and pillar	-0.81	4.24	-6.48	17.43	0.00
BCUS5	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.96	MU42, MU43	Wallandoola	No		No	291	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS6	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.37	MU42, MU43	Wallandoola	No		Mainroad	307	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS7	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.62	MU42	Wallandoola	No		Mainroad	319	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS8	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.66	MU42	Wallandoola	No		No	320	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
BCUS9	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.27	MU42	Wallandoola	No		No	318	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
CCUS1	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	4.81	MU42, MU43, MU44b, MU 44c	Wallandoola	No	Yes	Area 1 LW3	250	101	2.47	Balgownie LW Bulli bord and pillar	-0.40	2.65	-6.79	11.38	0.00
CCUS10	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.63	MU42, MU43, MU44c	Wallandoola	No	Yes	Area 2 LW9	286	149	1.92	Balgownie LW Bulli bord and pillar	-1.00	4.60	-8.74	21.39	0.00
CCUS11	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.34	MU42	Wallandoola	No		Area 2 LW10	289	151	1.91	Bulli bord and pillar	-0.47	4.37	1.61	17.58	0.00
CCUS12	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.84	MU42	Wallandoola	No		Area 2 LW11	306	149	2.05	Bulli bord and pillar	-0.88	4.24	-7.47	17.50	0.00
CCUS13	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.26	MU42	Wallandoola	No		No	328	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS14	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.37	MU44b	Wallandoola	No		No	224	0			0.00	0.00	0.00	0.00	0.00
CCUS15	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.06	MU43	Wallandoola	No		No	262	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS16	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.87	MU42	Wallandoola	No		No	334	0			0.00	0.00	0.00	0.00	0.00
CCUS17	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.07	MU42	Wallandoola	No		No	259	0		Balgownie LW Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS18	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.05	MU42	Wallandoola	No		No	257	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS19	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.04	MU42	Wallandoola	No		No	254	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS2	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.21	MU44a, MU44b	Wallandoola	No		Area 1 LW1, LW2	240	101	2.38	Bulli bord and pillar	-0.39	2.77	-6.59	11.42	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
CCUS20	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.55	MU42	Wallandoola	No		No	260	0		Balgownie LW Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS21	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.05	MU42	Wallandoola	No		No	267	0		Balgownie LW Bulli bord and pillar	-0.43	4.57	-2.49	19.94	0.00
CCUS22	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.31	MU42, MU44b	Wallandoola	No		No	338	0		Bulli bord and pillar (partial)	0.00	0.00	0.00	0.00	0.00
CCUS23	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.44	MU42, MU44a	Wallandoola	No		Area 2 LW5	275	147	1.87	Balgownie LW Bulli bord and pillar	-0.99	4.41	-8.04	20.04	0.00
CCUS3	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.55	MU42, MU44a	Wallandoola	No		Area 2 LW5	275	147	1.87	Balgownie LW Bulli bord and pillar	-0.99	4.52	-8.04	20.31	0.00
CCUS4	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.77	MU42, MU43, MU44c	Wallandoola	No	Yes	Area 2 LW6	281	147	1.91	Balgownie LW Bulli bord and pillar	-1.00	4.63	-8.03	21.04	0.00
CCUS5	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	3.45	MU42, MU43, MU44a	Wallandoola	No	Yes	Area 2 LW7, LW8	293	155	1.89	Balgownie LW (partial) Bulli bord and pillar	-1.00	4.74	-8.03	21.30	0.00
CCUS6	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	2.05	MU42	Wallandoola	No		Area 2 LW4	264	149	1.77	Balgownie LW Bulli bord and pillar (partial)	-1.02	4.79	-8.05	21.95	0.00
CCUS7	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	1.32	MU42	Wallandoola	No		No	276	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS8	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.46	MU42	Wallandoola	No		Area 2 Mainroad	279	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CCUS9	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.76	MU42	Wallandoola	No		Area 2 Mainroad	285	0		Balgownie LW Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CRUS1	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	9.84	MU42, MU43	Wallandoola	No	Yes	Area 2 LW6	271	147	1.85	Bulli bord and pillar	-0.89	4.34	-7.20	17.51	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
CRUS2	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	3.12	MU42, MU43, MU44c	Wallandoola	No	Yes	No	257	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CRUS3	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	3.42	MU42, MU43, MU44a, MU44b, MU44c	Wallandoola	No	Yes	No	234	0		Bulli bord and pillar	0.00	0.00	0.00	0.00	0.00
CRUS4	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.37	MU44a	Wallandoola	No		No	219	0			0.00	0.00	0.00	0.00	0.00
CRUS5	Wonga East	Headwater swamp	Coastal Upland Swamp EEC	0.13	MU44a	Wallandoola	No		No	217	0			0.00	0.00	0.00	0.00	0.00
LCUS1	Wonga West	Headwater / valley infillswamp	Coastal Upland Swamp EEC	129.89	MU42, MU43, MU44b	Wallandoola	No	Yes	No	441	0		Cordeaux LW Bulli LW	-0.87	0.00	0.00	0.00	0.00
LCUS10	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	2.71	MU42, MU44a, MU44b	Wallandoola	No		No	479	0		Bulli LW	-0.22	0.00	0.00	0.00	0.00
LCUS11	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.35	MU42	Wallandoola	No		No	485	0		Bulli LW	-0.55	0.00	0.00	0.00	0.00
LCUS12	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	1.68	MU42, MU44b	Wallandoola	No		Area 3 LW1	487	385	1.26	Bulli LW	-3.02	3.95	-4.59	9.51	0.00
LCUS13	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.22	MU42	Wallandoola	No		Area 3 Mainroad	471	0		Bulli LW	0.12	0.00	0.00	0.00	0.00
LCUS14	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.91	MU42	Wallandoola	No		Area 3 Mainroad	467	0		Bulli LW	-0.05	0.00	0.00	0.00	0.00
LCUS15	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.43	MU42	Wallandoola	No		Area 3 Mainroad	475	0		Bulli LW	0.03	0.00	0.00	0.00	0.00
LCUS16	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.06	MU42	Wallandoola	No		No	474	0		Bulli LW	-0.06	0.00	0.00	0.00	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
LCUS17	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	1.16	MU42, MU43	Wallandoola	No		Mainroad	477	0		Bulli LW	-0.77	0.00	0.00	1.70	0.00
LCUS18	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	2.53	MU42, MU44b	Wallandoola	No		Area 3 LW2	495	385	1.29	Bulli LW	-3.30	4.04	-3.43	4.45	0.00
LCUS19	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.21	MU44b	Wallandoola	No		Area 3 LW3	473	375	1.26	Bulli LW	-3.33	-4.04	-5.56	11.99	0.00
LCUS2	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.74	MU44b	Wallandoola	No		No	491	0		Bulli LW	-0.52	0.00	0.00	2.43	0.00
LCUS20	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.24	MU44b	Wallandoola	No		Area 3 LW4	489	385	1.27	Bulli LW	-2.18	4.13	-1.39	4.69	0.00
LCUS21	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.11	MU44b	Wallandoola	No		Area 3 LW4	484	385	1.26	Bulli LW	-3.29	-3.64	-3.97	1.86	0.00
LCUS22	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.26	MU42	Wallandoola	No		No	467	0			-0.29	0.00	0.00	0.00	0.00
LCUS23	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.08	MU44b	Wallandoola	No		No	466	0			-0.10	0.00	0.00	0.00	0.00
LCUS24	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.35	MU42	Wallandoola	No		No	468	0			0.00	0.00	0.00	0.00	0.00
LCUS25	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	3.34	MU42, MU44b	Wallandoola	No		Area 3 LW4 and 5	474	395	1.20	Bulli LW	-3.30	9.98	-7.29	13.57	0.00
LCUS26	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	3.09	MU43, MU44b	Wallandoola	No		No	470	0			0.00	0.00	0.00	0.00	0.00
LCUS27	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	1.04	MU42, MU43, MU44b	Wallandoola	No	Yes	No	473	0			0.00	0.00	0.00	0.00	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
LCUS28	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	1.00	MU42, MU44b	Wallandoola	No		Area 4 Mainroad (partial)	464	0		Bulli LW	-1.85	4.71	1.76	9.15	0.00
LCUS29	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.34	MU44b	Wallandoola	No		No	465	0		Bulli LW (partial)	-0.75	5.17	4.00	6.55	0.00
LCUS3	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.56	MU44b	Wallandoola	No		No	478	0			-0.03	0.00	0.00	0.00	0.00
LCUS30	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.07	MU44b	Wallandoola	No		No	462	0			0.00	0.00	0.00	0.00	0.00
LCUS31	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.25	MU42, MU44b	Wallandoola	No		No	463	0			0.00	0.00	0.00	0.00	0.00
LCUS32	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.31	MU42	Wallandoola	No		No	462	0			0.00	0.00	0.00	0.00	0.00
LCUS33	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.35	MU42	Wallandoola	No		Area 3 Mainroad	478	0		Bulli LW	-0.19	0.00	0.00	0.00	0.00
LCUS4	Wonga West	Valley infill swamp	Coastal Upland Swamp EEC	0.83	MU43	Wallandoola	No		No	490	0		Bulli LW	-0.48	0.00	0.00	0.00	0.00
LCUS5	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.60	MU44b	Wallandoola	No		No	487	0		Bulli LW	-0.13	0.00	0.00	0.00	0.00
LCUS6	Wonga West	Headwater / valley infillswamp	Coastal Upland Swamp EEC	3.74	MU42, MU43, MU44a, MU44b, MU44c	Wallandoola	No	Yes	No	478	0		Bulli LW	-0.96	0.00	0.00	1.93	0.00
LCUS7	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.41	MU42	Wallandoola	No		No	487	0		Bulli LW	-0.21	0.00	0.00	0.00	0.00
LCUS8	Wonga West	Headwater / valley infillswamp	Coastal Upland Swamp EEC	2.09	MU42, MU43, MU44a, MU44b	Wallandoola	No	Yes	Area 3 LW1	490	385	1.27	Bulli LW	-2.66	2.75	-2.64	9.15	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
LCUS9	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.20	MU44b	Wallandoola	No		Area 3 LW1	499	385	1.30	Bulli LW	-3.29	-3.88	-4.81	5.09	0.00
WCUS1	Wonga West	Valley infill swamp	Coastal Upland Swamp EEC	36.16	MU42, MU43, MU44c	Wallandoola	No	Yes	No	469	0		Cordeaux LW Bulli LW	-0.72	0.00	0.00	0.00	0.00
WCUS10	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.21	MU44b	Wallandoola	No		No	487	0		Bulli LW	-1.06	0.00	0.00	0.00	0.00
WCUS11	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	2.79	MU42, MU43, MU44b	Wallandoola	No	Yes	Area 3 LW2	503	385	1.31	Bulli LW	-3.27	5.35	-3.81	8.02	0.00
WCUS12	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.82	MU43, MU44b	Wallandoola	No		Area 3 LW4	499	375	1.33	Bulli LW	-3.22	4.50	-2.74	4.07	0.00
WCUS2	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.52	MU44b	Wallandoola	No		No	489	0			0.00	0.00	0.00	0.00	0.00
WCUS3	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.71	MU42	Wallandoola	No		No	487	0		Bulli LW	-0.90	0.00	0.00	0.00	0.00
WCUS4	Wonga West	Headwater / valley infillswamp	Coastal Upland Swamp EEC	11.08	MU43, MU44a, MU44b, MU44c	Wallandoola	No	Yes	Area 3 LW2	494	385	1.28	Bulli LW	-3.35	5.03	-6.97	10.58	0.00
WCUS5	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.23	MU44b	Wallandoola	No		No	487	0		Bulli LW	-1.07	0.00	0.00	0.00	0.00
WCUS6	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.55	MU43, MU44b	Wallandoola	No		No	491	0		Bulli LW	-0.94	0.00	0.00	0.00	0.00
WCUS7	Wonga West	Valley infill swamp	Coastal Upland Swamp EEC	1.97	MU42, MU43, MU44c	Wallandoola	No	Yes	Area 3 Mainroad	492	375	1.31	Bulli LW	-2.19	5.45	-0.01	10.70	0.00
WCUS8	Wonga West	Headwater swamp	Coastal Upland Swamp EEC	0.24	MU42	Wallandoola	No		Area 3 LW3	497	375	1.33	Bulli LW	-2.81	-0.11	-6.27	10.24	0.00

Swamp Name	Area	SwampType	Statutory	Size (ha)	Complexity	Cluster	Scientific	Special Significance	Located above longwall	Depth of cover (m)	Panel width (m)	Ration DoC : Panel width	Previously subsided by	Predicted subsidence	Tensile strain (mm /	Compressive strain (mm /	Tilt (mm / m)	Valley_Closure
WCUS9	Wonga West	Valley infill swamp	Coastal Upland Swamp EEC	0.27	MU42, MU43	Wallandoola	No		No	489	0		Bulli LW	-1.55	5.18	4.00	8.60	0.00

