

Vegetation and flora of swamps on the Boyd Plateau, Central Tablelands, New South Wales

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Kodela, P.G., James, T.A. and Hind, P.D. (Royal Botanic Gardens, Mrs Macquaries Road, Sydney, New South Wales, Australia, 2000). *Vegetation and flora of swamps on the Boyd Plateau, Central Tablelands, New South Wales*. *Cunninghamia* 4(3): 525–530. The vegetation of several high-altitude swamps on the Boyd Plateau (33°57'S, 150°03'E) in Kanangra–Boyd National Park is briefly described. A species list is provided for Belarah, Boyd Hill, Dingo and Wheengee-whungee Swamps. These plateau swamps contain a complex of wet heath, sedgeland, herbfields, *Sphagnum* mossland and shallow water pools and streams. Over 90 native plant taxa were recorded during a survey undertaken in late February. Several rare and/or restricted species were identified, including *Boronia deanei*, *Prasophyllum rogersii* and *Restio longipes*.

Introduction

A cluster of distinctive wetlands described as the Boyd Plateau Bogs occur on the Boyd Plateau (33°57'S, 150°03'E) in Kanangra–Boyd National Park, 30 km south-east of Oberon, New South Wales (see Keith & Benson 1988). They are restricted to high altitudes, c. 1200 m, and have developed within headwater gullies in peat and peaty soils overlying granite. A reconnaissance vegetation survey of several swamps was undertaken on the 23 and 24 February 1995. The swamps investigated ranged from 0.4 to 1.4 km long. Descriptions of vegetation structure follow Specht (1970).

Vegetation

Keith & Benson (1988) recognised two structural vegetation types in the 'Boyd Plateau Bogs'. They identified a closed-sedgeland community dominated by *Carex appressa*, *C. gaudichaudiana*, *Juncus fockei* and *Baeckea utilis*, and a closed-heath community with the main canopy species *Leptospermum myrtifolium*, *L. obovatum* and *L. lanigerum*. Black (1982) compares several swamps, described as bog complexes, on the plateau and how their vegetation relates to clearing, burning and grazing histories/regimes.

The swamps investigated in this survey contained a complex of heath, sedgeland, herbfields, *Sphagnum* mossland and shallow water pools and streams, related primarily to local drainage patterns, but probably also affected by disturbance as a result of fire and grazing history. The dominant communities recognised are closed-sedgeland or open-heath with a sedgeland understorey. The sedgeland communities often contain characteristic hummocks, formed by the tufted habit of several swamp species, including species of *Restio* and *Xyris*. Dominant sedges include *Restio australis*, *Empodisma minus*, *Xyris ustulata* and sometimes *Carex gaudichaudiana*. Within the heath

vegetation there are often patches of closed-sedgeland, sometimes with scattered shrubs. The open-heath is dominated by *Leptospermum myrtifolium*, *L. obovatum*, *Baeckea utilis*, *Callistemon pityoides*, *Epacris paludosus* and *Hakea microcarpa*. Small patches dominated by *Carex appressa*, *Bracteantha bracteata* and *Wahlenbergia ceracea* were also observed. Herbfields (and small areas of *Sphagnum* mossland) occur in damp soaks and are common on stream banks. Closed-heath/scrub often occurs on the swamp margins and along narrow, shallow streams. Below these taller shrub canopies there are sedges or open, shallow water with small herbs. Occasionally small eucalypt trees, particularly *Eucalyptus pauciflora*, encroach onto the swamp near the margins.

Over 90 native species were recorded (Table 1), including 6 species of conservation significance (Table 2). Very few introduced taxa occur in the swamps. *Hypochaeris radicata*, *Taraxacum officinale*, *Trifolium repens* and *Holcus lanatus* were most commonly observed. *Hypochaeris radicata* was growing amongst *Sphagnum* moss and in other very damp areas, indicating its tolerance to moist conditions.

Table 1. Plant species recorded from several swamps on the Boyd Plateau

Belarah Swamp (B): 33°54'S, 150°04'E, 1180–1190 m alt.; Boyd Hill Swamp (BH): 33°57'S, 150°01'E, 1230 m alt.; Dingo Swamp (D): 33°59'S, 150°02'E, 1170–1180 m alt.; Wheengee-whungee Swamps (W): 34°00'S, 150°02'E, 1190 m alt.

MOSS

Sphagnaceae

Sphagnum sp. B BH D W

FERNS

Blechnaceae

Blechnum nudum B

Dennstaedtiaceae

Pteridium esculentum
(swamp margin only) D

Gleicheniaceae

Gleichenia dicarpa B

DICOTS

Apiaceae

Centella cordifolia B BH W
*Hydrocotyle peduncularis*¹ form A B BH D W
*H. peduncularis*¹ form B BH
Lilaeopsis polyantha BH
Xanthosia dissecta B

Asteraceae

Brachycome scapigera BH
Bracteantha bracteata species complex B BH D W
Celmisia longifolia species complex B BH W
Craspedia canens B
Euchiton involucreatus/gymnocephalus B BH D W
Helichrysum scorpioides B BH D
 **Hypochaeris radicata* B BH D W
Lagenifera stipitata B BH D W
Ozothamnus rosmarinifolius B D
Senecio cf. *glomeratus* D

<i>Senecio</i> sp. E	B			
* <i>Taraxacum officinale</i>	B			
Campanulaceae				
<i>Wahlenbergia ceracea</i>	B		D	
Caryophyllaceae				
<i>Stellaria angustifolia</i>			D	
<i>S. pungens</i>	B			
Clusiaceae				
<i>Hypericum japonicum</i>	B	BH	D	W
Convolvulaceae				
<i>Dichondra repens</i>	B	BH	D	W
Droseraceae				
<i>Drosera binata</i>	B			
Epacridaceae				
<i>Epacris breviflora</i>	B			
<i>E. microphylla</i> var. <i>rhomboifolia</i> ²				
<i>E. paludosus</i>	B	BH	D	W
<i>E. pulchella</i>	B			
<i>Leucopogon pilifer</i>	B			
Fabaceae – Faboideae				
<i>Pultenea polifolia</i>	B			W
* <i>Trifolium repens</i>			D	
Fabaceae – Mimosoideae				
<i>Acacia melanoxylon</i> (edge of swamp)				W
Gentianaceae				
<i>Chionogentias cunninghamii</i> subsp. <i>cunninghamii</i> [formerly <i>Gentianella diemensis</i> s. lat.]	B			
Geraniaceae				
<i>Geranium neglectum</i>	B	BH	D	W
Goodeniaceae				
<i>Velleia montana</i>	B	BH		
Haloragaceae				
<i>Gonocarpus micranthus</i> subsp. <i>micranthus</i>	B	BH	D	W
<i>Myriophyllum pedunculatum</i> subsp. <i>pedunculatum</i>	B	BH	D	W
Lentibulariaceae				
<i>Utricularia dichotoma</i>	B			W
Lobeliaceae				
<i>Pratia surrepens</i>	B	BH		W
Loganiaceae				
<i>Mitrasacme serpyllifolia</i>		BH		
<i>M. sp. aff. serpyllifolia</i>		BH		
Myrtaceae				
<i>Baeckea utilis</i>	B	BH	D	W
<i>Callistemon ptyoides</i>	B		D	W
<i>Eucalyptus macarthurii</i> ³				
<i>E. pauciflora</i>	B			W
<i>Leptospermum grandifolium</i>			D	W
<i>L. myrtifolium</i>	B	BH	D	W
<i>L. obovatum</i>	B	BH	D	
Onagraceae				
<i>Epilobium gunnianum</i>	B	BH	D	W

Polygalaceae				
<i>Comesperma retusum</i>	B	BH		W
Proteaceae				
<i>Banksia marginata</i>	B			
<i>Hakea microcarpa</i>	B	BH	D	W
Ranunculaceae				
<i>Ranunculus papulentus</i>	B	BH	D	W
<i>R. pimpinellifolius</i>	B		D	W
Rosaceae				
<i>Acaena novae-zelandiae</i>	B			
Rubiaceae				
<i>Asperula cf. gunnii</i>	B	BH	D	W
<i>Nertera granadensis</i>	B			
Rutaceae				
<i>Boronia deanei</i>	B			
Scrophulariaceae				
<i>Gratiola peruviana</i>	B	BH	D	W
<i>Veronica calycina</i>	B			
Stylidiaceae				
<i>Stylidium graminifolium</i>	B	BH	D	W
Violaceae				
<i>Viola hederacea</i> (edge of swamp)				W
MONOCOTS				
Anthericaceae				
<i>Arthropodium milleflorum</i>	B	BH	D	W
Cyperaceae				
<i>Baumea gunnii?</i>				
<i>Baumea</i> sp.			D	
<i>Carex appressa</i>	B	BH	D	W
<i>C. gaudichaudiana</i>	B		D	
<i>Eleocharis gracilis</i>				W
<i>Isolepis crassiuscula</i>	B	BH		W
<i>I. habra</i>	B			
<i>I. subtilissima</i>	B			
<i>Gahnia aspera</i>	B			
<i>Lepidosperma filiforme</i>	B		D	W
<i>Scirpus polystachyos</i> ⁴				
Juncaceae				
<i>Juncus fockei</i> ²			D	
<i>J. planifolius</i>	B		D	W
<i>J. sandwithii</i>				W
<i>J. sarophorus</i>		BH		
<i>Luzula ?modesta</i>	B	BH		
<i>L. ovata</i> ⁵				
Hypoxidaceae				
<i>Hypoxis hygrometrica</i>				
var. <i>hygrometrica</i>	B	BH		
Iridaceae				
<i>Patersonia fragilis</i>	B			W
Orchidaceae				
<i>Eriochilus cucullatus</i>		BH		
<i>Genoplesium rufum</i>				W
<i>Prasophyllum rogersii</i>	B			
<i>Pterostylis furcata</i>	B			

<i>Spiranthes sinensis</i> subsp. <i>australis</i>	B	BH	D	W
<i>Thelymitra</i> sp.	B	BH		W
Poaceae				
<i>Agrostis</i> sp. A	B	BH		
<i>Amphipogon strictus</i> ⁶		BH		
<i>Danthonia laevis</i>				
<i>Deyeuxia brachyantha</i>	B			
<i>D. gunniana</i>	B	BH	D	W
<i>D. quadriseta</i>			D	
<i>Dichelachne inaequiglumis</i>	B		D	
* <i>Glyceria declinata</i>		BH		
<i>Poa labillardieri</i>	B			
Restionaceae				
<i>Empodisma minus</i>	B	BH	D	
<i>Restio australis</i> ⁷	B	BH	D	W
<i>R. longipes</i> ⁷		BH		
Xyridaceae				
<i>Xyris ustulata</i>	B	BH	D	W
<i>X. ?ustulata</i> (small flower-heads)	B			

* introduced taxa naturalised.

¹ two forms of *Hydrocotyle peduncularis* recorded. Form A has small, shallowly lobed, light green leaves. Form B has larger leaves and inflorescences, the leaves also being more deeply dissected/lobed and a darker green. Requires further investigation.

² Jensens Swamp (Benson & Keith specimen in NSW herbarium collection).

³ Roly Whalans Swamp, beside swampy creek (L.A.S. Johnson specimen in NSW herbarium collection).

⁴ collected from swamp on west side of Kowmung River Fire Trail, c. 2 km S of junction with Kanangra Road.

⁵ Roly Whalans Swamp, edge of *Sphagnum* swamp (K.L. Wilson specimen in NSW herbarium collection).

⁶ recorded from more open areas on swamp margins by Keith & Benson (1988, p. 134).

⁷ these species will be transferred to the genus *Baloskion* (B.G. Briggs, pers. comm.).

Other species

Black (1982) recorded the following species occurring in Boyd River and/or Jensens Swamps: *Blechnum penamarina*, *Pimelea linifolia*, **Trifolium dubium*, *Leucopogon ericoides*, *Cassinia quiquefaria*, *Leprodia scariosa*, *Schoenus apogon*, *Lepidosperma tortuosum*, *Poa sieberana* and *Danthonia pallida*. These have not been varified by the authors.

Table 2. Species of particular conservation significance or interest.

<i>Boronia deanei</i>	3VCa = vulnerable species with geographic distribution range 100+ km, adequately reserved (Briggs & Leigh 1988)
<i>Eucalyptus macarthurii</i>	2RCi = rare species with geographic distribution range < 100 km, inadequately reserved (Briggs & Leigh 1988); outlying population and northern limit of distribution
<i>Leucopogon pilifer</i>	First record for Central Tablelands Botanical Division. Previously known from the Northern and Southern Tablelands of New South Wales, and Victoria and Tasmania
<i>Prasophyllum rogersii</i>	First record for Central Tablelands. Previously recorded only from the Barrington Tops area, New South Wales, and northern Victoria
<i>Restio longipes</i>	2VC- (Briggs & Leigh 1988), the distribution range now known to extend over 100 km, therefore should be coded 3VC-; only known from a few localities on the Central Tablelands and the Clyde Mountain district of the Southern Tablelands
<i>Wahlenbergia ceracea</i>	Local disjunct population on Boyd Plateau (Keith & Benson 1988)

Conclusion

About 100 native species of Angiosperms have been recorded from the Boyd Plateau swamps, including several rare species (Table 2). Further surveys undertaken at different times of the year and at other wetlands on the plateau are likely to extend this species list. Although the important regional significance of the Boyd Plateau swamps in relation to other upland swamps was discussed generally by Keith & Benson (1988) these results and the findings from other wetland studies lend themselves to further comparative investigation.

Acknowledgements

We are grateful to Drs B.G. Briggs, S.W.L. Jacobs, L.A.S. Johnson and P.H. Weston, and J. Everett and K.L. Wilson for assistance with plant specimen identifications. D. Benson kindly commented on the manuscript.

References

- Black, D. (1982) The vegetation of the Boyd Plateau N.S.W. *Vegetatio* 50: 93–111.
- Briggs, J.D. & Leigh, J.H. (1988) *Rare or threatened Australian plants*. Special Publication 14 (Australian National Parks & Wildlife Service: Canberra).
- Keith, D.A. & Benson, D.H. (1988) The natural vegetation of the Katoomba 1: 100 000 map sheet. *Cunninghamia* 2: 107–143.
- Specht, R.L. (1970) Vegetation. In Leeper, G.W. (ed.) *The Australian environment*. Fourth ed. (CSIRO & Melbourne University Press: Melbourne). pp. 44–67.

Manuscript received 14 March 1996

Manuscript accepted 19 July 1996