

NSW SCIENTIFIC COMMITTEE

Plinthanthesis rodwayi (C.E.Hubb.) S.T.Blake (Poaceae)

Review of Current Information in NSW

December 2008

Current status:

Plinthanthesis rodwayi (Budawang's Wallaby Grass) is currently listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act). The NSW Scientific Committee recently determined that *Plinthanthesis rodwayi* meets criteria for listing as Endangered in NSW under the *Threatened Species Conservation Act* 1995 (TSC Act), based on information contained in this report and other information available for the species.

Species description:

Plinthanthesis rodwayi is described by Jacobs and McClay (1993) as follows: "Caespitose perennial to 0.5 m high. Leaves with ligule a ciliate rim with hairs c. 0.25 mm long; blade linear, rolled, upper surface and margins scabrous, glabrous. Inflorescence open, 6–8 cm long, 2–5 cm wide; rachis slender, usually flexuous, scabrous. Spikelets 5–6 mm long, gaping to 7 mm wide at maturity, bisexual florets 2, sometimes with 1 reduced floret above; pedicels slender, usually flexuous, 2–10 mm long, scabrous. Glumes 4–5 mm long, 3-nerved, keel minutely scabrous, glabrous. Lemmas 3–3.5 mm long, 8-nerved, awnless or with an awn in the sinus, lower half pilose with hairs < 0.25 mm long, margins purplish brown, 2-lobed; lobes < 1 mm long, subulate; awn, when present, slender, < 0.5 mm long. Palea subequal to lemma, 2-keeled, keel scabrous, lower half pilose with hairs, 0.25mm long."

Taxonomy:

The species was first described in 1943 by C E Hubbard under the name *Danthonia rodwayi* but later renamed *Plinthanthesis rodwayi* after a review of genera *Plinthanthesis* and *Danthonia* was undertaken by Blake (1972).

Synonyms: *Danthonia rodwayi* C.E.Hubb. (Hubbard 1843) and *Blakeochloa rodwayi* (C.E.Hubb.) Veldkamp (Veldkamp 1981).

Distribution and number of populations:

Plinthanthesis rodwayi is a NSW endemic known from two peaks in Budawang National Park.

Surveys conducted:

Site 1 was surveyed in (mid to late) 2007 and October 2008, with the presence of the species confirmed on both occasions. Site 2 was last surveyed in 2004, but no individuals were found at that time. An expert has advised that this species is not obvious above ground but, based on

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experience, may still be present as inconspicuous non-flowering individuals or in the soil seed bank.

Ecology:

Key habitat requirements

Plinthanthesis rodwayi has been recorded in montane woodland growing on shallow soils (Jacobs & McClay 1993).

Site 1 population is on a mountainous, broad peak, growing on sand in a disturbed area. In the past the species occurred in an open grass-sedge community and was associated with *Phyllota phyloides*, *Bossiaea kiamensis*, *Schoenus* sp. (RBG records; in 1940).

Site 2 population is on a shelf on an exposed steep westerly slope. In 1940 the species was recorded as 'covering patch of moorland'. In 1978 it was recorded as being in sedgeland - heath with *Lepidosperma*, *Gahnia* and *Eucalyptus stricta* (RBG records).

Life history

This species flowers in spring to summer. The generation length (IUCN 2008) of the species is estimated to be six to 15 years (expert advice).

Number of mature individuals:

As of late 2007, Site 1 population was estimated to be around 25 (expert advice), while there were thought to be no mature individuals occurring at the second population.

As of October 2008, Site 2 population still contained zero mature individuals but the first population was estimated as 200-250 (the uncertainty in the estimate was due to the dense cover of *Gahnia* sp. in places) (expert advice).

Threats:

Threats include:

- Change in fire regimes: A decrease in fire frequency has resulted in a change in vegetation structure from grassland to a shrubland, with competition from shrubs potentially adversely affecting *P. rodwayi* (RBG Records, expert advice).
- Competition from *Leptospermum* sp. aff. *grandifolium*: The absence of fire in recent times has led to the growth and spread of *Leptospermum* sp. aff. *grandifolium* at both sites (expert advice).
- Grazing by wombats: Increased pressure from wombat grazing may be attributable to vegetation changes resulting from lack of fire (expert advice).
- Future expansion of telecommunications infrastructure at Site 1 (expert advice).
- The small population numbers and limited distribution of this species make *P. rodwayi* vulnerable to natural catastrophes or environmental changes.

ESTABLISHED UNDER THE THREATENED SPECIES CONSERVATION ACT 1995

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Extreme fluctuations:

There is no information/evidence of this species experiencing extreme fluctuations in habitat or population size.

Population reduction and continuing declines:

Anecdotal and photographic evidence indicates that both known locations were dominated by *Plinthanthesis rodwayi* up until the 1970s. No estimates were made of the population at this time but notes accompanying old herbarium collections include descriptions such as 'plentiful in places (site 2, 2nd Jan 1938); 'Plentiful' (site 1, 28th Jan 1940); 'Rare but locally frequent' (site 2, 17th Jan 1978); 'Scattered common grass with sparse out-spreading tussocks (Site 1, 6 Dec 1965).

Since then, as a result of a decrease in fire frequency, the vegetation has changed structure from grassland to a shrubland (expert advice). This then led to threats such as competition from *Leptospermum* sp. aff. *L. grandifolium* and wombat grazing. When the conservation status of this species was assessed in 2002 (Hogbin 2002), no mature individuals were known to exist.

Subsequent to this, a single plant was located at site 1 (expert advice). In late 2004/early 2005 a small fence was constructed (about 25 x 25 m) around this population (however, at about 100 m to the west of the single plant, in slightly more open vegetation) to exclude wombats, and the shrub layer was removed (to protect human assets from fire). As a result, in late 2007, 25 individuals were found (expert advice).

The most recent survey (October 2008) located 200-250 plants within the fenced area. The fence is currently being extended to encourage further re-establishment of the species and remove land use conflicts on the summit (vehicle access, fire management, maintenance of infrastructure). The Review of Environmental Factors for fire management within the fence requires that the fence be checked regularly.

It is possible that with adequate fencing of suitable habitat, the species may continue to make a recovery. However, the difficult terrain, remoteness (Site 2), and the ethical issue of removing wombats from the sites (which would be required if the fence was greatly increased in extent) impose logistical constraints on future management options for the species. At Site 2, unlike Site 1, it will be difficult (and almost impossible) to remove shrubs and construct a fence unless a fire goes through the site (expert advice).

Extent of Occurrence (EOO) & Area of Occupancy (AOO):

Depending on whether *P. rodwayi* persists at Site 2, the species is currently known from only one or two subpopulations and so the AOO and EOO are likely to be no greater than 4-8 km² (based on 2 x 2 km grid cells, the spatial scale of assessment recommended by IUCN (2008).

Severe fragmentation:

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The two subpopulations have not been connected in recent times (and perhaps never). The two mountains are in view of each other but isolated by less elevated terrain. Hence, there is no evidence that the populations of *P. rodwayi* are severely fragmented.

References:

- Blake ST (1972) *Plinthanthesis* and *Danthonia* and a review of the Australian species of *Leptochloa* (Gramineae). *Contributions from the Queensland Herbarium* **14**, 1-4.
- Jacobs SWL, McClay KL (1993): *Plinthanthesis*. In: 'Flora of New South Wales. Volume 4'. (Ed. GJ Harden) pp 557-558 (University of NSW Press: Kensington, NSW)
- IUCN (2008) 'Guidelines for using the IUCN Red List Categories and Criteria. Version 7.0.' (Standards and Petitions Working Group of the IUCN Species Survival Commission Biodiversity Assessments Sub-committee: Switzerland)
(<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>).
- Veldkamp JF (1981) Validation of *Blakeochloa* Veldk. (Gramineae). *Taxon* **30**, 477-478.

Explanatory note

Between 2007 and 2009 the NSW Scientific Committee undertook a systematic review of the conservation status of a selection of plant and animal species listed under the Threatened Species Conservation Act. This species summary report provides a review of the information gathered on this species at the time the Review was undertaken.

The Scientific Committee's report on the Review of Schedules project and final determinations relating to species that were either delisted or had a change in conservation status can be found on the following website: www.environment.nsw.gov.au .

The Committee gratefully acknowledges the past and present Committee members and project officers who ably assisted the Committee in undertaking the Review of Schedules Project. Information on the people involved in the project can be found in the Acknowledgement section of the project report entitled "Review of the Schedules of the Threatened Species Conservation Act 1995. A summary report on the review of selected species" which is available on the abovementioned website.

This species summary report may be cited as:

NSW Scientific Committee (2008) *Plinthanthesis rodwayi* Review of current information in NSW. December 2008. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.