

## Approved Conservation Advice for *Austrostipa wakoolica* (a spear grass)

(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

### Description

*Austrostipa wakoolica* is a densely-tufted, perennial spear-grass that grows to 1 m tall. The leaves are flattened or rolled, 1.5 – 2.5 mm wide at their bases, slightly to strongly ribbed, and densely hairy. The flower-heads are spreading and moderately dense, to 36 cm long, comprising gaping spikelets 11 – 15 mm long (excluding the awn). The awn (bristle) is twice-bent and 3.5 – 6 cm long.

*Austrostipa wakoolica* flowers in response to rain (Jacobs & Everett 1993). The species has been recorded flowering from October to December (NSW Herbarium Records). *Austrostipa wakoolica* probably does not tolerate disturbance, requiring sites protected from the impacts of herbivore grazing and rabbits. The species probably requires periodic flooding of its habitat to maintain wet conditions. It is not known whether fire plays a role in the ecology of this species. Most species of *Austrostipa* provide an abundance of highly flammable ephemeral fuel in periods following above-average rainfall.

Seed dispersal is mainly by wind, rain and flood events; the awn and sharp point of the floret appear to be an adaptation for burying the seed into the soil; grass seed is traditionally believed to be viable for three to five years, so a long-lived seed bank is considered unlikely for this species.

### Conservation Status

*Austrostipa wakoolica* is listed as **endangered**. This species is **eligible** for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

This species is listed as **endangered** under the NSW *Threatened Species Conservation Act 1995*.

### Distribution and Habitat

*Austrostipa wakoolica* is confined to the floodplains of the Murray River tributaries of central-western and south-western NSW (Vickery, Jacobs & Everett 1986, Jacobs & Everett 1993). Localities from specimen records include Manna State Forest and north of Matong in the Central Western Slopes, and north to north-east of Lake Tooim, Merran Creek, Tulla, Cunninyeuk and Mairjimmy State Forest (south of Jerilderie) in the South Western Plains (NSW & MEL Herbarium Records).

Surveys for the species since its listing have identified a total population size of at least 1,000,000 individuals, a large proportion of which occurs in state forests and/or locations with few threats to long-term viability. It is recorded as common in the Mairjimmy State Forest population.

*Austrostipa wakoolica* grows in open woodland, on grey silty clay or sandy loam soils (Ayers, Nash & Baggett 1996). Recorded habitats include the edge of a lignum swamp in brown loam with box and mallee, creek banks in grey silty clay, mallee and lignum sandy loam flat, open cypress pine forest on low range in sandy soil and a low rock rise fenced-off from stock for about 18 months. Associated species include *Callitris glaucophylla*, *Eucalyptus microcarpa*, *Eucalyptus populnea*, *Austrostipa eremophila*, *Austrostipa drummondii*, *Austrodanthonia eriantha*, *Einadia nutans*, *Hyalosperma glutinosum* subsp. *glutinosum* and *Crassula* species (NSW & MEL Herbarium Records).

## Threats

Identified threats to *Austrostipa wakoolica* include (NSW DECCW, 2005):

- Habitat reduction and modification from pastoral development, irrigation and altered flooding regimes
- Grazing: total grazing pressure has increased with higher numbers of rabbits, domestic stock and kangaroos; the species is probably palatable to sheep and rabbits
- Drought – as the species is rainfall-dependant, the flowering season is affected by drought or prolonged dry periods
- Weed invasion and competition, particularly from exotic grasses

## Priority Actions

- Fence sites where feasible or discourage access of herbivores
- Survey for new populations
- Weed control in habitat areas
- Annual monitoring of fenced areas to determine the influence of different grazing animals
- Conduct weed control at 5 selected sites and monitor benefit
- Prevent further loss of extant populations
- Monitor mining proposals in the vicinity and ameliorate potential damage
- Collect seed for NSW Seedbank. Develop collection program in collaboration with Botanic Gardens and Domain Trust - multiple provenances
- Conduct ecological research into specific germination and disturbance requirements and limitations
- Identify two targeted populations (per year over initial three years) and focus recovery actions there, applying adaptive management strategies to determine and ameliorate threats

## Existing Plans/Management Prescriptions that are Relevant to the Species

The NSW Office of Environment and Heritage (OEH) is updating its Threatened Species program following a review of the NSW Priorities Action Statement (PAS) system. Among other objectives, the new system will better target the management of the state's unique threatened species by creating six different management streams. *Austrostipa wakoolica* has been allocated to the *Keep Watch* management stream. Essentially this means that the relevant experts have decided that the species is likely to be secure (with 95% confidence) over 100 years without any direct intervention / management. Therefore, no specific recovery actions have been developed for this species.

## Information Sources

Department of Sustainability, Environment, Water, Population and Communities SPRAT Profile. [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=66623](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66623)

NSW Department of Environment, Climate Change and Water (NSW DECCW) (2005). *Austrostipa wakoolica* - profile. <http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10082>

#### **References cited in the advice**

- Ayers, D., Nash, S. and Baggett, K. (1996) *Threatened Species of Western New South Wales* (NSW National Parks and Wildlife Service: Sydney).
- Jacobs, S.W.L. and Everett, J. (1993) *Stipa*. In Harden, G.J. (ed.) *Flora of New South Wales. Volume 4* (New South Wales University Press: Sydney).
- MEL Herbarium Records. *Databased specimen records from the National Herbarium of Victoria* (Royal Botanic Gardens: Melbourne).
- NSW Department of Environment, Climate Change and Water (NSW DECCW) (2005). *Austrostipa wakoolica* - profile <http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10082>
- NSW Herbarium Records. *Databased specimen records from the National Herbarium of New South Wales* (Royal Botanic Gardens: Sydney).
- Vickery, J.W., Jacobs, S.W.L. and Everett, J. (1986) Taxonomic studies in *Stipa* (Poaceae) in Australia. *Telopea* 3(1): 1-132, pp. 129-130.