A statement for the purposes of approved conservation advice
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

Approved Conservation Advice for *Dichanthium setosum*

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

Description

Dichanthium setosum, Family Poaceae, also known as Bluegrass, is an upright perennial grass less than 1 m tall. It has mostly hairless leaves about 2−3 mm wide. The flowers are densely hairy and clustered together along a stalk in a cylinder shape and appear mostly during summer (Harden, 1993; DEC, 2005a). The species can form pure swards (Ayers et al., 1996) or occur as scattered clumps (DEC, 2005a).

Conservation Status

Dichanthium setosum is listed as **vulnerable**. This species is eligible for listing as vulnerable 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 vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). The species is also listed as vulnerable under the *Threatened Species Conservation Act 1995* (NSW) and as a rare under the *Nature Conservation Act 1992* (Queensland).

Distribution and Habitat

Dichanthium setosum occurs chiefly on the northern tablelands in the Saumarez area, west of Armidale, and 18-30 km east of Guyra. It is more rarely found on the north-western slopes, central western slopes and north-western plains of NSW, extending west to Narrabri (Ayers et al., 1996). In Queensland it has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions (Henderson, 1997). This species occurs in the Mistake Range, in Main Range National Park, and possibly in Glen Rock Regional Park, adjacent to the Main Range National Park.

Dichanthium setosum is associated with heavy basaltic black soils and stony red-brown hard-setting loam with clay subsoil (Ayers et al., 1996; DEC, 2005a) and is found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture. The extent to which this species tolerates disturbance is unknown (DEC, 2005a).

Dichanthium setosum occurs within the Border Rivers−Gwydir, Central West, Namoi, Northern Rivers (NSW), South East and Fitzroy (Queensland) Natural Resources Management Regions (DEC, 2005a).

The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities:

- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions,
- The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin,
- Bluegrass (*Dichanthium* spp.) dominant grasslands of the Brigalow Belt Bioregions (North and South),
- Brigalow (*Acacia harpophylla* dominant and co-dominant),
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, and

- Upland Wetlands of the New England Tablelands and the Monaro Plateau.

Threats

The main identified threats to *Dichanthium setosum* are heavy grazing by domestic stock; loss of habitat through clearing for pasture improvement and cropping; frequent fires, especially regular burning for agricultural purposes; invasion by introduced grasses, such as Coolatai grass (*Hyparrhenia hirta*), Lippia (*Phyla canescens*) and African Lovegrass (*Eragrostis curvula*); and road widening (Ayers et al., 1996; DEC, 2005b). DEC (2005b) considers a fire frequency of greater than five years to be appropriate for the species.

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Research the habitat requirements and ecology of the species, including fire ecology (DEC, 2005b).

Regional Priority Actions

The following regional priority recovery and threat abatement actions can be done to support the recovery of *Dichanthium setosum*.

Habitat Loss, Disturbance and Modification

- Identify populations of high conservation priority.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of *D. setosum*.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on *D. setosum*.
- Ensure road widening and maintenance activities (or other infrastructure or development activities as appropriate) in areas where *D. setosum* occurs do not adversely impact on known populations.
- Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.

Invasive Weeds

- Develop and implement a management plan for the control of introduced grasses, such as Coolatai, African Lovegrass and Lippia, in the local region.

Trampling, Browsing or Grazing

- Develop and implement a stock management plan for roadside verges and travelling stock routes.

Fire

- Develop and implement a suitable fire management strategy for *D. setosum*.
- Identify appropriate intensity and interval of fire to promote seed germination.
- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

Conservation Information

- Raise awareness of *D. setosum* within the local community, particularly among land-holders with the species on their properties.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage.
- Investigate options for linking, enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of *Dichanthium setosum*.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Minimise adverse impacts from land use at known sites.

Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to *D. setosum,* using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to *D. setosum,* using appropriate methods.

Trampling, Browsing or Grazing

- Manage known sites on private property to ensure appropriate cattle and/or sheep grazing regimes are conducted outside the growing season, i.e. when plants are not fertile.
- Prevent grazing pressure at known sites on leased crown land through exclusion fencing or other barriers.

Fire

- Implement an appropriate fire management regime for local populations.

This list does not necessarily encompass all actions that may be of benefit to *D. setosum*, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- NSW Priority Action Statement for *Dichanthium setosum* (DEC 2005b).

Information Sources:

Ayers, D, Nash, S, & Baggett, K (Eds) 1996, *Threatened Species of Western New South Wales*, New South Wales National Parks and Wildlife Service, Hurstville.

Department of Environment & Conservation New South Wales (DEC) 2005a, *Dichanthium setosum* – Profile, viewed 11 December 2007, <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10221>.

Department of Environment & Conservation New South Wales (DEC) 2005b, *Dichanthium setosum* - Priority actions (New South Wales Threatened Species Priority Action Statement), viewed 11 December 2007, <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/pas_profile.aspx?id=10221>.

Harden, GJ (Ed) 1993, *Flora of New South Wales, Volume Four*, University of New South Wales Press, Kensington.

Henderson, RJF 1997, *Queensland Plants Names and Distribution*, Queensland Herbarium: Indooroopilly.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M and Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia – Second Edition*, Australian Network for Plant Conservation, Canberra.