

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

Approved Conservation Advice for
***Eleocharis keigheryi* (Keighery's Eleocharis)**

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

Eleocharis keigheryi, Family Cyperaceae, also known as Keighery's Eleocharis, is a rhizomatous, tufted/clumped perennial herb, reaching a maximum diameter of 40 cm. It has erect, smooth, green stems that are 20–40 cm tall and hollow supporting cross bars that are 2 mm in diameter. When this species grows in water, there are numerous hair-like sterile stems at the base of the main stems. The leaves are reduced to a straw-coloured sheath at the base. Inflorescences, 4–6 mm long and 1–2 mm wide, are colourless or very pale green and occur at the end of the branches. The narrow, cylindrical flower-spike is slightly broader than the stems with spirally arranged, oblong to narrow ovate bracts. Flowers consist of three stamens and a feathery stigma that divides into three. Flowering occurs from August to November, but will extend to December if conditions are favourable (Wilson, 1997; Brown et al., 1998; DEC, 2008).

Conservation Status

Keighery's Eleocharis 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 declared rare flora under the *Wildlife Conservation Act 1950* (Western Australia).

Distribution and Habitat

Keighery's Eleocharis is endemic to Western Australia and is known from 15 populations between north of Eneabba and south-east to Qualeup. Five populations occur on Nature Reserve, one in National Park, three on road verges, two on private property, two on shire reserve, two on rail reserve and one on airport land (DEC, 2008). The number of mature plants that constitute these populations is estimated to be 13 800. The extent of occurrence is approximately 26 600 km². Insufficient data are available to determine the area of occupancy; however, current threats may result in a gradual decline of this species. Known populations are fragmented with considerable distances between them (DEC, 2008).

Keighery's Eleocharis grows in small clumps in a substrate of clay or sandy loam. This species is emergent in freshwater creeks and claypans. Associated species include *Melaleuca glateritia* and herbs such as *Wurmbea*, *Tribonanthes* and *Leptocarpus* spp. (Kelly et al., 1993; Brown et al., 1998; Williams et al., 2001; DEC, 2008). This species occurs within the South West, Swan, Northern Agricultural and Avon (Western Australia) Natural Resource Management Regions.

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological community.

Threats

The main identified threats to Keighery's Eleocharis are invasive weed species; firebreak, road and rail maintenance; and livestock damage and grazing. Invasive weed species is one of

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the main threats as it affects most of populations through competition for space, water and nutrients.

The main potential threats to Keighery's Eleocharis include altered hydrology, salinity and land clearing. Altered hydrology, salinity and drought are potential threats as this species occurs in winter-wet claypans and requires freshwater to thrive.

Research Priorities

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

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- More precisely assess population size, distribution, life history, ecological requirements and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.

Regional and Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of Keighery's Eleocharis.

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.
- Identify populations of high conservation priority.
- Ensure road, rail and firebreak widening and maintenance and other activities involving substrate or vegetation disturbance in areas where Keighery's Eleocharis occurs do not adversely impact on known populations.
- Manage any changes to hydrology that may result in changes to water table levels and/or increased run-off, salinity, algal blooms, sedimentation or pollution.
- Manage any disruptions to water flows.
- Investigate formal conservation arrangements, management agreements and/or covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.

Invasive Weeds

- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Keighery's Eleocharis.
- Identify and remove weeds in the local area, which could become a threat to Keighery's Eleocharis, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to the species, using appropriate methods.

Trampling, Browsing or Grazing

- Manage known sites to ensure appropriate grazing regimes occur.
- Where appropriate manage total grazing pressure at important sites through exclusion fencing or other barriers.

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Conservation Information

- Raise awareness of Keighery's Eleocharis within the local community. This includes distributing fact sheets and organising field days to increase this profile of the species and encourage further sightings.
- Maintain liaison with private landholders and land managers of land on which populations occur.

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.

This list does not necessarily encompass all actions that may be of benefit to Keighery's Eleocharis, 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

- Declared Rare and Poorly Known Flora in the Metro Area (Kelly et al., 1993), and
- Declared Rare and Poorly Known Flora in the Central Forest Region (Williams et al., 2001).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

Information Sources:

Brown, A, Thomson-Dans, C & Marchant, N (eds) 1998, *Western Australia's Threatened Flora*, Department of Conservation and Land Management, Western Australia.

Department of Environment and Conservation (DEC) 2008, Records held in DEC's Declared Rare Flora Database and rare flora files. Department of Environment and Conservation, Western Australia.

Kelly, AE, Taylor, A, Langley, MA, Spooner, A & Coates, DJ 1993, *Declared Rare and Poorly Known Flora in the Metro Area*, Wildlife Management Plan No 10, Department of Conservation and Land Management, Western Australia.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia* (2nd ed.), Australian Network for Plant Conservation, Canberra.

Williams, K, Horan, A, Wood, S & Webb, A 2001, *Declared Rare and Poorly Known Flora in the Central Forest Region*, Wildlife Management Plan No 33, Department of Conservation and Land Management, Western Australia.

Wilson, KL 1997, 'New species of Cyperaceae in Western Australia', *Nuytsia*, vol. 11, no. 2, pp 269-282.