

Threatened Species of the Northern Territory

DWARF DESERT SPIKE-RUSH

Eleocharis papillosa

Conservation status

Australia: Vulnerable

Northern Territory: Vulnerable



Description

The dwarf desert spike-rush is a small erect perennial sedge, typically less than 10 cm high. The above ground parts grow in response to inundation, subsequently dying back to underground parts which consist of roots, rhizomes and tuberoids. The leaf sheaths are purplish at base.

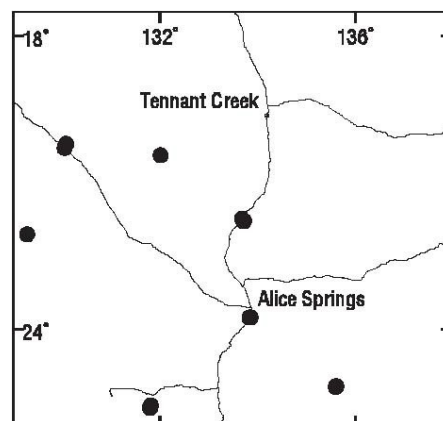
Flowering and fruiting: recorded throughout the year.

Distribution

The dwarf desert spike-rush is endemic to the NT. It is known from just eight locations, ranging from the northern Tanami Desert to the southern parts of the Finke bioregion and the edge of the Simpson Desert (White *et al.* 2000). Most locations are remote and repeated collections have been made at only three of them. The latitudinal range of the species is 600 km and the longitudinal range is 560 km.

Conservation reserves where reported:

None.



Known locations of *E. papillosa*.

Ecology

All records are from temporary wetlands; predominantly freshwater and semi-saline swamps but one record is from the edge of a temporary riverine waterhole.

Growth, seeding and germination are presumed to occur in response to temporary inundation. Seed set has not been observed at Ilparpa Swamp which is the most frequently visited location. Cultivated greenhouse plants from Ilparpa, with constant water conditions, have also 'failed' to set seed. However, some herbarium specimens from other locations do have seed, indicating that sexual reproduction may occur in some populations. The abundance of above ground shoots may vary between different inundation events. On

occasions it can be difficult to determine whether a population consists of many individuals or few individuals that are extensively rhizomatous. The species has been locally abundant (estimated at up to approximately 1000 plants, D.Albrecht and P.Latz *pers. obs.*) at some times at some sites. However, the actual number of genetically different individuals may be substantially fewer in some populations where asexual reproduction is significant.

During dry times, populations persist as soil-stored seed or soil-stored root tuberoids and/or rhizomes. Plants with constant water conditions (at the Alice Springs Desert Park Nursery) exhibit an annual die-off of the above ground shoots. It is not known what controls this but age, season and cold are all possible factors. These plants subsequently resprout. Informal trials indicate that resprouting can occur from the tuberoids after they have been stored in dry conditions (Tim Collins *pers. comm.*).

The dominant plants at some sites are *Eucalyptus coolabah* (Coolibah), *Halosarcia* sp. (Samphire), *Chenopodium auricomum* (Northern Bluebush) and *Eragrostis* spp. Including *E. australasica* (swamp canegrass). It is recorded as growing both in the open and under shrubs, which may provide protection from trampling by stock at some sites.



A semi-saline swamp with *E. papillosa*

Conservation assessment

Eleocharis papillosa appears to be genuinely rare. Due to its small size and the intermittent presence of surface shoots it is likely that it is 'under collected' and that additional populations do exist. However, an extensive survey of wetlands in 2000 and 2001, in apparently ideal conditions, only found one new population (Duguid *et al.* 2002). The population at Ilparpa Swamp and one from the Burt Plain bioregion are being encroached upon by the exotic couch grass (*Cynodon dactylon*) such that they are highly likely to be eliminated. Recent searches (in 2000, 2001, 2002, 2003 and 2004) at Ilparpa Swamp, following two particularly wet summers, failed to find the species.

It is rated as **Vulnerable** (under criteria: B2ab(iii,iv)) due to:

- the small area of occupancy (<2000 km²);
- the severely fragmented distribution;
- the small number of known locations (<10); and
- a continuing/projected decline in the area, extent and quality of habitat and number of subpopulations.

Threatening processes

Invasion by couch grass (*Cynodon dactylon*) is the main threat at two populations. Changed hydrological conditions may affect some subpopulations. Trampling by stock occurs at some sites, but any long-term effect is unquantified.

Conservation objectives and management

Known populations require monitoring as does the spread of couch grass. The feasibility of controlling couch grass in swamp environments needs to be investigated.

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References

- Duguid, A., Barnetson, J., Clifford, B., Pavey, C., Albrecht, D., Risler, J., and McNellie, M. (2002). *Wetlands in the arid Northern Territory*. A report to Environment Australia on the inventory and significance of wetlands in the arid NT. (Parks and Wildlife Commission of the Northern Territory, Alice Springs.)
- White, M., Albrecht, D., Duguid, A., Latz, P., and Hamilton, M. (2000). *Plant species and sites of botanical significance in the southern bioregions of the Northern Territory. Volume 1: significant vascular plants*. Report to the Australian Heritage Commission. (Arid Lands Environment Centre, Alice Springs.)