



Tetratheca juncea

Smith

The following information is provided to assist authors of Species Impact Statements, proponents, and determining and consent authorities, who are required to prepare or review assessments of likely impacts on threatened species pursuant to the provisions of the *Environmental Planning and Assessment Act 1979*. These guidelines should be read in conjunction with the NPWS *Information Circular No. 2: Threatened Species Assessment under the EP&A Act: The '8 Part Test' of Significance* (November 1996) and with the accompanying "Threatened Species Information" sheet.

Glossary

The following terms have been adopted by these guidelines.

Sub-population: describes discrete areas of *T. juncea* habitat where interchange of genetic material (e.g. seed/pollen dispersal) is likely. A sub-population may contain one or many plant clumps.

Plant clump: Describes a single occurrence of *T. juncea* that may contain one or multiple stems which are likely to arise from a single rootstock.

Survey

T. juncea plant clumps should be counted rather than individual plant stems in view of the rhizomatous nature of the species.

In view of the sporadic flowering nature of the species, the survey should be repeated 2–3 times during the flowering season between late August and the end of November (in dry years) and between August and January (in wet years). Where this is not possible, the assessment should

assume that the survey has underestimated the distribution and abundance of the species on the site.

Life cycle of the species

Key components of the species lifecycle remain unknown. Research is currently underway investigating soil seed bank, mycorrhiza, population dynamics, fecundity and pollination.

Threatening processes

"High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition" is listed in the NSW *Threatened Species Conservation Act 1995* as a key threatening process that may affect *T. juncea*.

Payne 2000 also identifies weed invasion, habitat destruction and fragmentation as threats.

Viable local population of the species

Local population is a term adopted by the TSC Act. It is analogous to the definition of sub-population as defined by these guidelines.

A viable sub-population is one which is capable of being self-sustaining in the medium to long term.

Current management regimes are an important consideration, i.e. the site has an appropriate fire regime, is free of weeds and not subject to any other management practice which is likely to eliminate the species.

A significant area of habitat

Assessment of significance of habitat for *T. juncea* requires consideration of:

- the number of plant clumps to be effected within the context of the sub-population;
- any characteristics of population on the site which may be of conservation significance eg the population displays:
 - any morphological variants;
 - is found on atypical substrate; or
 - is outside or at the edge of the current known range of the species;
- Whether the habitat in question is subject to threat and the likelihood of ameliorating any existing threatening processes;
- Whether the habitat in question will be permanently or temporarily removed.

Isolation/fragmentation

T. juncea, particularly in the eastern part of its range, has already been subject to isolation and fragmentation through the combined effects of urbanisation and agricultural developments on the central coast.

Assessment of isolation and fragmentation effects requires consideration of the impact of development on adjacent or proximate habitat on this species.

Fragmentation of existing sub-populations is clearly undesirable and exposes sub-populations to increased risk of genetic isolation and subsequent decline through reduced opportunities for outcrossing.

Regional distribution of habitat

The majority of *T. juncea* records are located within the northern portion of the Sydney Basin Region. Populations within Port Stephens and

the Great Lakes Shire are at the southern limit of the North Coast Bioregion.

Limit of distribution

The southern limit of the species' current known range is the Wallarah catchment, north Wyong. The northern limit is around Buledelah in the Great Lakes Shire. The species does not occur further west than the Sugarloaf Range. This represents a north-south range of about 125km and a east-west range of about 50km.

Adequacy of representation in conservation reserves

The NPWS considers that *T. juncea* is adequately conserved in the south-eastern portion of its range with approximately 1300 plant clumps known from Awabakal Nature Reserve, Glenrock State Recreation Area, Lake Macquarie Recreation Area, and Munmorah State Recreation Area (Payne 2000)

It is inadequately conserved in the northern and western portions of its range, with no formal reserves existing in those areas.

Prospects for the conservation of the species in the northern and western areas of the species' known range is largely dependent on the future land-uses and current land management practices for large tracts of land covered by mining leases and subject to underground coal mining operations.

Critical habitat

Critical habitat has not been declared for *T. juncea* as it is not listed as endangered under the TSC Act.

For further information contact

Threatened Species Unit, Central Directorate, NSW NPWS, PO Box 1967, Hurstville NSW 2220.
Phone (02) 9585 6678 or visit our website www.npws.nsw.gov.au.

References

- Benson, D & Howell, J (1992) *Taken for Granted: The Bushland of Sydney and its Suburbs*. Kangaroo Press in association with the Royal Botanic Gardens, Sydney
- Briggs, J and Leigh, J (1995) *Rare or Threatened Australian Plants*. CSIRO Australia Canberra
- Fairley, A. & Moore, P. (1989) *Native Plants of the Sydney District, An Identification Guide*
- Harden, G.J. (ed.) (1992) *Flora of New South Wales* NSW University Press, Kensington.
- Norton, A. E. (1994) *Field Observations into *Tetratheca juncea* Smith Fire Regeneration and its Distribution within Lake Macquarie City Council*. BHP
- NPWS (1999) *Vegetation Survey, Classification and Mapping Lower Hunter and Central Coast Region*. Unpublished report prepared for the Lower Hunter and Central Coast Regional Environment Management Strategy.
- Payne, R. (1998) *Lake Macquarie *Tetratheca juncea* Conservation Management Plan Interim Report*. Unpublished report prepared for NSW NPWS, Lake Macquarie City Council and BHP P/L.
- Payne, R. (2000) *Lake Macquarie *Tetratheca juncea* Conservation Management Plan Final Report*. Unpublished report prepared for NSW NPWS, Lake Macquarie City Council and BHP P/L.
- Winning, G. (1992) *Conservation status of rare plants in the Lake Macquarie area*. Unpublished report prepared for Lake Macquarie City Council

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