

Kennedia retrorsa

Hemsley

The following information is provided to assist authors of Species Impact Statements, development and activity 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).

Survey

K. retrorsa is most easily identified when in flower. When not in flower the species could be confused with the widespread and variable *Kennedia rubicunda*. Seedlings of this species are difficult to distinguish from that of *K. rubicunda*.

In riparian zones or intermittent drainage lines intensive searches should be undertaken in sunny situations for seedlings or juvenile plants. Presence in such a locality may indicate a population of the species in the surrounding area.

Surveys should also include rocky ridgetops, bases of sandstone ledges and cliffclines especially in areas adjacent basalt.

Due to the localised and sporadic occurrences of this species, the use of quadrants and similar survey techniques are not deemed satisfactory methods in determining presence/absence over a wider study area.

Assessment of fire history is essential in the determination of presence/absence of the species at any given site. Viable but dormant *K. retrorsa* seeds may be present in the soil seedbank irrespective of the apparent absence of the species within the survey area. *K. retrorsa*, as in the majority of the Faboideae have hard coated seeds, enabling them to survive in the soil seedbank for long periods of time, possibly > 50 years.

K. retrorsa requires high light levels for maximum growth and is likely to be a successional species in some localities (i.e. being locally abundant for a number of years after fire and gradually declining in numbers due to competition and/or shading from trees and shrubs).

Where *K. retrorsa* is present, plant dimensions, approximate age of individuals and evidence of flowering or seed set should be recorded.

Life cycle of the species

The lifecycle of *K. retrorsa* is likely to be disrupted should any of the following occur:

Loss of individuals through physical destruction of plants permanently destroys an individual's lifecycle. *K. retrorsa* is not known to reproduce vegetatively, therefore the plant's persistence depends on the production and germination of viable seed.

Seedbank disturbance as a result of removal or reduction of leaf litter layer of the soil profile, may disrupt the lifecycle of *K. retrorsa* as *Kennedia* seeds are thought to be stored in the upper layers of the soil profile



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Habitat modification affects the lifecycle of *K. retrorsa* by altering the ecological processes within suitable habitat. Habitat modification may include weed invasion, reduced water quality/rural runoff, and increased sedimentation of creek/drainage lines.

Threatening processes

“High frequency fire resulting in the disruption of life cycle processes in plants and animal and loss of vegetation structure and composition” is a listed key threatening process under the TSC Act. This key threatening process is relevant to this species.

Other identified threats to the *K. retrorsa* population include habitat degradation and habitat clearance.

Viable local population

K. retrorsa is able to produce a large amount of long-lived, soil persistent seed in a relatively short period of time (3-6 years). Thus, any assessment of viability should consider the reproductive capacity of a site in view of the soil seed bank and not confine consideration to the number of visible plants.

Significant area of habitat

The following factors should be considered.

- Location of the population in relation to current distributional limits
- Number, density and population dynamics (age) of the individuals occurring at the site
- Proximity of the habitat to existing *K. retrorsa* sub-populations
- Reproductive status of the population. A large proportion of the known *K. retrorsa* populations are reproductively immature

- Management potential of the site and the ability to manage current threatening processes
- Nature of the impact ie whether habitat will be permanently removed or temporarily modified.

Isolation & fragmentation

Management of *K. retrorsa* habitat should aim to maintain the continuity of habitat between individuals within populations, and avoid creating new sub-populations.

Regional distribution

K. retrorsa habitat occurs in highly restricted portions of the Central Western Slopes and Central Coast Botanical sub-divisions. In the Mount Dangar area the species is recorded to occur in a range of communities including those classified as Woodland/Open Woodland Map Unit 6, Woodland/Open Woodland and Low Open Woodland within Map Unit 5 and Woodland Map Unit 4 of McRae & Cooper 1985 on the Merriwa 1:100,000 map sheet.

Limit of known distribution

The northern distributional limit of *K. retrorsa* in NSW is Mount Dangar with the southern occurrence at Dingo Creek.

Adequacy of representation in conservation reserves

K. retrorsa occurs within Wollemi and Goulburn River National Parks. The species is not adequately conserved due to the small size of known populations within reserves and the predominance of seedlings and juvenile plants.

Critical habitat

Critical habitat cannot be declared for *K. retrorsa* as it is not listed on Schedule 1 of the TSC Act.

For further information contact

Threatened Species Unit Sydney Zone NSW NPWS PO Box 1967, Hurstville NSW 2220 Phone 02 9585 6678 or visit our website at www.npws.nsw.gov.au

References

Benson, D. H. and McDougall, L. (1996) Ecology of Sydney plant species Part 4 Fabaceae: Peas & Wattles in *Cunninghamia* Vol. 4(4).

Briggs, J. D. and Leigh, J. H. (1996) *Rare or Threatened Australian Plants*.

Department of Conservation and Land Management *Soil Landscape Series Sheet 9031 St. Albans 1:100,000 map sheet*.

Department of Mines *1:250,000 Geological Series Singleton map sheet SI 56 - 1*

Gill, A. M. (1981) Adaptive responses of Australian vascular plants species to fires. Chapter 11 in *Fire and the Australian biota* (A.M. Gill, R. H. Groves, I. R. Noble Eds) (Australian Academy of Science: Canberra).

Harden, G. editor (1991) *Flora of New South Wales* Vol. 2 (NSW University Press: Kensington).

McRae, R. H. D. and Cooper, M. G. (1985) Vegetation of the Merriwa area, New South Wales in "Cunninghamia" Vol. 1 (3): 351-369.

Ryan, K., Fisher, M. and Schaeper L. The natural vegetation of the St Albans 1: 100,000 Map Sheet.

Soil Conservation Service of N.S.W. *Soil Landscape Series Sheet SI 56 – 1 Singleton 1:100,000 map sheet*.

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