



Cynanchum elegans

(Benth.) Domin.

Common name: White-flowered Wax Plant

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

Survey for *Cynanchum elegans* may be undertaken at any time of the year. Mature individuals can be readily identified by the deeply fissured, corky bark present on mature stems. Care must be taken when identifying juvenile plants as leaf morphology is highly variable and the species can be easily confused with other vines in the Asclepiadaceae family.

Low stem numbers and/or highly localised distributions are characteristic of *C. elegans* sites and consequently, the search effort required to confirm presence or absence of the species is high.

Where new sites are located, population details regarding habitat and location should be recorded and forwarded to NPWS.

Life cycle of the species

The ecology of *C. elegans* is described in NPWS (1993) and summarised in the species profile. Proposals that are likely to impact upon the life cycle of the species include those that contribute to the following:

- Loss of individuals

The significance of a particular activity that physically destroys individual plants will require an examination of the number of plants to be destroyed in relation to the size of the population and a discussion of how recruitment and the overall health of the population will be affected.

It is not possible to determine the number of *C. elegans* genets (genetic individuals) present at a site without genetic investigation. In the absence of a genetic study proving otherwise, all stems of *C. elegans* must be considered to be genetically distinct.

- Fragmentation of habitat

As the breeding system of *C. elegans* is poorly understood, the effects of loss and fragmentation of its habitat are not known. Total destruction of habitat will place a local population at risk of extinction.

- Modification of habitat

Urban development (including road construction) in close proximity to *C. elegans* sites is likely to cause modification of habitat through altered hydrological conditions and soil pH, soil nutrification, weed invasion, potential introduction of plant pathogens and altered fire frequency. Subsequent increases in pedestrian and/or vehicular traffic through sites may result in trampling, soil compaction, soil erosion and the dumping of fill material and rubbish.

Quarrying activities upstream of *C. elegans* sites have the potential to modify its habitat by altering hydrological conditions including the quality and quantity of surface and groundwater flows.

The grazing and slashing of understorey vegetation also modifies the habitat of the species.

- Damage to the soil seedbank

Disturbances that will destroy or prevent germination of *C. elegans* seed include the dumping of fill material, removal of topsoil, and spraying with residual herbicides that are capable of killing seeds in the soil. Frequent disturbance of habitat, through grazing and slashing for example, may also act to deplete any soil seed bank for the species.

- Altered fire regimes.

Appropriate fire regimes for *C. elegans* have not yet been determined. Any proposal that increases the susceptibility of a local population to frequent burning is however considered likely to put that local population at risk of extinction.

Fire exclusion for long periods may also impact upon the lifecycle of *C. elegans*. The species appears to prefer the very edge of the ecotone between rainforest and sclerophyll forest (NPWS 1994). Occasional fire (or other disturbance) is required to maintain such habitat.

Threatening processes

There are five key threatening processes listed in Schedule 3 of the NSW *Threatened Species Conservation Act* 1995 (TSC Act) that are potentially relevant to *C. elegans*. These are:

- Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands;
- Anthropogenic climate change;
- Clearing of native vegetation;
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition; and
- Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.).

Other threatening processes include weed invasion, cattle grazing, the dumping of rubbish and fill material, poorly supervised bush regeneration activities and habitat modification resulting from upslope and upstream developments.

Viable local population of the species

The viable population size for *C. elegans* is unknown. In the absence of a detailed assessment demonstrating otherwise, all populations should be assumed to be viable.

A significant area of habitat

Assessment of habitat significance for *C. elegans* requires consideration of the following:

- Number of genetic individuals present;
- Location in relation to the current distributional limits of the species and proximity to the nearest reserved population;
- Uniqueness, size, condition and connective importance of the habitat; and
- Management potential including the likelihood of ameliorating any existing threatening processes.

The NPWS considers all viable populations as occupying a significant area of habitat until such times as adequate and representative examples are conserved across the species' range

Isolation/fragmentation

C. elegans habitat has been fragmented by vegetation clearance for agriculture, urban development and quarrying across its range. The distance between populations of *C. elegans* that will create genetic isolation is unknown as the species' pollen vectors and the distance that its wind-dispersed seed is capable of travelling is unknown. The clearing of interconnected or proximate areas of habitat for the species (or its pollen/seed vectors) is clearly undesirable as this may expose populations to an increased risk of genetic isolation and subsequent decline.

Regional distribution of the habitat

C. elegans has been recorded from the following Bioregions as defined in the Interim Biogeographic Regionalisation of Australia (Thackway & Cresswell 1995): Brigalow Belt South; New England

Tablelands; NSW North Coast; and Sydney Basin.

Limit of known distribution

The known distribution of *C. elegans* extends from Yabba State Forest (north-east of Tenterfield) in the north to Gerroa (southern Illawarra) in the south and west to Merriwa (upper Hunter Valley).

Adequacy of representation in conservation reserves or other similar protected areas

C. elegans is not considered to be adequately represented in conservation reserves.

Critical habitat

Critical habitat has not been declared for *C. elegans*.

For Further Information contact

Threatened Species Unit Conservation Programs and Planning Division, Central Directorate NSW NPWS PO Box 1967, Hurstville NSW 2220 Phone 02 9585 6678.
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References

NPWS (1993). Conservation Research Statement and Species Recovery Plan: *Cynanchum elegans*. Unpublished report to the Australian Nature Conservation Agency, NSW NPWS Hurstville.

NPWS (1994). *Cynanchum elegans* Species Recovery Plan Annual Report. Unpublished report to the Australian Nature Conservation Agency, NSW NPWS Hurstville.

Thackway, R. & Cresswell, I.D. (1995). *An Interim Biogeographic Regionalisation for Australia: A Framework for Setting Priorities in the National Reserves System Cooperative Program*. Version 4.0. Australian Nature Conservation Agency, Canberra.

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