

Approved Conservation Advice for *Acacia rhotinocarpa* (neat wattle)

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

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing and draft plans, records or management prescriptions for this species.

Description

Acacia rhotinocarpa (neat wattle), family Mimosaceae, also known as the resin wattle, is a resinous shrub growing to 0.5-2 m high (Maslin, 2001). Branchlets are sparsely hairy, and the phyllodes are borne on short stem-projections 2–5.5 mm long, 1.5–3.5 mm wide (Maslin, 2001). Inflorescences are simple, with globular heads bearing 12-15 golden flowers (Maslin, 2001). Pods are 1–3.5 cm long, 2–3 mm wide, thinly leathery and hairless (Maslin, 2001). Seeds are longitudinal, oblong, 3.5 mm long, slightly shiny, brown (Maslin, 2001).

Flowering occurs from August to October, and the species is likely to be wind-pollinated (Pobke, 2007). Ants are suspected to disperse seeds, although germination may be influenced by disturbance or fire (Pobke, 2007).

Acacia rhotinocarpa is related to *A. glandulicarpa*, and is superficially similar to *A. brachyclada* from Western Australia (Maslin, 2001). Phyllode shape and size may be similar to some forms of *A. Acinacea*.

Conservation Status

Acacia rhotinocarpa 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 vulnerable in South Australia under the *National Parks and Wildlife Act 1972*.

Distribution and Habitat

The neat wattle has a fragmented distribution on the Eyre and Yorke Peninsulas in South Australia (Maslin, 2001; Pobke, 2007). On the Eyre Peninsula the species occurs between Streaky Bay, Kimba, and Arno Bay (Pobke, 2007), and on the Yorke Peninsula the species occurs in the Curramulka area (Maslin, 2001). The species has a restricted, disjunct distribution on the Eyre and Yorke Peninsulas, and is also known from the Gilberts and Monarto South area in south eastern parts of the state (Maslin, 2001; Obst, 2005).

The total extent of occurrence of the species was reported to be approximately 5000 km² (Obst, 2005). On the Eyre Peninsula the extent of occurrence of neat wattle is approximately 1 600 km², and the area of occupancy is approximately 0.95 km² (Pobke, 2007). The species is known from seven populations on the Eyre Peninsula, comprising approximately 1000 individuals (Pobke, 2007).

The neat wattle usually grows in open scrub in calcareous sand or sandy loam (Maslin, 2001), and occurs in association with low woodland or open shrubland vegetation dominated by *Eucalyptus* species (Obst, 2005). Populations are located on roadsides managed by district councils, on private land, and within the South Australian reserve system (Obst, 2005; Pobke, 2007). In the Arno Bay area, the neat wattle survives in degraded sites largely devoid of remnant vegetation (Pobke, 2007). This species is considered to have some dependence on fire, and is considered to be an early post-fire successional species (Pobke, 2007).

This species occurs within the Eyre Yorke Block, Murray Darling Depression, and Kanmantoo IBRA Bioregions, and the Eyre Peninsula, Northern and Yorke, and South Australian Murray-Darling Basin Natural Resource Management Regions.

The distribution of this species is associated with the 'Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia' EPBC Act-listed threatened ecological community.

Threats

The main identified threats to the neat wattle are (Obst, 2005; Pobke, 2007):

- Habitat fragmentation, with the risk of reduction in species resilience to environmental changes, pests or diseases. The majority of populations are on road reserves, and may have low genetic variability and genetic flow because of their size, isolation and environmental stress.
- Small population/lack of recruitment, with the risk that populations become smaller than the minimum viable population limit. Natural recruitment is rare, and apparently only occurs along roadsides, corresponding with mechanical soil disturbance. Seed set is generally poor although plants located in wetter habitats set significantly more seed than the population average.
- Inappropriate fire and disturbance regimes, with the risks that (i) neat wattle (including the soil seedbank) will become extinct due to exclusion of fire from critical habitat, and (ii) species (including soil seedbank) will become locally extinct if the frequency of fires is too high.
- Different types of disturbance (e.g. burning, soil disturbance) and the intensity, frequency and season of the disturbance events are expected to influence the species' population structure. Long periods with no fires may also be deleterious to neat wattles. Infrequent disturbance events are thought to cause successional decline of this species, and too frequent disturbance, too soon after germination, could result in localised extinction.

The main potential threats to the neat wattle include (Obst, 2005; Pobke, 2007):

- Weed invasion, which may limit germination of this species; however, this requires further study.
- Vegetation clearance/roadside management. Inappropriate roadside management threatens roadside populations, and maintenance of other essential services, such as water pipelines, overhead powerlines and underground cables, has the potential to threaten this species if not managed appropriately.
- Salinity/changes in hydrology, with the risk of localised species extinction and degradation of critical habitat from increased salinity and changes in hydrology.
- High-grazing pressure, with the risk of loss of juvenile plants, leading to population decline. Grazing pressure on neat wattles is unknown.
- Pest and disease, with the risk of localised species extinction and degradation of critical habitat. To date, no assessment has been undertaken of pest or disease affecting this species on the Eyre Peninsula, although dieback caused by *Phytophthora cinnamomi* has been reported as a potential threat to this species elsewhere (Obst, 2005).

Research Priorities

Research priorities that would inform future regional and local priority actions include (Obst, 2005):

- Prioritising sites/populations for management and protection; surveying localities where the species occurs, and identifying all threat(s) that are likely to be present. Assessing the severity and possible impact of each threat on each population.
- Identifying optimal fire regimes for regeneration (vegetative regrowth and/or seed germination), and the response to other prevailing fire regimes.
- Researching how competition and grazing are affecting successful germination and recruitment and ways to ameliorate this.
- Developing and implementing a monitoring program to determine trends in population numbers, recruitment and mortality, timing of life history stages, threats and the impacts of threat abatement activities. Implementing an annual monitoring and research program for all populations.
- More precisely assessing population size, distribution, ecological requirements and the relative impacts of threatening processes. Acquiring baseline population data on distribution, abundance and threats to known populations.
- Accurately identifying and undertaking survey work in potentially suitable habitat to locate any additional populations.
- Accurately surveying critical habitat, and producing maps identifying such habitat.
- Encouraging research into the ecological genetics of this species, and the impacts of fragmentation on the long term survival of populations. Researching provenance boundaries, sub-population structure and optimal population size and genetic diversity to maximise chances of survival.
- Accurately determining what herbivores are impacting on this species. Establishing and implementing a method for investigating the effects of grazing by herbivores.
- Soil sampling to test for the presence of *Phytophthora cinnamomi* at sites suspected of harbouring the disease. If *Phytophthora* is confirmed at a site, encourage monitoring and research to determine the impact on *A. rheticarpa*, including the effect on the threatened species and important habitat, and whether there is evidence of spread.

Regional Priority Actions

The following regional priority recovery and threat abatement actions can be done to support the recovery of the neat wattle (including those identified in Obst, 2005):

Habitat Loss, Disturbance and Modification

- Prevent the further clearance of remnant vegetation containing this species.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate and/or secure inclusion in reserve tenure if possible. Initiate agreements or protocols on the protection of unreserved populations on public land with the relevant authority, and initiate Heritage Agreement discussions with private landholders (Obst, 2005). The Heritage Agreement Scheme is a program in South Australia that encourages landowners to conserve native vegetation on their properties and help to reverse the effects of excessive land clearing (SA DEWNR, 2013).
- Implement the Roadside Marker Scheme (RMS) on roadside reserve populations, and encourage the responsible authority to appropriately manage the population(s).
- 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.

- Discourage activities such as illegal collection, trampling and inappropriate recreational activities.
- Establish populations in cultivation (if natural populations reach critically low levels – less than 50 mature individuals) and deposit seed in national seedbanks.
- Where appropriate, create buffer zones of native vegetation around existing populations.
- Improve connectivity between populations of this species by revegetation projects.

Invasive Weeds

- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on neat wattles.

Trampling, Browsing or Grazing

- Control and eradicate rabbits (*Oryctolagus cuniculus*) in the region. Implement the 'Threat Abatement Plan for competition and land degradation by rabbits' (DEWHA, 2008).
- Accurately determine what herbivores are impacting on this species.
- Control the impact of grazing by herbivores.

Conservation Information

- Raise awareness of neat wattles within the local community. Build a network of government and nongovernment organisations and individuals to support management actions.
- Engage interested nature conservation, land management and landholder groups in the activities of the program. Develop a fact sheet on this species including information on ecology, distribution and threats.
- Support and encourage stakeholders across the region to actively develop skills and knowledge in managing this species. Use workshops to aid stakeholders in developing the skills and knowledge required to manage this species.
- Enable recovery of additional sites and/or populations.
- Hold meetings or discussions with relevant groups/individuals to emphasise the importance of biodiversity values and discuss options for best management practices.
- To manage the risk of losing genetic diversity, undertake appropriate seed collection and storage. Seeds from representative natural populations to be collected and stored.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.
- Develop and maintain a database to efficiently and securely store survey and monitoring data.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of the neat wattle (including those identified in Obst, 2005):

Habitat Loss, Disturbance and Modification

- Meetings to be held with relevant councils and road authorities within six months of starting this plan to discuss the implementation of the roadside marker scheme and management of these areas. Roadside markers are to be installed at 100% of recommended roadside reserve populations within two years (Obst, 2005).
- Control the impacts of edge effects, including spray drift, intentional spraying, road and rail maintenance activities. One way to achieve this would be to hold discussions

with relevant groups or individuals to emphasise the importance of biodiversity values and discuss options for best management practices (Obst, 2005).

- Where recreational activities have been identified as a threat, fence areas to prevent impacts from such activities on populations.
- Erect appropriate signage to indicate important vegetation is being conserved within relevant areas.
- Discuss the importance of remnant vegetation and threatened species with relevant landholders.
- Provide advice on the distribution and critical habitat of this species to organisations involved with clearing vegetation.

Invasive Weeds

- Identify and remove weeds in the local area that could become a threat to the neat wattle, using appropriate methods. Control bridal creeper (*Asparagus asparagoides*) and perennial Veldt grass (*Ehrharta calycina*) infestations within a 200 m radius of each population.
- Introduce biological control agents such as bridal creeper rust and/or leafhoppers for bridal creeper in the most severe infestations.

Trampling, Browsing or Grazing

- Appropriate fencing to be erected around specific populations or individuals under threat from grazing.
- Control programs to be initiated at sites where rabbit grazing is occurring.
- Provide information to the Kangaroo Management Program about sites where kangaroo numbers are having a negative impact on the population due to grazing.

Diseases, Fungi and Parasites

- Develop and implement suitable hygiene protocols to protect known sites from further outbreaks of dieback caused by *Phytophthora cinnamomi*.
- If necessary, implement appropriate management actions to minimise the adverse impacts of existing *Phytophthora cinnamomi* infestations.

This list does not necessarily encompass all actions that may be of benefit to *Acacia rheticarpa*, but highlights those that are considered to be of highest priority at the time of preparing the Approved Conservation Advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Draft recovery plan for 23 threatened flora taxa on Eyre Peninsula, South Australia 2007-2012 (Pobke, 2007).
- Peppermint box (*Eucalyptus odorata*) grassy woodland of South Australia and iron-grass natural temperate grassland of South Australia (DEWR) (2007).
- South Australian Murray Darling Basin Threatened Flora Recovery Plan (Obst, 2005).

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

References

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