

Approved Conservation Advice for
Ricinocarpos brevis

(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 plans, records or management prescriptions for this species.

Description

Ricinocarpos brevis, Family Euphorbiaceae, is a dense and intricately twiggy shrub that can grow to 1.8 m high (Halford and Henderson, 2007). The leaves are spirally alternate or occasionally sub-opposite, with blades 7–30 mm long and 1.4–2 mm across. Inflorescences contain 1–3 flowers. The flowers are white, conspicuous, and the stalk densely hairy with mostly white hairs. Fruit are ellipsoidal to ovoid and 8–9 mm long and 6–7 mm across. Flowering has been observed in June, July and November, and fruiting in October and November (Western Australian Herbarium, 2006; Halford and Henderson, 2007).

Ricinocarpos brevis is similar to *R. crispatus* from south-western Queensland, but differs in its generally more intricately branched habit and its larger fruits (8–9 mm long and 6–7 mm across compared with 4–5 mm long and 5–6 mm across) (Halford and Henderson, 2007).

Conservation Status

Ricinocarpos brevis is listed as **endangered**. This species is eligible for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as it has undergone and is likely to undergo in the immediate future a severe reduction in numbers, and it has a restricted geographic distribution which is precarious for its survival given its fragmentation and the nature of ongoing threats (TSSC, 2009).

Ricinocarpos brevis is also listed as declared rare flora under the *Western Australian Wildlife Conservation Act 1950*, and is managed as critically endangered (according to IUCN criteria) by the Western Australian Government.

Distribution and Habitat

Ricinocarpos brevis is endemic to Western Australia. It is known from five populations from Windarling Range, approximately 200 km west of Kalgoorlie, to the town of Menzies, approximately 100 km northeast of Windarling Range (DEC, 2009). The extent of occurrence of the species is approximately 1700 km². The three populations that occur at Windarling Range have a combined area of occupancy of 1 km², however area of occupancy has not been recorded for populations four and five. (DEC, 2009).

The population size of the species is approximately 8200 mature plants (DEC, 2009).

Ricinocarpos brevis appears to be confined to a specific habitat, namely shallow sandy soils on rocky banded ironstone outcrops. The species occurs in mixed shrublands with *Acacia*, *Grevillea* and/or *Eremophila* species.

The species occurs within the Coolgardie IBRA Bioregion and the Rangelands Natural Resource Management region. The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological community.

Threats

Mining and mineral exploration is the key threat to *Ricinocarpos brevis* with mining activities resulting in the reduction of the total number of plants. Numbers are likely to continue to decline in the future due to mine expansion and secondary impacts (DEC, 2009). Other identified threats to the species are weed invasion, inappropriate fire regimes and grazing by a native moth *Microlepidoptera* sp. which was found to be predated the fruits and viable seed. Commercial flora collecting activities may inadvertently damage plants and is considered a potential threat to the species (DEC, 2009).

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- More precisely assess population size, geographic distribution, ecological requirements, and the relevant impacts of threatening processes, including:
 - factors that influence the level of flowering, pollination, seed production and fruit development for the species, including grazing by *Microlepidoptera* sp.
 - longevity of plants and time taken to reach maturity
 - the reproductive strategies, phenology and seasonal growth of the species
 - the species' response to disturbance (e.g. fire and slashing)
 - other relevant mortality and morphological data for the species.
- Undertake survey work in suitable habitat and potential habitat during the June to July flowering period to locate any additional populations/occurrences/remnants.
- Undertake seed germination trials to determine the requirements for successful establishment.
- Undertake genetic analyses to assess current gene flow (using markers and analyses capable of distinguishing population divergence on an evolutionary timescale, from that which might be due to more recent impacts).

Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of *Ricinocarpos brevis*.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify additional key threats.
- Minimise adverse impacts from land use at known sites.
- Ensure there is no inappropriate disturbance in areas where *Ricinocarpos brevis* occurs, excluding necessary actions to manage the conservation of the species.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

Invasive Weeds

- Develop and implement a management plan for the control of pastoral weed species in the area.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on *Ricinocarpos brevis*.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to *Ricinocarpos brevis*, using appropriate methods.

Grazing

- Develop and implement appropriate management actions to minimise the adverse impacts of grazing by the native moth *Microlepidoptera* sp. at sites where the species is known to occur.

Fire

- Develop and implement a suitable fire management strategy for the habitat of *Ricinocarpos brevis*.
- Identify appropriate intensity and interval of fire to promote seed germination and vegetation regeneration.
- Where appropriate, provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

Conservation Information

- Raise awareness of *Ricinocarpos brevis* within the local community through site visits, signage (e.g. roadside markers), and posters/information brochures to be distributed to local naturalist groups, relevant authorities and volunteer organisations.
- Frequently engage with private landholders and land managers responsible for the land on which populations occur and encourage these key stakeholders to contribute to the implementation of conservation management actions.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage.
- Investigate options for linking, enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

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

Information Sources:

DEC (Department of Environment and Conservation) (2009). Records held in DEC's declared flora database and rare flora files. Western Australian Department of Environment and Conservation, Western Australia.

Halford DA and Henderson RJF (2007). A taxonomic revision of *Ricinocarpos* Desf. (Euphorbiaceae: Ricinocarpeae, Ricinocarpiinae). *Austrobaileya* 7(3): 399–401.

TSSC (Threatened Species Scientific Committee) (2009). Listing advice for *Ricinocarpos brevis*.

Vallee L, Hogbin T, Monks L, Makinson B, Matthes M and Rossetto M (2004). Guidelines for the translocation of threatened plants in Australia - second edition. Australian Network for Plant Conservation, Canberra.

Western Australian Herbarium (2006). FloraBase – the Western Australian flora. Department of Environment and Conservation.

Available on the Internet at: <http://florabase.calm.wa.gov.au/>