

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

**Approved Conservation Advice for**  
***Gyrostemon reticulatus* (Net-veined Gyrostemon)**

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**

*Gyrostemon reticulatus*, Family Gyrostemonaceae, also known as the Net-veined Gyrostemon, is an erect shrub growing to approximately 1 m high. Leaves are crowded, persistent and linear, 11–35 mm long, circular in cross-section and may have a hooked tip. Flowers are solitary with pointed calyx lobes. Male and female flowers grow on separate plants. Male flowers have 9–12 stamens arranged in a whorl and ending in a sharp point. Female flowers have 5–7 carpels with narrow, flattened stigmas about 1 mm long. The stalked solitary fruit is spherical; carpels are 3 mm long, semi-circular and narrow towards the margin, with patterned surfaces (Stack & English, 2002; CALM, 2005).

**Conservation Status**

The Net-veined Gyrostemon is listed as **critically endangered**. This species is eligible for listing as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, in 2006, the Minister considered the Threatened Species Scientific Committee's (TSSC) advice under section 189 of the EPBC Act and amended the list under section 184 to include the Net-veined Gyrostemon. The TSSC determined that this species met Criterion 2 (distribution is precarious for the survival of the species) and 4 (low population numbers) of their eligibility criteria (TSSC, 2006). This species was previously listed as extinct, in July 2000, under the *Endangered Species Protection Act 1992* (Cwlth). The species is also listed as Rare under the *Wildlife Conservation Act 1950* (Western Australia).

**Distribution and Habitat**

The Net-veined Gyrostemon is endemic to Western Australia and known from two highly fragmented populations near Tardun in the northern Wheatbelt, approximately 350 km north of Perth and 100 km east of Geraldton (George, 1982; CALM, 2005). The species has previously been found at Canna and further south in the Wubin to Kalannie area (CALM, 2005). The two populations occur in remnant vegetation on private property and are separated by cleared paddocks. The known populations are not managed specifically for conservation purposes, but property owners are aware of their conservation status and are willing to protect the remaining populations. This species' extent of occurrence is estimated to be less than 2 km<sup>2</sup> and its area of occupancy is unknown, but is less than its extent of occurrence (CALM, 2005).

The Net-veined Gyrostemon grows in dense shrubland in brown/yellow loamy sand on sloping topography. The species is associated with *Melaleuca cordata*, *M. uncinata*, *Acacia acuminata* and *Allocasuarina campestris*, among others (CALM, 2005). This species occurs within the Northern Agricultural (Western Australia) Natural Resource Management Region.

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological communities.

### **Threats**

The main identified threats to the Net-veined Gyrostemon are damage caused by firebreak maintenance, drought, grazing by stock and feral rabbits (*Oryctolagus cuniculus*), and a lack of appropriate disturbance to stimulate regeneration. The species appears to naturally fluctuate in population size in response to disturbances such as fire and soil movement (CALM, 2005).

The main potential threats to Net-veined Gyrostemon include inappropriate fire regimes (i.e. too frequent to allow for adequate seed accumulation, or not frequent enough to ensure survival of populations), salinity and physical destruction caused by property maintenance. A combination of these pressures may limit future seedling and juvenile recruitment (CALM, 2005).

### **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, distribution, ecological requirements and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.
- Investigate disturbance requirements for seed germination and initiate appropriate regimes.

### **Regional and Local Priority Actions**

The following priority recovery and threat abatement actions can be done to support the recovery of Net-veined Gyrostemon.

#### **Habitat Loss, Disturbance and Modification**

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Ensure firebreak and other property maintenance activities or development activities involving substrate or vegetation disturbance in areas where Net-veined Gyrostemon occurs do not adversely impact on known populations.
- Manage any changes to hydrology that may result in changes to the water table levels and concomitant salinity, increased run-off, sedimentation or pollution.
- Manage any disruptions to water flows.
- Suitably control and manage access on private land.
- Minimise adverse impacts from land use at known sites.
- Investigate formal conservation arrangements, management agreements and/or covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.

#### **Trampling, Browsing or Grazing**

- Implement the management plan for the control and eradication of rabbits in the local region.
- Maintain stock exclusion fences around the known populations.

#### **Fire**

- Develop and implement a suitable fire management strategy for Net-veined Gyrostemon.

This Conservation Advice was approved by the Minister / Delegate of the Minister on: 16/12/2008

- Identify appropriate intensity and interval of fire to promote seed germination and/or vegetation regeneration.
- As appropriate, provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plan(s), risk register and/or operation maps.

#### Conservation Information

- Raise awareness of Net-veined Gyrostemon within the local community.
- Maintain partnerships with private landholders and managers of land on which populations occur to ensure appropriate conservation.

#### Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage. A limited amount of seed has been collected and is stored at the West Australian Threatened Flora Seed Centre (TFSC, 2005).
- 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 Net-veined Gyrostemon, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

#### **Existing Plans/Management Prescriptions that are Relevant to the Species**

- Net-Veined Gyrostemon (*Gyrostemon reticulatus*) Interim Recovery Plan, 2002–2007 (Stack & English, 2002), and
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (EA, 1999).

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

#### **Information Sources:**

Department of Conservation and Land Management (CALM) (WA) 2005, Records held in CALM's Declared Flora Database and Rare Flora Files.

Environment Australia (EA) 1999, *Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits*, Biodiversity Group, Environment Australia, viewed 15 April 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/tap/rabbits/index.html>>

George, AS (ed.) 1982, 'Gyrostemonaceae', In: *Flora of Australia, vol. 8 Lecythidales to Batales*, Australian Government Publishing Service, Canberra.

Stack, G & English, V 2002, *Interim Recovery Plan 119: Net-Veined Gyrostemon (Gyrostemon reticulatus) IRP, 2002–2007*, Department of Conservation and Land Management, Perth.

Threatened Flora Seed Centre (TFSC) 2005, Records held in CALM's Threatened Flora Seed Center database. Department of Conservation and Land Management, Perth.

Threatened Species Scientific Committee (TSSC) 2006, *Commonwealth Listing Advice on Gyrostemon reticulatus (Net-veined Gyrostemon)*, Department of the Environment, Water, Heritage, and the Arts, viewed 20 October 2008, <<http://www.environment.gov.au/biodiversity/threatened/species/pubs/gyrostemon-reticulatus-listing.pdf>>.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia - Second Edition*, Australian Network for Plant Conservation, Canberra.