

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

**Approved Conservation Advice for**  
***Stachystemon nematophorus* (Three-flowered Stachystemon)**

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**

*Stachystemon nematophorus*, Family Euphorbiaceae, also known as Three-flowered Stachystemon, is a slender, erect, glabrous shrub to 60 cm high (Brown et al., 1998). Leaves are narrowly linear, 8–12 mm long (Leigh et al., 1984; DEC, 2008), in opposite or alternate pairs (Brown et al., 1998). Yellow-green flowers, with reddish-brown bracts, are stalkless, very small, unisexual and grouped in terminal clusters (Leigh et al., 1984; Halford & Henderson, 2003). Males have three broadly ovate outer sepals up to 1 mm long and three inner sepals with two slightly shorter than the third, which is filiform (Brown et al., 1998; Halford & Henderson, 2003). The 15–20 stamens are somewhat longer than the perianth and have short, thick filaments and a central 2–3 lobed ovary (Brown et al., 1998). One or no female flowers occur at the centre of the male cluster, with four narrow acute sepals and a 2-lobed ovary (Brown et al., 1998). Fruit are oblong capsules, up to 4 mm long with 4 valves (Brown et al., 1998). Seeds are ellipsoid, about 3 mm long and occur singly (Leigh et al., 1984).

This species was previously known as *Pseudanthus nematophorus* (see Halford & Henderson, 2003).

**Conservation Status**

Three-flowered Stachystemon 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, 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 Three-flowered Stachystemon. The TSSC determined that this species met Criterion 4 of their eligibility criteria (TSSC, 2006). Three-flowered Stachystemon is also listed as declared rare flora under the *Wildlife Conservation Act 1950* (Western Australia).

**Distribution and Habitat**

Three-flowered Stachystemon is endemic to Western Australia, where it is known from seven fragmented populations in the Kalbarri area, with five populations in Kalbarri National Park and two on pastoral land. This species was presumed extinct until rediscovered in 2002. Population size is estimated at 1000 individuals, and the extent of occurrence approximately 410 km<sup>2</sup>; the area of occupancy cannot be determined due to insufficient data (DEC, 2008). Population size appears to be stable or slightly increased, possibly due to more detailed surveillance rather than further recruitment (TSSC, 2006).

The species inhabits rocky areas such as breakaways, gravel pits and gully edges, in sandy gravel over laterite and sandy soil in rock crevices and is found amongst open scrub to dense heath with *Acacia scirpifolia*, *Melaleuca* sp., *Scholtzia* sp., *Hibbertia hypericoides*, *Acanthocarpus parviflorus*, *Darwinia oldfieldii* and *Lechenaultia chlorantha* (which is listed as vulnerable under the EPBC Act) (Leigh et al., 1984; Brown et al., 1998). Three-flowered Stachystemon occurs within the Northern Agricultural (Western Australia) Natural Resource Management Region.

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

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

### **Threats**

The main identified threats to Three-flowered Stachystemon are agricultural clearing, grazing by feral goats (*Capra hircus*) and trampling by feral pigs (*Sus scrofa*) (Leigh et al., 1984).

The main potential threats to Three-flowered Stachystemon include roadworks, gravel quarrying, recreation activities, grazing from rabbits (*Oryctolagus cuniculus*) and kangaroos (*Macropus fuliginosus*), invasive weeds and inappropriate fire regimes (DEC, 2008).

### **Research Priorities**

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

- More precisely assess population size, distribution, biology, flowering and fruiting phenology, life history, ecological requirements and the relative impacts of threatening processes, including fire (TSSC, 2006; DEC, 2008).
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment (TSSC, 2006).
- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.

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

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of Three-flowered Stachystemon.

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

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Monitor known populations to identify key threats
- Control access routes to suitably constrain public access to known sites on public land.
- Minimise adverse impacts from land use, such as gravel quarrying and agricultural clearing, at known sites.
- Ensure road widening and maintenance work or recreation activities involving substrate or vegetation disturbance in areas where Three-flowered Stachystemon occurs do not adversely impact on known populations.
- 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.

#### **Invasive Weeds**

- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Three-flowered Stachystemon.
- Identify and remove weeds in the local area which could become a threat to Three-flowered Stachystemon, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds which could become a threat to the species, using appropriate methods.

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

- Develop and initiate appropriate grazing regimes.

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

- Manage total grazing pressure at important sites through exclusion fencing or other barriers.
- Implement management plans for feral goats (EA, 1999a), feral pigs (EA, 1999b), feral rabbits (DEH, 2005) and western grey kangaroos (CALM, 2002) in the region.

#### Fire

- Develop and implement a suitable fire management strategy for Three-flowered Stachystemon.
- Identify appropriate intensity and interval of fire to promote seed germination and/or vegetation regeneration.
- 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 Three-flowered Stachystemon within the local community through Kalbarri Regional Herbarium volunteers and the development and distribution of a fact sheet.
- Maintain liaison with private landholders and managers of land on which populations occur.

#### 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 Three-flowered Stachystemon, 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**

- Declared Rare and Poorly Known Flora in the Geraldton District (Patrick, 2001),
- Threat Abatement Plan for Competition and Land Degradation by Feral Goats (EA, 1999a),
- Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs: Threat Abatement Plan (DEH, 2005),
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (EA, 1999b), and
- Western Grey Kangaroo Management Plan for Western Australia 2003-2007 (CALM, 2002).

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

#### **Information Sources:**

Brown, A, Thomson-Dans, C, & Marchant, N (eds) 1998, *Western Australia's Threatened Flora*, Department of Conservation & Land Management, Western Australia, p. 212.

Department of Conservation and Land Management (CALM) 2002, *Western Grey Kangaroo Management Plan for Western Australia 2003-2007*, Department of Conservation & Land Management (CALM), Western Australia.

Department of Environment and Conservation (DEC) 2008, *Records held in DEC's Declared Flora Database and rare flora files*. Department of Environment and Conservation, Western Australia.

Department of Environment and Heritage (DEH) 2005, *Predation, habitat degradation, competition and disease transmission by feral Pigs: Threat abatement plan*, Department of the Environment and Heritage.

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

Environment Australia (EA) 1999a, *Threat Abatement Plan for Competition and Land Degradation by Feral Goats*, Biodiversity Group, viewed 18 September 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/goats/index.html>>.

Environment Australia (EA) 1999b, *Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits*, Biodiversity Group, viewed 18 September 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/rabbits/index.html>>.

Halford, DA & Henderson, JF 2003, 'Studies in Euphorbiaceae A.L.Juss sens. lat. 5: A revision of Pseudanthus Sieber ex Spreng. and Stachystemon Planch. (Oldfieldlioidereae Kohler & Webster, Caletieae Mull.Arg.)', *Austrobaileya*, vol. 6, no. 3, pp. 109-110.

Leigh, J, Boden, R & Briggs, J 1984, *Extinct and endangered plants of Australia*, Macmillan Australia Pty Ltd, Melbourne, p. 198.

Patrick, SJ 2001, *Declared Rare and Poorly Known Flora in the Geraldton District*, Wildlife Management Program No. 26, Department of Conservation & Land Management, Western Australia, p. 89.

Threatened Species Scientific Committee (TSSC) 2006, *Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee: Stachystemon nematophorus*, Department of the Environment, Water, Heritage and the Arts, Canberra, viewed 18 September 2008,

<<http://www.environment.gov.au/biodiversity/threatened/species/stachystemon-nematophorus.html>>.

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.