

**Approved Conservation Advice for**  
***Idiosoma nigrum* (shield-back spider)**

(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**

*Idiosoma nigrum*, Family Idiopidae, also known as the shield-back spider, shield-backed trapdoor spider or black rugose trapdoor spider, is a large spider with females up to 30 mm in body length and males up to 18 mm in body length. The species is dark brown to black in colour and is easily recognisable by the distinctive structure of the abdomen. The abdominal cuticle or skin is thick and hard. The end of the abdomen is flattened and shield-like, and its sides are deeply grooved giving them a rugose, corrugated appearance (DEWHA, 2010).

**Conservation Status**

The shield-back spider 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 its geographic distribution is limited and precarious for its survival given the nature of ongoing threats (TSSC, 2011).

The shield-back spider is also listed as Schedule 1 Fauna (fauna that is rare or likely to become extinct) under the Western Australian *Wildlife Conservation Act 1950*, and is managed as vulnerable (according to IUCN criteria) by the Western Australian Government.

**Distribution and Habitat**

The shield-back spider is endemic to Western Australia. The species is known from three locations. One location consists of a number of severely fragmented populations in the central and northern wheatbelt (Main et al., 2000). The second and third locations are at Jack Hills and Weld Range, two isolated populations approximately 200 km further north, in more arid areas (Main, pers. comm., 2009). The species' area of occupancy is estimated to be 1 700 km<sup>2</sup> and its extent of occurrence is approximately 21 500 km<sup>2</sup> (Main, unpublished data).

The spider occurs over a range of land tenure including private property, pastoral leases, nature reserves, Crown reserves, road verges and mining tenements (Clark and Spier, 2003; DEC, 2010).

The population size of the species is not known (DEC, 2009).

The shield-back spider typically inhabits clay soils of eucalypt woodlands and acacia vegetation, and relies heavily on leaf-litter and twigs to build its burrow (Main, 1996; 2003).

The species is very well-adapted for life in semi-arid habitats and lives in burrows that are tubular and approximately 20–30 cm deep (Main, 1992). The burrow is deep enough to ensure that air in the lower burrow remains humid and relatively cool in summer. The burrow has a lightweight trapdoor of leaf-litter and silk, with a fan of leaf and twig trip-lines attached to the burrow rim. Movement of a trip-line alerts the spider waiting in the entrance of the burrow to the presence of prey, which is primarily ants, but also includes beetles, cockroaches, millipedes and moths (Clark and Spier, 2003; DEWHA, 2010).

Females spend their entire life in the burrow or within its proximity. Gene flow is therefore facilitated by male biased dispersal, estimated to be less than 500 m (Main, unpublished data), as only males leave their burrows in search of females. The species aestivates (becomes dormant) during the drier months of the year from November to February (Main, pers. comm., 2009).

The species occurs within the Avon, Northern Agricultural and Rangelands Natural Resource Management regions in Western Australia. This species is not known to overlap with any EPBC Act-listed threatened ecological community.

### **Threats**

The main threats to the shield-back spider are land clearance and habitat fragmentation, salinity, and grazing of habitat by stock and feral animals (Main, 2003; DEC, 2009). Potential threats to the two populations at Jack Hills and Weld Range include dust pollution and vibration from mine exploration activities (Main, pers. comm., 2009). Inappropriate fire regimes are also considered a potential threat to the species across its range (Main, 1957, 1991, 1992, 1995; Yen, 1995).

### **Research Priorities**

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

- Support and enhance existing monitoring programs for the shield-back spider.
- More precisely assess population size, distribution, ecological requirements, and the relevant impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations.
- Undertake research to understand the role of fire in the ecology of the species' habitat.
- Undertake research into the population genetics of the species, as there are morphological variations present over the range of the species, due to its localised nature (Clark and Spier, 2003).

### **Priority Actions**

The following priority recovery and threat abatement actions can be done to support the recovery of the shield-back spider.

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

- Monitor known populations to identify additional key threats.
- Minimise adverse impacts from land use (especially mining) at known sites.
- 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.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate and secure inclusion in reserve tenure if possible.
- Manage any other known, potential or emerging threats.

#### **Grazing**

- Develop and implement a management plan for the control and eradication of goats and rabbits in the region.
- If livestock grazing occurs in the area, ensure land owners/managers use an appropriate management regime and density that does not detrimentally affect this species.
- Where appropriate, manage total grazing pressure at important sites through exclusion fencing or other barriers.

#### **Conservation Information**

- Raise awareness of the shield-back spider within the local community through signage, and fact sheets/information brochures to be distributed to local naturalist groups, relevant authorities and volunteer organisations.
- 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.

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

### Information Sources:

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Viewed: 25 January 2010

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