

**Advice to the Minister for Sustainability, Environment, Water, Population and Communities  
from the Threatened Species Scientific Committee (the Committee)  
on Amendment to the list of Threatened Species  
under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)**

**1. Reason for Conservation Assessment by the Committee**

This advice follows assessment of new information provided through the Species Information Partnership with Western Australia on:

***Idiosoma nigrum* (shield-back spider)**

**2. Summary of Species Details**

<b>Taxonomy</b>	Conventionally accepted as <i>Idiosoma nigrum</i> Main, 1952
<b>State Listing Status</b>	Listed as Schedule 1 Fauna (fauna that is rare or likely to become extinct) under the Western Australian <i>Wildlife Conservation Act 1950</i> . Managed as vulnerable by the Western Australian Government.
<b>Description</b>	The shield-back spider is a large spider; females may be 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).
<b>Distribution</b>	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 shield-back spider occurs over a range of land tenures including private property, pastoral leases, nature reserves, Crown reserves, road verges and mining tenements (Clark and Spier, 2003; DEC, 2010).
<b>Relevant Biology/Ecology</b>	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. It 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



### 3. Public Consultation

Notice of the proposed amendment was made available for public comment for 30 business days. Any comments received that are relevant to the survival of the species have been considered by the Committee.

### 4. How judged by the Committee in relation to the EPBC Act criteria and Regulations

**Criterion 1:** It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers.

#### Not eligible

Criterion element	Evidence
Reduction in numbers	<p>Insufficient data – There are insufficient data to support a past or projected reduction in numbers over a timeframe relevant to this criterion. However, the species is suspected to be declining. Observations at several sites indicate that some populations within the wheatbelt have declined. Data from a study area in the East Yorkrakine Reserve (one of the fragmented populations in the wheatbelt) between 1989 and 1999 showed a 95 per cent decline in the population (Main, 2003).</p> <p>However, while the species is suspected to be declining at several sites within the wheatbelt, the magnitude of this decline across the species' broader range is difficult to quantify, due to a lack of data.</p>

**Criterion 2:** Its geographic distribution is precarious for the survival of the species **and** is very restricted, restricted or limited.

#### Eligible for listing as vulnerable

Criterion element	Evidence
Geographic distribution AND Geographic distribution precarious	<p>Limited – 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).</p> <p>Yes – The populations that occur in the central and northern wheatbelt are severely fragmented, and the two populations at Jack Hills and Weld Range are geographically isolated. Due to the limited dispersal ability of the species, there is no possibility of demographic or genetic exchange between populations. Continued decline is inferred due to ongoing threats (Main, 2003; DEC, 2010).</p>

- Criterion 3:** The estimated total number of mature individuals is very low, low or limited; **and either**  
 (a) evidence suggests that the number will continue to decline at a very high, high or substantial rate; **or**  
 (b) the number is likely to continue to decline **and** its geographic distribution is precarious for its survival

**Not eligible**

Criterion element	Evidence
Total no. of mature individuals AND Continued rate of decline	Insufficient data – There are no estimates of the total number of mature individuals (DEC, 2010).  No data.
<b>OR</b>	
Total no. of mature individuals AND Continued decline likely AND Geographic distribution precarious	Insufficient data – see above.  Yes – see Criterion 2.  Yes – see Criterion 2.

- Criterion 4:** The estimated total number of mature individuals is extremely low, very low or low

**Not eligible**

Criterion element	Evidence
Total no. of mature individuals	Insufficient data – see Criterion 3.

- Criterion 5:** Probability of extinction in the wild that is at least  
 (a) 50% in the immediate future; or  
 (b) 20% in the near future; or  
 (c) 10% in the medium-term future

**Not eligible**

Criterion element	Evidence
Probability of extinction in the wild	No data.

**5. Recovery Plan**

There should not be a recovery plan for the shield-back spider as the approved conservation advice for the species provides sufficient direction to implement priority actions and mitigate against key threats.

## 6. Recommendations

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **vulnerable** category:

***Idiosoma nigrum***

- (ii) The Committee recommends that there should not be a recovery plan for this species.

Threatened Species Scientific Committee

1 June 2010

## References cited in the advice

- Clark GM and Spier F (2003). A Review of the conservation status of selected Australian non-marine invertebrates. *Idiosoma nigrum* (shield-backed trapdoor spider), 60–63.  
Viewed: 25 January 2010  
Available on the Internet at:  
<http://www.environment.gov.au/biodiversity/threatened/publications/action/non-marine-invertebrates/index.html>
- Davies M (Ecologia Environment) (2009). Personal communication to BY Main, University of Western Australia.
- Department of Environment and Conservation (DEC) (2010). Records held in DEC's declared fauna database and rare fauna files. Western Australian Department of Environment and Conservation, Western Australia.
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2010). Species Bank – *Idiosoma nigrum*  
Viewed: 20 January 2010  
Available on the Internet at: <http://www.environment.gov.au/cgi-bin/species-bank/sbank-treatment.pl?id=66798>
- Main BY, unpublished data. School of Animal Biology, The University of Western Australia.
- Main BY (1952). Notes on the genus *Idiosoma*, a supposedly rare Western Australian trapdoor spider. *The Western Australian Naturalist*, 3: 130–136.
- Main BY (1957). Biology of Aganippine trapdoor spiders (Myglomorphae: Ctenizidae). *Australian Journal of Zoology*, 5: 402–473.
- Main BY (1991). Trapdoor spiders in remnant vegetation of the Western Australian wheatbelt. *WEB (National Bulletin)* 2: 8–9.
- Main BY (1992). The role of life history patterns and demography of mygalomorph trapdoor spiders for assessing persistence in remnant habitats of the Western Australian Wheatbelt. Report for the World Wide Fund for Nature, World Wide Fund for Nature, Sydney.
- Main BY (1995). Survival of trapdoor spiders during and after fire. *CALM Science Supplement*, 4: 207–216.
- Main BY (1996). Microcosmic biogeography: trapdoor spiders in a time warp at Durokoppin p. 163–171 in (eds SD Hopper, JA Chappill, MS Harvey, AS George) *Gondwanan Heritage: past, present and future of the Western Australian biota*, Chipping Norton, NSW, Surrey Beatty & Sons.
- Main BY (2003). Demography of the shield-back trapdoor spider *Idiosoma nigrum* Main in remnant vegetation of the Western Australian wheatbelt. *Records of the South Australian Museum, Monograph Series*. 7: 179–185.
- Main BY (2009). Personal communications related to the preparation of this document, 10 November 2010. The University of Western Australia.
- Main BY, Sampey A and West P.J.L (2000). Mygalomorph spiders of the southern Carnavon Basin, Western Australia. *Records of the Western Australian Museum*, 61: 281–293.
- Yen AL (1995). Australian spiders: an opportunity for conservation. *Records of the Western Australian Museum, Supplement* 52: 39–49.
- Magdalena Davies (Ecologia Environment) personal communication to B.Y.Main"