

ASPIDITES RAMSAYI (BOIDAE) IN THE BRIGALOW BIOGEOGRAPHIC REGION OF QUEENSLAND: OCCURRENCE, CONSERVATION STATUS AND POSSIBLE BILBY ASSOCIATIONS

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*Aspidites ramsayi* is widespread in central, northwestern, southwestern and parts of eastern Australia. In southwestern Western Australia, an isolated population in what is now 'Wheatbelt' is 'endangered' and *A. ramsayi* is 'specially protected' under state legislation. In western New South Wales, *A. ramsayi* is 'endangered' at the state level. In the southern Brigalow Biogeographic Region (BBR) of Queensland, it now occurs as an apparently isolated population. Because brigalow habitats are poorly protected in reserves, because much of the habitat of *A. ramsayi* in the BBR is grazed and farmed and because the area is likely to be subjected to further modification, prospects for *A. ramsayi* in the area are poor. Despite the fact that *A. ramsayi* is not accorded special conservation status in Queensland, we contend that this species in the BBR is 'vulnerable'.

The common name 'Bilby Snake' is used for *A. ramsayi* in the Yuleba-Surat area of the BBR. This may point to a former close association there between *A. ramsayi* and the Bilby, *Macrotis lagotis*, an endangered species. □ *Aspidites*, Bilby, vulnerable species, endangered species, Brigalow.

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*Aspidites ramsayi* (Macleay, 1882) is widespread in arid and semi-arid Australia. It is known from an isolated population in southwestern WA, and from the Broome area, WA, in a broad band across WA, the southern NT, northern SA to southwestern and southern Qld, and western NSW (museum records; Wilson & Knowles, 1988; Cogger, 1992; Cogger et al., 1993; Pearson, 1993; Sadlier, 1994). The isolated population of *A. ramsayi* in southwestern WA is endangered, and is 'close to extinction'... (Cogger et al., 1993). Its range '... now largely coincides with the northeastern wheat belt of Western Australia' (Cogger et al., 1993). There have been two recent (1992, 1996) records from the western edge of the Nullabor Plain (D. Pearson, pers. comm.). Probable reasons for the decline of this population are identified as '... a combination of factors, including clearance of habitat for agriculture and grazing, and crop production.'... (Cogger et al., 1993). Pearson (1993) suggested that predation by foxes and cats may promote the decline also. In western NSW, *A. ramsayi* is endangered at the state level and is apparently 'lost' from grazing areas; ... 'the most recent sightings ... are from within reserves, so land reservation could have a mitigating effect on the

processes causing the decline. ... (This is) ... a wide-ranging species so habitat fragmentation from clearing and heavy grazing could adversely affect (it).'... (Sadlier & Pressey, 1993; Sadlier, 1994).

In Queensland, *A. ramsayi* occurs in the dry subtropics, between the Qld-NT and Qld-SA borders, and the Yuleba-St. George areas in south central Qld (Fig. 1). In the western part of its range (near Bedourie-Birdsville-Thargomindah), *A. ramsayi* is associated with desert and semi-desert grasslands and chenopod woodlands on red sandy soils and stony downs of the Channel Country Complex (Sattler, 1986). As these areas are sparsely grazed and as there are no firm plans to intensify this land use, no threats to the continued survival of *A. ramsayi* in this part of its range are evident. In the eastern part of its range (Roma-Yuleba-Surat-St. George), *A. ramsayi* occurs on black soils and in stony ridge country, in Brigalow (*Acacia harpophylla*) woodland and grasslands, of the Brigalow Biogeographic Region (Sattler, 1986), and just west of this region. These populations now appear to be isolated from that in the far west of the state, presumably as a result of European land use in the Mitchell Grasslands and Mulga Lands of the in-

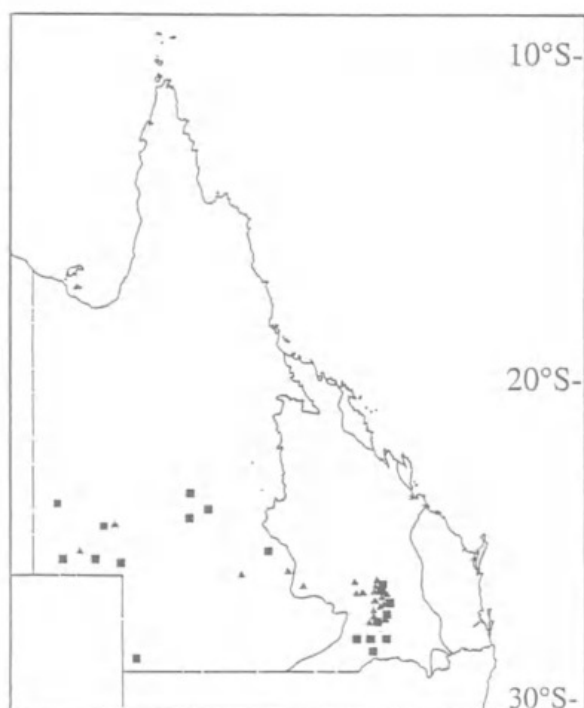


FIG. 1. Queensland showing Brigalow Biogeographic Region and distribution of the Woma/Bilby Snake', *Aspidites ramsayi*. Squares = museum specimens. Triangles = reliable sight records.

tervening area. Six specimens of *A. ramsayi* have been recorded from the interface of the 'western' and 'eastern' populations: 1915, QMJ944 Avondale Station 23°36'S 143°16'E; 1922, SAMR01101 Minnie Downs 25°02' 145°52'; 1949, QMJ 7454 Jundah 24°05' 143°04'; 1987, sight only, Mariala N.P. 26°05' 145°04' (P. McCrae, pers. comm.); 1995, sight only Morven - Augathella road 26°06'S, 147°14'E, (C. Dollery, pers. comm.); 1 April, 1996, sight only, 20km N Charleville on Augathella road 26°17'146°17' (C. Dollery, pers. comm.). Examination of all Queensland records of *A. ramsayi* suggests that present 'western' and 'eastern' populations were, but are no longer, continuous.

Specimens from western and eastern localities are biochemically indistinct (S. Donnellan pers. comm.). Three of these records are between 40 and 80 years old. The remainder are recent, but from very close to the BBR. It seems reasonable to suggest *A. ramsayi* no longer occurs in the 500km stretch between the Betoota (25°42' 140°50') area in the west, and Charleville-Morven-Augathella (26°25'S, 147°07'E-25°48'S, 146°35'E) to the east. For conservation, the 'eastern' population of *A. ramsayi* should be con-

sidered virtually confined to the southern BBR and extreme eastern portion of the Mulga Lands.

There are parallels between the populations of *A. ramsayi* in and on the margins of Queensland's BBR and southwestern WA. Both appear to be isolates. Both occur in areas prized for agriculture/grazing. Although much of the natural habitat of *A. ramsayi* in southwestern WA has been cleared, large areas suitable for the species persist in the northern Wheatbelt, and from the eastern edge of the Wheatbelt to the Nullabor Region and the goldfields (D. Pearson pers. comm.) The natural habitat of the south central Qld (i.e. 'eastern') populations of *A. ramsayi* still is subject to grazing and some agriculture, but what appear to be a healthy populations of *A. ramsayi* occurs in the area. Notwithstanding this apparent, current security, there are no grounds for complacency about the status of these populations. Their habitat is not protected in any national parks, although State Forests 328 (Yuleba) and 75, 41, 60 and 48 (in the St George area) are important potential refuges for the species, should plans to expand agriculture in the area proceed.

Several authors have commented in the last decade on the plight of BBR plant communities. All agree that the area has been overcleared and that representation of habitat diversity in reserves is very poor (Sattler & Webster, 1984; Gasteen, 1985; Sattler, 1986, 1993; Davie et al., 1994). The remaining woodland of the Morven-Roma-Yuleba-Surat-St. George area of the BBR where the 'eastern' populations of *A. ramsayi* occur is good grazing land. Much of it has potential for agriculture. If patterns of development elsewhere in the BBR ensue, barring implementation of clearing restrictions currently being discussed (e.g. Central Queensland News 28.04.95), it seems reasonable to suggest *A. ramsayi* should be considered 'at risk' in the region. The potential threat is emphasised by the apparent fate of populations in south-western WA and western NSW.

Our data suggest that *A. ramsayi* in and on the western margins of the BBR of Queensland should be recognized as a 'vulnerable' species (Ingram & Raven, 1991). That is, *A. ramsayi* there is ... 'not presently endangered but at risk over a longer period of time through continued depletion ... largely occur (s) on sites likely to experience changes in land use which would threaten the survival of the species in the wild'. ... (Ingram & Raven, 1991).

## BILBY ASSOCIATIONS?

*A. ramsayi* is known widely by the common name 'Woma' (Wilson & Knowles, 1988; Cogger, 1992); in the Roma-Yuleba-Surat area, it has been known for many years as the 'Bilby Snake'. The name 'Woma' is not in general use in this area (J. Harland, R. Allwood pers. comm., March, 1995).

The Bilby, *Macrotis lagotis* Reid, 1837, is an endangered species, once widely distributed in arid and semi-arid Australia, but now with a restricted range. In Qld, it is confined to a few isolated, small areas of the southwest (Gordon et al., 1990; Southgate, 1990; Department of Environment & Heritage, 1995). The use of the common name 'Bilby Snake' for *A. ramsayi* would be unremarkable if there were not a correlation between the former ranges of both species, including the BBR of Queensland. Distribution maps (Southgate, 1990; Gordon et al., 1990; Ingram & Raven, 1991) for *M. lagotis*, and *A. ramsayi* (Wilson & Knowles, 1988; Ingram & Raven 1991; Cogger, 1992) show that these two species at one time occurred widely, often in the same areas. However, Womas occur in several areas from which Bilbies are not known (e.g. the Pilbara, southern Kimberley, the Gibson Desert west of the Clutterbuck Hills to near Shark Bay in WA, in the area south of Perth, and in much of SA). A Queensland Museum specimen of *M. lagotis*, QMJ90, attests to its presence in the southern BBR. This is a current, but potentially threatened, stronghold of *A. ramsayi*. The *M. lagotis* is from Surat, and was collected in 1912, by H. Donaldson. Local, longtime naturalists do not know now anything of the Bilby in the Yuleba-Surat area beyond the local name, 'Bilby Snake' (R. Allwood, T. Broughton, J. Harland pers. comm., March 1995).

Whether or not there was an association between the Bilby and so called Bilby Snake in this area is uncertain. Womas are known from 'Bilby areas' of Queensland's Channel Country (P. McCrae, pers. comm.), but we have no observations of direct association of the two species in the BBR. *A. ramsayi* is known to prey equally on reptiles and mammals (Shine, 1991) and, in the Yuleba-Surat area, to occur on sandy soils and in 'stony country ... and go down sink holes' (R. Allwood pers. comm., March 1995). It does not seem unreasonable to surmise that 'Bilby Snakes' may, at least in this area, have utilized Bilby burrows for shelter, and Bilbies as food, at least enough to have given rise to their local

name. Several recently collected (and released), or road-killed specimens of 'Bilby Snakes' in the BBR have been mammal feeders, containing hare and rabbit remains. (R. Allwood, J. Nixon-Smith pers. comm.). With the demise of the Bilby and the rise of rabbits, the snakes may have been forced to prey on common introduced mammals. Many landholders have reported finding 'Bilby Snakes' in and near rabbit warrens recently (C. Eddie pers. comm.).

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