

Threatened Species of the Northern Territory

ATLAS MOTH

Attacus wardi

Conservation status

Australia: Not listed

Northern Territory: Vulnerable



Photo: Len Willan and CSIRO Entomology

Description

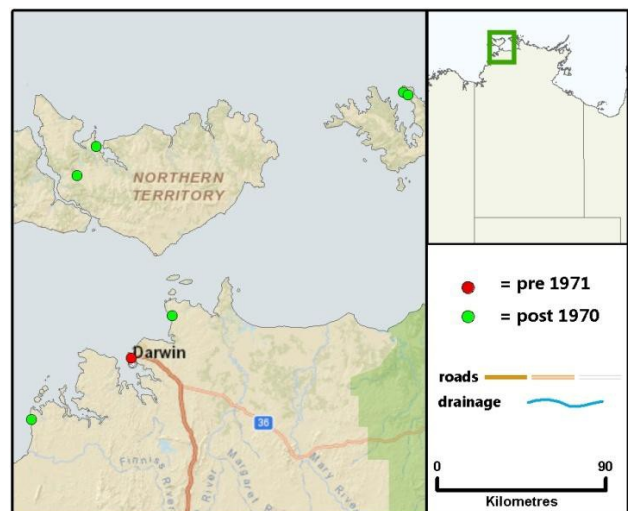
The Atlas Moth is a very large, spectacular insect, with a wingspan of about 17 cm. It is rusty-brown, with a double white band and a large, irregular white spot on each wing.

The species was originally described by L.W. Rothschild as a subspecies of *A. dohertyi* from the Oriental Region and for many years was treated as such (e.g. Common 1990). However, Peigler (1989) treated it as a distinct species closely allied to *A. intermedius*, and this view was adopted by Edwards (1996). *Attacus wardi* is the smallest species of the genus.

Distribution

The Atlas Moth was previously known from only three localities: Darwin, Black Point Cobourg Peninsula and Milikapiti Melville Island, and was considered to be endemic to the Northern Territory (NT). However, there is a specimen in the Western Australian Museum from Lesueur Island, Western Australia, collected in December 1974 (J. Nielson pers. comm.), which indicates that the species also occurs in the coast of the Northern Kimberley. More recently, it has been recorded in the NT from Maxwell Creek Melville Island, from Bathurst Island, from

Gunn Point east of Darwin (Lane *et al.* 2010) and, most recently, from Dundee Beach.



Known locations of the Atlas Moth

Lane *et al.* (2010) suggested the species may occur further east in the Top End (Gove Peninsula and Groote Eylandt) based on the distribution of the larval food plant and extent of patches of its preferred habitat, but there is no evidence for such a wide geographical range. Moreover, extensive consultations with the Yolngu Traditional Owners and informed naturalists in North-Eastern Arnhem Land during 2006-08 indicated no knowledge of *Attacus* having ever been present in that region (M.F. Braby unpublished data). An explanation for its absence from this region is probably historical.

The genus *Attacus*, which otherwise is restricted to the Oriental Region, probably crossed Wallacea and entered north-western Australia only in the recent geological past (e.g. Pleistocene), but has not yet colonised areas further east on the mainland. The Central Arnhem Land plateau may also pose a substantial barrier to dispersal of the species.

Records from Cape York Peninsula, Queensland (Peigler 1989) are considered to be erroneous.

Conservation reserves where reported:
Garig Gunak Barlu National Park.

Ecology

Lane *et al.* (2010) recently documented the larval food plant and preferred breeding habitat of *A. wardi*. They found that the early stages are associated with the pioneer species *Croton habrophyllus* (Euphorbiaceae) growing along the edges of large patches of monsoon forest.

Although this plant is widespread across the Top End, they suggested the moth is probably restricted to coastal areas and that a minimum patch size of eight hectares is needed to maintain a viable population of the species. They also noted that breeding colonies are very local in distribution, but adults may be seasonally abundant with a very limited flight period. Although the type of monsoon forest was not specified by Lane *et al.* (2010), the critical breeding habitat appears to be predominantly drier monsoon forest (i.e. coastal semi-deciduous monsoon-vine thicket). However, at Maxwell Creek, the habitat comprises wetter monsoon forest with a substantial component of evergreen species associated with permanent water.

Adults are nocturnal and have been recorded during the Wet season, from January to March. The Dodds collected a relatively large series of specimens, and these mostly appear

to have been reared from pupae collected from the field. However, Walter Dodd noted that a few males were attracted from nearby patches of 'jungle' (monsoon rainforest) during adult emergence (Dodd 1935). Presumably these males were responding to pheromone(s) released by unmated females that had emerged in captivity.

Conservation assessment

Attacus wardi is currently known from a total of seven discrete locations: at six the species is extant (five within the Territory) and at one it is extinct (Darwin). It is a narrow-range endemic, limited to the higher rainfall areas of north Western Australia. Based on available data, the species is restricted to the coastal areas of the Northern Kimberley and north-western Top End, with an estimated geographical range of 600 km and extent of occurrence (EOO) of 6 400 km². Given its localised occurrence and dependency on large patches of monsoon forest, the area of occupancy (AOO) within this range is likely to be less than 640 km². Its known distribution appears to be very patchy, with most of the known sites separated by water gaps. Further sampling may reveal additional locations within the northern Kimberley, Joseph Bonaparte Gulf and Van Diemen Gulf (between Darwin and Cobourg Peninsula).

The Atlas Moth is classified in the NT as Vulnerable (under criterion B1ab(iii)) based on:

- extent of occurrence <20 000 km²;
- known to exist at <10 locations;
- and continuing decline in extent and/or quality of habitat.

Threatening processes

Decline of the Atlas Moth in the Darwin region was probably associated with heavy

use of insecticides during WWII, loss of habitat caused by cyclone Tracey in 1974, and more recently expanding urban development (G. Martin *pers. comm.*). The patches of coastal monsoon rainforest at East Point and Lee Point, the most likely habitats of the Atlas Moth in Darwin, were temporarily eliminated and significantly reduced in extent by cyclone Tracey and have taken several decades to recover (Panton 1993; Franklin *et al.* 2010). Presumably the species has not been able to recolonise these patches from elsewhere.

Lane *et al.* (2010) identified two potential threatening processes:

- inappropriate fires regimes, especially destructive fires that penetrate the forest edges and destroy cocoons containing diapausing pupae during the long Dry season; and
- incursion by introduced African grassy weeds, which in turn modify and exacerbate the fire regime. Incursion by exotic *Acacia mangium* into rainforest and vine-thicket edges on the Tiwi Islands is another potential threat.

Conservation objectives and management

There is no existing management program for the wild population of the Atlas Moth in the NT.

Research priorities are to:

- undertake surveys on Cobourg Peninsula to establish if the species is still extant, and elsewhere in coastal areas of the Top End to locate additional populations; and
- establish a monitoring program in an area where the species persists in order to detect possible changes in range or abundance and quantify threatening processes.

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