



THREATENED SPECIES LISTING STATEMENT

Hickman's Pygmy Mountain Shrimp

Allanaspides hickmani
Swain Wilson and Ong 1971

Status

Commonwealth *Endangered Species Protection Act 1992*Not listed
Tasmanian *Threatened Species Protection Act 1995*Rare

Description

Hickman's pygmy mountain shrimp (*Allanaspides hickmani*) is a small, shrimp-like crustacean belonging to the family *Anaspididae*. This family contains three genera, *Allanaspides*, *Anaspides* and *Paranaspides*, all of which are restricted to Tasmania. *Allanaspides* species can be readily identified by the presence of a conspicuous transparent window on its back (dorsal window) and stalked eyes. The two species of *Allanaspides* (*A. hickmani* and *A. helonomus*) can be separated by the size, shape and colour of this window. Hickman's pygmy mountain shrimp has a rectangular shaped dorsal window which covers most of the width of the dorsal surface behind the head; the tissue below the dorsal window contains a bright red pigment. *A. helonomus* has a clear, oval-shaped dorsal window covering approximately half the width of the dorsal surface behind the head (Swain *et al.* 1970; Swain *et al.* 1971). Hickman's pygmy mountain shrimp has its eyes situated terminally on eyestalks and adult males attain a body length of 11.7 mm. *A. helonomus* has its eyes positioned laterally on the end of the eyestalks and is the slightly larger species, attaining a body length of 15 mm. A more detailed description of Hickman's pygmy mountain shrimp is provided by Swain *et al.* (1971).

The life history of Hickman's pygmy mountain shrimp is poorly known and can only be inferred from what little information is available for *A. helonomus*. It probably has a 14-15 month life-cycle. Juveniles first appear in March and mature by the end of winter. It is suspected that eggs are laid on vegetation in spring and remain dormant until the end of summer when juveniles are born. Adults remain present in the population over summer and are largely absent by April (R. Swain pers. comm.). Hickman's pygmy mountain shrimp probably feeds on detritus (Schram 1986).

Distribution and Habitat

Anaspidaceans occur only in the Southern Hemisphere and are living evidence of the ancient super-continent Gondwana. The genus *Allanaspides* is found only in south-west Tasmania. Hickman's pygmy mountain shrimp is known to occur only at two locations near Lake Pedder; McPartlan Pass and below Mt Coronation on the

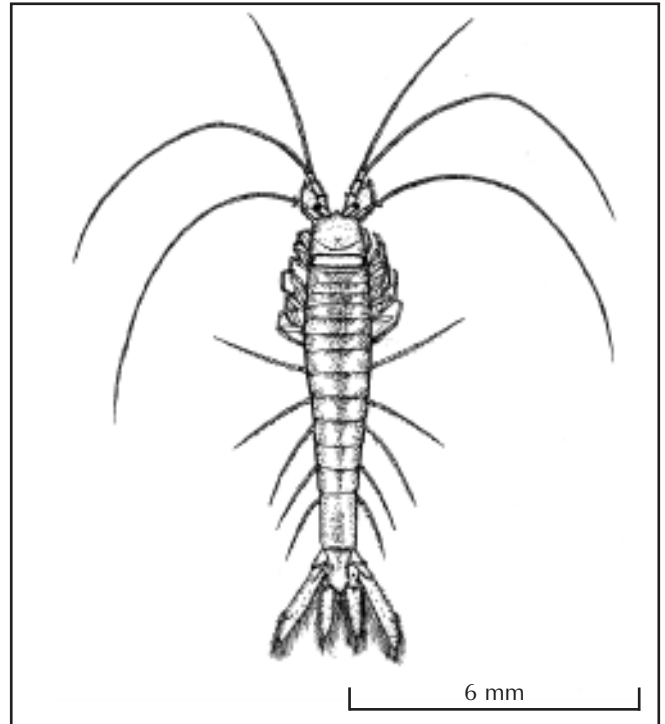


Illustration: Karen Richards



Known distribution of *Allanaspides hickmani*

western shore of Lake Pedder. It formerly occurred at a third location, Trappes Inlet, but this site was lost with the flooding of the original Lake Pedder in 1972.

Hickman's pygmy mountain shrimp has only been collected from pools and flooded crayfish burrows in buttongrass moorland. Water quality is often acidic (pH 4 to 5), caused by decaying peaty soils. The peaty soils where it has been found vary between 20 and 50 cm in depth and overlay quartzitic bedrock material (Horwitz 1990, Swain *et al.*



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1971). Horwitz (1988) described one location as swamp-like with a high proportion of slender twin rush (*Leptocarpus tenax*) stems emerging from the surface pools.

All locations where the species has been found, occur at approximately 300 m above sea level. *Allanaspides* species have not been recorded in lake habitats.

The distribution of Hickman's pygmy mountain shrimp does not appear to be limited by the presence of *A. helonomus* as these species have been observed living together where their ranges overlap (Swain *et al.* 1971, Horwitz 1990). *A. helonomus* has a wider but still restricted distribution occurring in the Crossing, Huon and Serpentine/Gordon drainage systems (Horwitz 1988).

Important locations

Buttongrass moorlands around Lake Pedder and Lake Gordon are important for the survival of Hickman's pygmy mountain shrimp.

Threats, Limiting Factors and Management Issues

Hickman's pygmy mountain shrimp is known from only two restricted locations, it probably only breeds once a year and has a life-span of less than 15 months. It is therefore vulnerable to any broad-scale events which destroy its habitat. Fire and flooding have been identified as major threats to the species.

Fire in the peat beds could devastate the population by removal of the entire habitat (Horwitz 1990). However, Hickman's pygmy mountain shrimp has been collected in an area that was subject to a fuel reduction burn at McPartlan Pass which suggests that the species will tolerate fires that do not remove peat. Flooding has previously impacted both *Allanaspides* species through a reduction in their range (Horwitz 1990). Permanent inundation caused by damming will destroy the species and its habitat.

Future surveys for Hickman's pygmy mountain shrimp will be limited by the availability of suitable habitat and possibly by ancient biogeographic factors which are assumed to restrict this species to the Lake Pedder-Serpentine drainage system (Horwitz, 1988). Such pre-existing factors may be responsible for the absence of Hickman's pygmy mountain shrimp from other areas of apparently suitable habitat.

Conservation Assessment

Historical Distribution

Hickman's pygmy mountain shrimp may be naturally restricted to the Lake Pedder region. It has been suggested that *Allanaspides* are surviving remnants of the fauna of quaternary lakes which have, because of geological and climate changes, been reduced to small isolated pockets in south-west Tasmania (Carey 1961, Knott 1975, Horwitz 1988). It is thought that Hickman's pygmy mountain shrimp was found in the quaternary lake which straddled the Wedge and Gordon rivers.

In recent times a significant part of the range of Hickman's pygmy mountain shrimp was lost as a result of the flooding of the original Lake Pedder in 1972.

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Area Currently Occupied

The area of habitat at McPartlan Pass is about 0.1 km² (Wells *et al.* 1983). The area of habitat below Mt Coronation is not known, but based on potentially suitable habitat immediately around this location, it is estimated to be less than 2 km².

Population Estimate

Unknown.

Reservation Status

The two existing locations for Hickman's pygmy mountain shrimp occur within the Southwest National Park which is part of the Tasmanian Wilderness World Heritage Area.

Assessment Criteria

Meets criteria for listing as rare on the Tasmanian *Threatened Species Protection Act 1995* because the species is subject to stochastic risk of endangerment because of naturally small population size. Hickman's pygmy mountain shrimp is known to occupy an area of less than 3 km² near Lake Pedder.

Recovery Program

Objectives

- Protect existing Hickman's pygmy mountain shrimp populations
- Find at least five separate locations where the species occurs,

Previous Management Actions

Several surveys have been undertaken (Swain *et al.* 1971; Horwitz, 1988; R. Swain, pers. comm.) to the north, south and east of Lake Pedder and Lake Gordon but were unsuccessful in obtaining further specimens suggesting a very restricted distribution. In apparently suitable habitats to the north the genus is replaced by *Microaspides calmani* (Swain *et al.* 1971).

Actions Needed

- Provide information on the location of Hickman's pygmy mountain shrimp to land managers to ensure no activities adversely affects the species.
- Assess status of Hickman's pygmy mountain shrimp at existing locations and describe habitat to assist with finding new locations.
- Undertake surveys to locate new populations in the Lake Pedder region. Priority areas are the upstream plains of the Gordon River system (Horwitz 1988). Other potential locations include the plains in the catchments of the Jane and Erebus rivers.
- Investigate the impacts of fire on Hickman's pygmy mountain shrimp.
- Facilitate research into the ecology of the species to determine population numbers, life-cycle, diet and behaviour.



Source Material

References

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Specialist Advice

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Review and Further Information

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Prepared by: Michael Driessen, Maria Moore and Karen Richards

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Permit: It is an offence to collect, possess or disturb this species unless under permit from the Director, Parks and Wildlife Service.

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