Blind Cave Beetle, *Goedetrechus mendumae*

Moore 1972

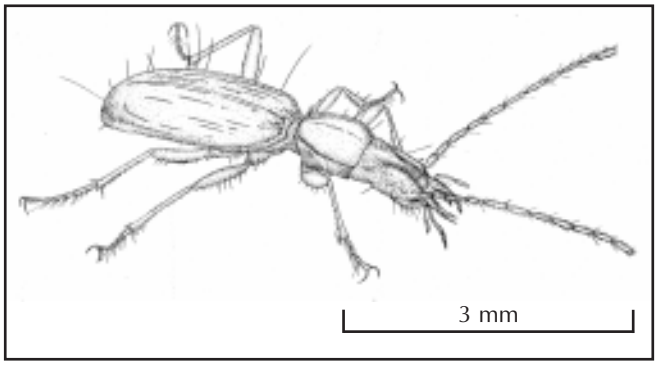

Illustration: Karen Richards

Status

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

Description

The blind cave beetle is an obligate cave-dweller. It is small, reddish-coloured and about 5 mm long and 1.5 mm wide, with long legs and a slender build. As its name suggests, the Blind cave beetle is unique among other Tasmanian cave beetles for its lack of eyes. A complete description of the species is given in Moore (1972).

No life-history studies have been undertaken of the Blind cave beetle or other closely related cave species. They are probably predatory and may feed on eggs of cave crickets (Moore *et al.* 1987). Both adults and larvae are likely to feed on invertebrates that live in the cave or are washed in by streams and floods (S. Eberhard, pers. comm.).

Distribution and Habitat

The Blind cave beetle belongs to a group of carabid beetles called the Trechini. This is a large group of beetles which generally occur in caves and moist habitats and which occur in temperate areas of both the southern and northern hemispheres. In Tasmania, cave-dwelling trechines are represented by the genera *Tasmanotrechus* and *Goedetrechus* (Eberhard *et al.* 1991).

The Blind cave beetle is known from only the Ida Bay Karst area in south-eastern Tasmania. Until recently it was known from only two locations within Exit Cave, It is now known to occur in Mystery Creek Cave as well as other parts of Exit Cave and is likely to occur in suitable habitats throughout the Ida Bay karst system, albeit sparsely distributed (Eberhard 1999).

Little is known about the habitat requirements of the Blind cave beetle. Cave dwelling trechines are generally very rare in any given cave (Eberhard *et al.* 1991). They are confined mostly to the deep cave zone, where they are found under stones, in or near flood litter on stream-side silt banks, on moist substrates near water, or near seepages. Larvae of similar species have been found on flood-prone siltbanks beside streams and occasionally some distance from permanent water on dry flowstone surfaces (Eberhard *et al.* 1991). These larvae are able to withstand total immersion as a result of flooding (S. Eberhard, pers. comm.).

Known distribution of the Blind cave beetle

Important Locations

Exit Cave and Mystery Creek Cave are important for the survival of the Blind cave beetle.

Threats, Limiting Factors and Management Issues

Although most of Exit Cave occurs within the Southwest National Park, part of the cave also occurs within the Southwest Conservation Area and therefore is potentially vulnerable to operations such as mining and forestry. These operations have the potential to alter the flow or quality of water passing through the cave system. This would affect riparian zone species either by washing them out or more likely reducing the flow, hence reducing available habitat. Siltation would reduce habitat, cover and food sources or alter flows. The food chain within the cave systems is delicately balanced and altering the water flow or quality is likely to have detrimental impacts on the entire fauna community.

A limestone quarry operation adjacent to Exit Cave was affecting water quality in the cave and had the potential to impact on the Blind cave beetle. However, this quarry is now closed and the site is being rehabilitated.

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Trampling of individuals and degradation of habitat were thought to be threats to the Blind cave beetle but recent discovery of live specimens in heavily trafficked areas in Mystery Creek Cave does not support this. Exit cave has been re-opened to recreational users under controlled conditions. Given the large size of Exit Cave, together with anticipated low visitation rates, cavers are unlikely to be a significant threat. In contrast, Mystery Creek Cave has uncontrolled access by mostly inexperienced cavers and the effect of habitat degradation on the Blind cave beetle requires further investigation.

Over-collection is a threat to the Blind cave beetle (Invertebrate Advisory Committee 1994, Eberhard pers. comm). Trechine cave beetles are naturally rare in any given location (Eberhard *et al.* 1991), hence, specimen collection has the potential to substantially affect the species.

Conservation Assessment

Historical Distribution
The Blind cave beetle is naturally restricted to the Ida Bay Karst area.

Area of Occupancy
Estimated to be less than 8 km^2 based on the area of the Ida Bay Karst.

Population Size
Unknown.

Reservation Status
All known locations of the Blind cave beetle 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. The blind cave beetle is known to occur in only one cave system at Ida Bay.

Recovery Program

Objectives
- To protect existing Blind cave beetle habitat from adverse impacts

Previous Management Actions
- After concern was raised about the status of the Blind cave beetle, cavers instigated protection of Keller's Squeeze by not using this section of Exit Cave and using an alternative route through the Broken Column Chamber.
- Exit cave was proclaimed a State Reserve in 1979 and included in the WHA in 1989. In 1990 it was incorporated into the Southwest National Park.
- In 1990 the limestone quarry adjacent to Exit Cave was closed due to adverse impacts of the quarry operation on the cave system. The quarry site is being rehabilitated.
- An invertebrate fauna survey of Exit Cave was conducted by Eberhard, *et al.* (1991) as part of an extensive study into the invertebrate fauna of over 130 caves throughout Tasmania. This study confirmed the restricted distribution of this species.
- The world heritage area fauna program funded a survey of the Blind cave beetle at Ida Bay (Eberhard 1999). This survey extended the known distribution of the species and recommended it to be down-listed from vulnerable to rare.
- Route markers and fauna sanctuaries were installed in Exit Cave to protect habitats and species (Eberhard 1999).
- Access to Exit Cave was restricted for the purposes of management planning between 1992 and 1998 under the Tasmanian *National Parks and Wildlife Act 1970*. The cave was re-opened to restricted recreational use.

Actions Needed

- Provide information on the location of the Blind cave beetle to land managers to ensure no activities adversely affects the species.
- Monitor the status of the Blind cave beetle in Mystery Creek Cave. details contained in Eberhard (1999).
- Maintain access restrictions to Keller's Squeeze until further research into the impacts of recreational users on cave fauna is undertaken.
- Undertake surveys for the Blind cave beetle in the Ida Bay karst area, particularly Loons Cave, Bradley Chesterman's Cave and Arthur's Folly.
- Facilitate research into the ecology of the species to determine population numbers, life-cycle, diet, behaviour and preferred habitat. Research will be restricted to methods that will not significantly impact on the population.
- Facilitate genetic research to determine the distinctiveness of populations in different caves and passages.

Source Material

References
Eberhard, S., Richardson, A. M. M. and Swain, R. 1991. *The Invertebrate Cave Fauna of Tasmania* Zoology Department, University of Tasmania, Hobart. 174pp.

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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.