

# North East Velvet Worms

Giant Velvet Worm *Tasmanipatus barretti*  
 Blind Velvet Worm *T. anophthalmus*  
 Ruhberg *et al.*, 1991

TASMANIAN THREATENED FAUNA LISTING STATEMENT



Photo: Robert Mesibov

## Status

Commonwealth *Environment Protection and Biodiversity Conservation*

*Act 1999*.....Not listed

Tasmanian *Threatened Species Protection Act 1995* ..... *Tasmanipatus barretti* — Rare

.....*T. anophthalmus* — *Endangered*

## Description

Velvet worms are a small group of evolutionary isolated animals, which are of great zoological interest. There are over 70 species of velvet worms described in Australia, with 20 species recorded in Tasmania. Within Tasmania two species are known from an isolated area of the north-east of the state, *Tasmanipatus barretti* (Giant velvet worm) and *T. anophthalmus* (Blind velvet worm) (Ruhberg *et. al* 1991).

Velvet worms are unusual caterpillar-like animals with soft cylindrical bodies covered in minute papillae, giving them a velvety appearance. Two long antennae extend from their head and *Tasmanipatus* species have 15 pairs of non-jointed legs with well-developed feet and claws. They move similar to segmented worms using a hydrostatic system, alternating the fluid pressure in their limbs as they extend and retract their body. As with the arthropods, velvet worms shed their exoskeleton periodically as they grow to full size.

As its name suggests, the Giant velvet worm is the largest known in Tasmania, measuring 35 to 40 mm when resting and extending up to 75 mm in length when walking. The Blind velvet worm measures 25 to 35 mm when at rest and extends to approximately 50 mm in length when walking. Their appearance easily distinguishes the species. The Blind velvet worm lacks eyes and body pigmentation, making it totally white except for the dark brown tips of its claws and jaws. The Giant velvet worm is pink-mauve in colour with a dark narrow mid-dorsal stripe and a creamy white underside.

Velvet worms are carnivorous, hunting at night and feeding on insects and other leaf dwelling invertebrates such as amphipods. They have a very effective and precise method of catching their prey by ejecting

streams of sticky fluid from a pair of modified appendages on their head, immobilising their prey.

Velvet worms are believed to live for several years. They reach sexual maturity at about one year and give birth to approximately 14 to 16 live young.



Photo: Robert Mesibov



Photo: Robert Mesibov

## Distribution and Habitat

The Blind velvet worm and Giant velvet worm are terrestrial species that occur mainly in dry eucalypt forests and to a lesser extent in wet forest types. They are often found along streams, gullies and shaded east and south facing forested hills (Mesibov 1990). Their permeable skin is prone to water loss and because of their inability to tolerate desiccation (drying-out) they are restricted to moist micro-habitats. However, they are known to survive periods of drought and severe cold by going into torpor. Their ideal micro-habitat is deep within large decaying eucalypt logs that remain moist and to the north-east of Tasmania. The Blind velvet protected from disturbance such as fire. Occasionally they may occur under moss-covered or shaded rocks and in deep leaf litter (Mesibov 1988).

The Blind velvet worm and Giant velvet worm have a distribution restricted worm has a very small range restricted to the St Marys area, occupying approximately 152 km<sup>2</sup> (Mesibov 1997). The largest core population covers just over 40 km<sup>2</sup> surrounding Mt Elephant and the catchments of Lower Marsh, Piccaninny and Wardlaws Creeks. They occur from near sea-level to 800 m altitude (on South Sister) (Mesibov 1997).

The Giant velvet worm has a larger range covering approximately 600 km<sup>2</sup> around the Scamander / St Helens area. Like the Blind velvet worm, this species can also be found near sea-level and extends to approximately 500 m in altitude (Mesibov and Ruhberg 1991).

These species have a parapatric distribution, that is they are adjacent but do not over-lap (Mesibov and Ruhberg 1991; Horner 1995). Both species meet along a line just north of the Chain of Lagoons through to the St Marys Pass and Mt Nicholas area.

### Important Locations

#### *Blind velvet worm*

- Area surrounding Mt Nicholas through St Patricks Head and Mt Elephant south to Mt Allen.

#### *Giant velvet worm*

- George River, Golden Fleece Rivulet, Basin Creek and Avenue-Scamander River catchments.
- Catchments in the upper South Esk north of Mathinna, including Dans Rivulet and Evercreech Rivulet.
- Major coastal creek catchments between St Helens and Chain of Lagoons.

## Threats, Limiting Factors and Management Issues

Both species are known to occur in areas burnt and selectively logged (Mesibov 1990). However, any activity that results in the removal of decaying log habitat is a threat to the Blind velvet worm and the Giant velvet worm. These activities may include:

- The conversion of native forest to plantation.
- The clearing of native forest for agriculture.
- Too frequent or high intensity burns.
- Firewood collection and loss of decaying log resources.

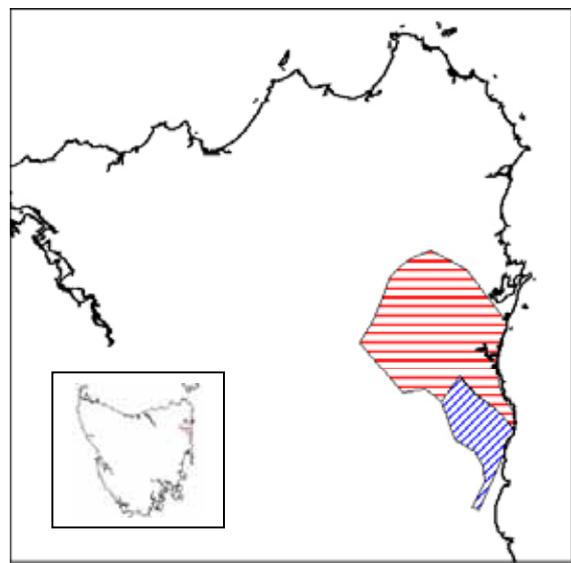
## Conservation Assessment

### Historical Distribution

Unknown.

### Area Currently Occupied

The Giant velvet worm has a range covering approximately 600 km<sup>2</sup> and the Blind velvet worm has a range covering approximately 152 km<sup>2</sup>.



General distribution of *Tasmanipatus* spp.

 Giant velvet worm  Blind velvet worm

### Population Estimate

4.5 million individuals for giant velvet worm *T. barretti* (Fox *et al.* 2004).

Unknown for blind velvet worm *T. anophthalmus*.

### Reservation Status

Over 80 % of the known range for the Giant velvet worm occurs on State forest with most of the remainder on private land (Mesibov and Ruhberg 1991). St Patricks Head, St Marys Pass and Little Beach State Reserves, and Avenue River and Mathina Falls Forest Reserves occur within the Giant velvet worm range and provide a varying degree of habitat protection. The Blind velvet worm also has a varying degree of habitat protection with some of its known range occurring within the Lower Marsh Creek and Break-O-Day Forest Reserves, Little Beach State Reserve and the Douglas-Apsley National Park. Like the Giant velvet

worm, the Blind velvet worm largely occurs on areas of State forest.

#### Assessment Criteria

*Tasmanipatus barretti* meets the criteria for listing as Rare on the Tasmanian *Threatened Species Protection Act 1995* because the species is subject to stochastic risk of endangerment and has an area of occurrence of less than 2000 km<sup>2</sup>. *Tasmanipatus anophthalmus* meets the criteria for listing as Endangered on the Tasmanian *Threatened Species Protection Act 1995* due to its small area of occupancy and areas of suitable habitat are at risk of becoming degraded.

### Recovery Program

#### Objectives

- Protect known populations.
- Locate and protect new populations.

#### Management Actions

- Management actions have been developed in conjunction with the Threatened Species Unit and other specialists to conserve existing populations in areas subject to forestry activities (both on private and State land). Prescriptions endorsed by the Threatened Species Scientific Advisory Committee are available via industry planning tools, such as the Threatened Fauna Manual for Production Forests (Forest Practices Board 2000) and the Threatened Fauna Adviser (Forest Practices Board 2001). These are being used to protect known populations and likely habitat on land subject to forestry operations as well as surveying for new populations.
- Habitat protection on private land within the likely range of the species is encouraged through programs such as the Private Forest Reserves Program.
- No other specific management actions have been undertaken for the Giant velvet worm and Blind velvet worm.

#### Actions Needed

- In ideal velvet worm habitat, decaying logs should be left undisturbed.
- Velvet worm can tolerate a degree of light to moderate selective logging and cool, low intensity burning, provided these activities do not significantly impact on the decaying log environment.
- Retain native forest in large corridors throughout these species' range, particularly areas identified as prime habitat, i.e. forest with many fallen decaying logs. If clearing is necessary then light selective logging is preferred combined with retaining native corridors or clumps as large as possible. Target those areas that contain abundant decaying logs and also intact trees for future log supply. Southeast facing slopes should be protected where possible.

- Provide information landowners on the range of these species and what they can do to help protect them, such as placing a conservation covenant on their property.
- Retain, protect and establish native vegetation along streamside zones to act as buffers and corridors that can link properties with suitable habitat. Buffers should be at least 10m wide on either side of small or seasonally dry water channels and grade up to 60m wide or more for larger streams. Stream zones should contain a mix of native understorey and overstorey plants where appropriate, including reeds, grasses, shrubs and trees. This diversity of vegetation cover is important for providing moist, cool microhabitats necessary for velvet worms.
- High-intensity/hot fires should be avoided throughout the range of these species. These types of fires can destroy the litter layer, reduce the size, number and quality of decaying logs and expose the understorey and microhabitat to drying conditions. Infrequent low intensity fuel reduction burns are suitable, although it is recommended to seek advice before burning.

### Source Material

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#### **Specialist Advice**

- Dr Robert Mesibov, Queen Victoria Museum and Art Gallery, Launceston, Tasmania.

## **Review and Further Information**

**Statement prepared:** (updated) October 2005

**Prepared by:** Esmé Atkinson.

**Review date:** When new information is received.

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**Permit:** It is an offence to kill, injure, collect or keep this species unless under permit from the Secretary, Department of Primary Industries, Water and Environment.