THREATENED SPECIES LISTING STATEMENT

Ptunarra Brown Butterfly, *Oreixencia ptunarra* Couchman 1953

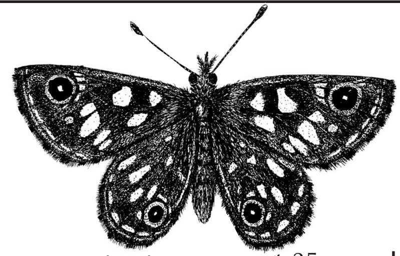
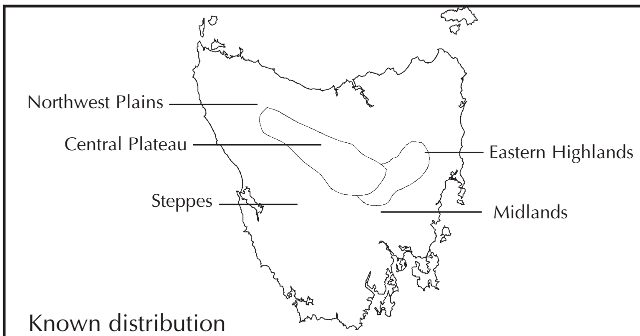


Illustration: Karen Richards 1.25 cm



Known distribution of the Ptunarra brown butterfly

Status

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

Description

The Ptunarra brown butterfly is a small brown and orange butterfly belonging to the family Nymphalidae. Three sub-species of the butterfly were described by Couchman (1953). *O. p. roonina*, from the Midlands, North-west Plains and lower Steppes is the largest of the three, with a wingspan of 30-33 mm. The white background colour in the male sometimes extends as bands across the wing. *O. p. angeli* from the Eastern Highlands is intermediate in size to the other two races, with a wingspan of 27-29 mm. The background colour in the male is yellow, not white as in *O. o. roonina*. The Central Plateau form, *O. p. ptunarra*, is the smallest and darkest, with a wing span of 25-26 mm with the cream background colour in the male appearing only as small spots. The females are similar in size to the males but are distinctly different in colour. The female is light orange-yellow with faint light brown basal areas and two short bars on the front margins of the fore wings. Both wings carry wing spots as in the male (Neyland 1991).

The fully-fed larva is about 19 mm long and 4.5 mm wide and tapers sharply from head to tail. The segments are greenish grey, lightening in tone towards the head and tail. An olive brown dorsal line is bounded on either side by a narrow cream line, while a narrow median line is olive brown, a narrow subspiracular line and a spiracular band are cream in colour. The head has a few scattered black hairs.

The pupa is about 9.5 mm long and 3.5 mm wide at the level of the wing covers. It is greenish-grey flecked with black, with a pair of black spots on each body segment.

Life Cycle

The flying season lasts for two to three weeks in early autumn. During this period, eggs are laid in tussock grass and after about six weeks the larvae hatch. The larvae remain largely inactive during the winter, then during the following spring they feed on tussock grass tips. Pupation takes place deep within the tussock grass and lasts up to five weeks. In March the adults emerge, males before females, and butterflies at higher altitudes before those at lower elevations.

Distribution and Habitat

The Ptunarra brown butterfly is endemic to Tasmania and restricted to five areas of the state: the Midlands, Steppes, Northwest Plains, Eastern Highlands and the Central Plateau.

The range of the Ptunarra brown butterfly is determined by a variety of environmental factors. It is generally a montane to alpine species being restricted to sites above 400 m. It does not extend into the lowland plains of the Midlands, where it may be too warm for the butterfly and where it is too dry for its food plant to flourish. In the north-west the butterfly is limited by the availability of habitat (Neyland 1992). Habitat modelling indicates that the butterfly currently occupies its full potential range, with the possible exception of the north-east highlands.

Throughout its range the Ptunarra brown butterfly is found in areas where there is a significant cover of *Poa* tussock. Some apparently excellent sites do not carry butterflies and this may be due to the history of the site. It is possible that the species has been eradicated from the western Central Plateau by a European history of over-firing and overgrazing. The preferred habitat ranges from *Poa* tussock grassland to *Hakea microcarpa* grassy shrubland to *Eucalyptus* grassy open woodland.

Threats and Limiting Factors

The Ptunarra brown butterfly is absent from areas which have been converted to pasture. Butterfly habitat has been lost as large areas of native grassland and grassy woodland have

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been converted to pasture. Many populations are now found on the fringes of areas which once would have supported large colonies. (Neyland 1992). Loss or reduction and fragmentation of available habitat caused by land clearing has threatened the species (Neyland 1993).

Grazing intensity affects the population size of the Ptunarra brown butterfly but the exact relationship between grazing pressure and butterfly numbers is not fully understood. Few butterflies are found on sites which are heavily grazed but in areas where there has been little or no grazing and where the tussocks have become large and overgrown, butterfly numbers are also low (Neyland 1992). Some grazing appears to be beneficial to the butterfly as it often avoids dense grasslands.

In the Northwest Plains, large areas of *Poa* dominated grasslands and grassy woodlands, which are naturally restricted in area, have been converted to eucalypt plantations by private forest companies (Neyland 1992).

Repeated burning of remnant native grassland has caused a severe decline in population levels of the Ptunarra brown butterfly in some areas. However, too infrequent firing promotes invasion of native grassland by shrubby species, reducing the cover of *Poa* and the attractiveness of the habitat to the butterfly.

The Ptunarra brown butterfly is a weak flyer and the probability of recolonising sites, unless suitable habitat corridors exist, appears low. If small remnant populations are lost, through overgrazing, fire or clearing, then those sites may never be recolonised.

Conservation Assessment

Historical Distribution
Historically, the range of the Ptunarra brown butterfly is thought to have been widespread in *Poa* grassland, shrubland and open woodland habitats across central Tasmania. However, the butterfly has undergone a substantial reduction in area of occupancy since European settlement. In the Midlands, less than 3% of the original extent of native grasslands remains intact (Fensham & Kirkpatrick 1989) and throughout the State 40% of the original area of *Poa* grassland has been lost since 1802 (Kirkpatrick *et al*. 1995).

Area Currently Occupied
There are 150 colonies of Ptunarra brown butterfly currently known, covering an area of approximately 13,900 ha. *O. p. angeli* comprises 35 colonies over 1,200 ha, *O. p. roonina* comprises 82 colonies over 7,400 ha and *O. p. ptunarra* comprises 33 colonies over 4, 300 ha.

Population Estimate

Table 1: Population estimate of *O. ptunarra* according to bioregion (Orchard 1988) throughout its range.

Biogeographic region	1997 population (no. of sites, total area)
Midlands	91 000 + 58 000 (32, 4 100 ha)
Eastern Highlands	42 000 + 29 000 (35, 1 200 ha)
Steppes	55 000 + 35 000 (23, 1 500 ha)
Central Plateau	115 000 + 98 000 (33, 4 300 ha)
Northwest Plains	114 000 + 77 000 (27, 3 300 ha)

Reservation Status
Six known protected colonies comprising about 600 ha occur within the Central Plateau Protected Area of the World Heritage Area and 50 ha within Cradle Mountain/Lake St Clair National Park, also within the WHA.

Approximately 6% of the known range of the species is reserved and approximately 76% of the total population occurs on private land.

Approximately 2% of the total area of *Poa* grassland is reserved in Tasmania representing a total area of 1,183 ha (Kirkpatrick *et al*. 1995).

Several areas containing Ptunarra brown butterfly colonies on land owned by North Forest Products in the Northwest Plains are contained within a private reserve system and are protected from conversion to plantation.

Assessment Criteria
By the 1980's it was recognised that the Ptunarra brown butterfly was in decline. In 1988 only 33 locations were known for the butterfly and based on IUCN criteria (i.e. Wells *et al*. 1983), Prince (1988) considered *O. p. ptunarra* to be secure, while *O. o. roonina* and *O. p. angeli* were considered endangered. Following further research, Neyland (1991) considered all sub-species to be endangered.

The identification of a large number of previously unknown colonies throughout the range of the butterfly, co-operative management agreements with private landowners and increased public awareness have improved our knowledge of the status of the species in recent years.

To ensure the continued survival of the species there should be no further loss and fragmentation of known colonies.

The majority of known colonies on private land remain threatened and require sympathetic land management practices.

Recovery Program

A national recovery plan was prepared in 1991 (Neyland 1991) which is due for revision and re-submission to Environment Australia.

Recovery Program Objective
Downlisting of *O. p. angeli* to Rare within five years and stabilisation of *O. p. roonina* within five years with possible downlisting to Vulnerable within ten years.

Recovery Program Criteria
The criteria state that:

- Landowners need to co-operate to manage *O. ptunarra* habitat.
- An increase in the numbers of *O. ptunarra* at a selection of sites will be needed to be demonstrated through a monitoring program.
- Public education programs will be needed to increase awareness of the species.
- Existing colonies will be needed to be protected through sympathetic land management practices, fencing and/or reservation.

Recovery Program Evaluation
The program has met its objective with listing of *O. ptunarra* as Vulnerable on the *Threatened Species Protection Act 1995*. Downlisting of the species to a lower risk category (IUCN criteria) is sought within 10 years.

Existing Management

Private Land
North Forest Products has a private reserve system in place for the protection of several butterfly colonies in the Northwest Plains.

Some landowners in the Midlands and Central Plateau use farm management practices that are sympathetic to conservation of the butterfly. Land management agreements are being developed that consider management of the butterflies' habitat.

Commercial Forestry
Colonies affected by commercial forestry operations are identified in timber harvest plans through the Forest Practices Code (Forestry Commission 1993) and are protected from logging.

Required Actions

Habitat Management

- Develop land management agreements with private landowners to secure the butterflies' habitat.
- Monitor butterfly populations and prevent degradation of habitat.
- Develop concise guidelines for management of the butterflies' habitat.
- Increase awareness of the butterfies and their habitat and provide information on conservation of habitat to landowners.
- Retain *Poa* grasslands within the range of the Ptunarra brown butterfly.
- Promote light grazing in *Poa* grasslands and minimal use of fertilisers within the butterflies' range.

Information Needed

- Long-term monitoring of a range of sites is essential in order to measure the effects of grazing pressure and fire regimes on butterfly populations and determine relative population densities and trends over time.

Source Material

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Specialist Advice
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Review and Further Information

Statement Prepared: April 1998

Prepared By: Phil Bell

Review Date: Expiry of the new recovery plan or as new information is received.

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