



THREATENED SPECIES LISTING STATEMENT

Masked cliff eyebright, *Euphrasia* sp. Bivouac Bay (W.R.Barker 7626 et al.) W.R.Barker

Status

Tasmanian *Threatened Species Protection Act 1995*

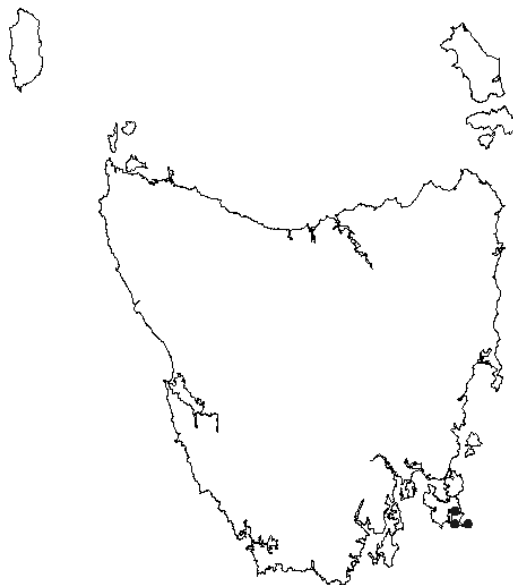
.....endangered

Commonwealth *Environment Protection and Biodiversity*

Conservation Act 1999.....Endangered



Wendy Potts



Description

Masked cliff eyebright is a short lived perennial herb or undershrub, generally surviving 3 to 5 years. It is reliant on recruitment from seed in gaps kept open by exposed conditions on cliff faces. Peak flowering occurs in November to December. The flowers are largely pollinated by native bees and self pollination can occur. Eyebrights are semi-parasitic, forming attachments to roots of surrounding vegetation.

Masked cliff eyebright has an upright to straggling habit. Plants are usually no more than 30 cm in height and can occasionally grow to a large diameter with hundreds of branches though they are more commonly found with less than fifty. The lower leaves are generally hairless but upper leaves at nodes with flowers tend to be covered with hairs. The leaves occur in opposite pairs with alternate pairs arising from the stem at right angles to each other. The leaves just below the first flower are 7 to 16 mm long and 3 to 8 mm wide, with an apex and up to 3 teeth on either side. The leaves appear semi-

succulent and the underside has characteristic darker patches of glands typical of most eyebrights.

The branches terminate in an inflorescence consisting of up to about 15 flowers arranged in pairs similarly to the leaves. The flowers consist of a hood of two fused petals and a skirt of three fused petals. The petals are creamy white, sometimes with a pink to purple tinge particularly on the back of the hood, and they can have purple lines extending from the throat. The flowers are relatively large for Tasmanian eyebrights, being about 16 to 20 mm along the back of the flower and 11 to 13 mm wide at the front.

Masked cliff eyebright belongs to the family Scrophulariaceae and is in a group of eyebrights (*Euphrasia* Section *Phragmostomae*) with an extremely long pair of anther awns that protrude into the throat of the flower. Species of this group also differ from other eyebrights in that the flowers are scented, the scent being sweet and sweaty. The group is now restricted to cliff faces on the Tasman Peninsula. *Euphrasia* sp. Bivouac Bay is intermediate in appearance between the other two

members of the group. *Euphrasia phragmostoma* tends to have a consistent covering of hairs on the leaves and *Euphrasia amphisysepala* lacks hairs on the leaves. As the lower leaves of *Euphrasia* Bivouac Bay tend to be hairless, the species can be mistaken for *Euphrasia amphisysepala* when not in flower. The true identity of the species is masked until it flowers. As the species was only recently distinguished, some older records are labelled as *Euphrasia phragmostoma*. **The species was previously known as *Euphrasia* sp. ‘fabula’.**

Distribution and Habitat

Masked cliff eyebright is endemic to Tasmania and is known only from two locations up to 11 kilometres apart on the Tasman Peninsula. One

population at Fortescue Bay occurs on a 700 m stretch of low cliffs on the point between Canoe Bay and Bivouac Bay. It also known from several spots along the south facing cliffs from Budget Head at the mouth of Port Arthur to the Chasm near the tip of Cape Pillar. The continuity of populations along this cliff line has not been determined due to access difficulties. Masked cliff eyebright is estimated to occupy about 0.6 hectares in total. It is restricted to coastal dolerite cliff faces and tends to be found on relatively moist and shady ledges, rock crevices and on patches of bare ground extending from the base to the tops of cliffs where the vegetation is not too dense. The species may extend away from the cliff edge after fire but will retreat to the cliff faces as the vegetation thickens.

Important Locations

Locality	1:25,000 mapsheet	Year last seen	Area (ha)	Number of mature plants
Fortescue Bay (between Canoe Bay and Bivouac Bay) Tasman National Park	Hippolyte	1996	0.5	100
Cape Pillar (at Perdition Ponds, the Oasis and the Chasm) Tasman National Park	Tasman	1997	0.03	30
Tornado Ridge Tasman National Park	Tasman	1997	0.0003	3
Arthurs Peak near Budget Head Tasman National Park	Tasman	1995	0.03	8
Port Arthur, on coast		1892	probably extinct	

Threats, Limiting Factors and Management Issues

Masked cliff eyebright faces relatively few threats due to its coastal cliff face habitat and total occurrence in a National Park. Even though the species is short lived and the populations are dependent on continual recruitment from seed, the necessary gaps for recruitment are maintained by exposure to the elements. Population size is likely to be relatively stable though it may temporarily decrease with storm damage and drought and a temporary increase is likely as the population extends away from the cliff edge after fire. As the cliffs between Canoe Bay and Bivouac Bay are relatively low and limited in extent, the small population at this site is prone to extinction if faced with a series of declines due to drought and storm damage, particularly if current climate change trends (warmer and drier summers) continue. The existence of an old record on the coast at Port Arthur is suggestive of such a decline in the past. Despite searches, the species has not been found on the low cliffs opposite Port Arthur.

Management for the species will be restricted to monitoring and prevention of cliff top activities that

may impact adversely on the population or its habitat. For example, Perdition Ponds has been nominated as a possible campsite for walkers on the Tasman Track though it is not a preferred site. Development at this site will be further discouraged because of unknown influences on the masked eyebright population on cliffs nearby.

The primary reason for the rarity of the three cliff face eyebrights appears to be the lack of suitable continuous habitat and poor seed dispersal mechanisms. Hybridisation also appears to have played a role in the rarity of masked cliff eyebright, as it is intermediate in appearance between the other two cliff eyebright species. Barriers to hybridisation have been shown to be poor for the cliff face eyebrights and with other eyebrights occurring nearby allowing occasional hybridisation events, small populations and a high turnover of generations, conditions are conducive to rapid speciation. Hybridisation also helps to explain the differences in the appearance of plants between the two known populations even though they are only up to 11 km apart. *Euphrasia* sp. Bivouac Bay is readily distinguishable from *Euphrasia phragmostoma*,

even though at one point it occurs only 300 m away, across Bivouac Bay.

Conservation Assessment

Population Estimate

Masked cliff eyebright has only been verified at two locations, despite dedicated survey at flowering time when plants are easier to find. Access difficulties have prevented the determination of whether populations from Budget Head to the tip of Cape Pillar are continuous but with current information the total number of masked cliff eyebright populations is estimated to be 4. Estimation of population size is difficult due to the cliff face habitat, a short life span and year to year variations in recruitment from seed. In 1995, approximately 100 mature individuals were estimated to occur at Fortescue Bay and less than 50 have been seen to date on cliffs between Budget Head and Cape Pillar. Access difficulties to the cliff faces will prevent an accurate estimation of numbers at the latter location. The size of the populations is limited by the area of cliff face habitat available. As the openness of the habitat required for recruitment is maintained by exposure, the population size is likely to be relatively stable. A temporary decline is likely following storm damage or drought and a temporary increase is likely as the population extends away from the cliff edge after fire.

Reservation Status

Masked cliff eyebright occurs in the Tasman National Park.

Assessment Criteria

Masked cliff eyebright meets the criteria for listing as endangered on the Tasmanian *Threatened Species Protection Act 1995* because

- there are less than 250 mature individuals in total

It also qualifies as Endangered using the 1994 IUCN (World Conservation Union) Red List criteria because of the same reason.

Recovery Program

Objectives

- prevent the loss or degradation of known populations

Existing Management

Masked cliff eyebright is included in the Recovery Plan for threatened Tasmanian lowland *Euphrasia* species. Implementation of the plan commenced in 1997. Due to a perceived lack of manageable threats, management will be restricted to monitoring and prevention of cliff top activities likely to adversely

influence the species. A draft management plan has been prepared for the Tasman National Park.

Actions Needed

- verify reports of populations and search suitable areas for new populations
- explore more of the cliff line from Budget Head to Cape Pillar to better estimate the number of populations and number of mature individuals
- determine change in population size and range following fire
- monitor known populations at intervals of 5 to 10 years for threats and declines

Information Needed

- determine whether there are any more populations in existence
- determine response to fire

Management Advice

For the land owner/land manager

- assess the need to fire cliff edge vegetation if the fire interval becomes greater than 20 years, taking the needs of other species into account

For everyone

- search for new populations in November to December when the plants are in full flower
- help us to monitor known populations, particularly at flowering time

Further Information

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Specialist Advice: Wendy Potts, Threatened Species Unit, Department of Primary Industries, Water and Environment

Source Material

References

Barker, W.R. 1982. Taxonomic studies in *Euphrasia* L. (Scrophulariaceae). A revised infrageneric classification, and a revision of the genus in Australia. *J. Adelaide Bot. Gard.* 5:1-304.

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Potts, W.C. 1997. *The conservation biology of threatened lowland Euphrasia taxa in south-eastern Tasmania*. Report to Environment Australia for Endangered Species Unit Project number 428. Parks and Wildlife Service, Department of Environment and Land Management, Hobart.

Potts, W.C. 2000. *Recovery Plan for Threatened Tasmanian Lowland Euphrasia Species*. Department of Primary Industries, Water and Environment, Hobart.

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Prepared by: Wendy Potts

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View: <http://www.dpiwe.tas.gov.au> & follow the links to Natural Environment, Threatened Species, then List of Threatened Species.

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