

# Flora & Fauna Guarantee Action Statement

#10

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## Rough Eyebright *Euphrasia scabra*

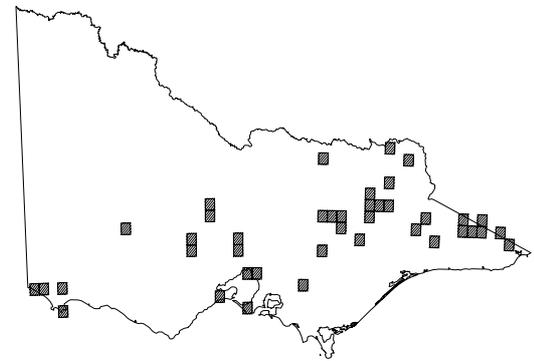


Rough Eyebright (*Euphrasia scabra*)

### Description and Distribution

Rough Eyebright (*Euphrasia scabra* R.Br) is an erect, semi-parasitic, annual herb to 50 cm high. The leaves are opposite, stalkless and minutely toothed. Hairs cover the leaves and stem. Terminal spikes of yellow flowers develop in late summer and early autumn. It is a member of the Scrophulariaceae family and its name is derived from the Greek euphrasia-delight or mirth-in reference to the genus' attractive flowers, and Latin scabra-rough-in reference to the surface of the stem and leaves. The common name 'Eyebright' comes from *E. officinalis* L. used for centuries in Europe for the treatment of eye diseases.

Two forms of Rough Eyebright are recognized: one from lowland and montane environments, and a high mountain form, with characteristics approaching those of *Euphrasia caudata* (J.H. Willis) W.R. Barker. The most obvious difference between the forms is that the high mountain form has an emarginate (incised) lower corolla lobe (Barker 1982). Of Victoria's eight known



Distribution in Victoria (DSE 2002)

Rough Eyebright populations, only those from Clearwater Creek and McNamara's Hut are the high mountain form (Scarlett 1987). Rough Eyebright was widely collected last century from montane and riparian sites in Victoria, Western Australia, South Australia, New South Wales and Tasmania. It is now considered extinct in New South Wales and South Australia, where it has not been collected since. Suitable habitat possibly still occurs in southern New South Wales but not in South Australia (W.Barker pers. comm.). In Tasmania a number of collections have been made this century but, despite intensive searching, the species has only been relocated at three sites in the past five years. Two of these contain very small populations while the third, Dukes Marsh, regularly has thousands of plants (L. Gilfedder pers. comm.). In Western Australia Rough Eyebright is classified as 'poorly known'. It is probably extinct in the northern part of its range (near Perth) and, despite intensive field searches, has not been found in the southern part of its range for many years (G. Keighery pers. comm.).

Rough Eyebright is best known in Victoria (Figure 2) but only seven populations have been located in recent times (Scarlett 1985). Three of these regularly contain more than a few hundred individuals. An eighth population, near McNamara's Hut, has not been seen since 1947 and is possibly extinct. Table 1 provides a summary of the known Victorian populations. A detailed list of Rough Eyebright records in Victoria is provided by Scarlett (1987).

All surviving Victorian populations are in herbfields or grasslands with low tree or shrub cover. The lowland form is usually found beside streams on organic loam or peat. These sites may be seasonally inundated. More rarely, it is found on mineral soils in seasonally wet elevated sites not associated with streams. It is most abundant between tall herbs in gaps which appear to be maintained by grazing. The high mountain form also occurs beside streams but on sites that are never inundated, although there are indications of high groundwater tables. This form also grows in closely grazed and moderately disturbed gaps between tall herbs (Scarlett 1985).

## Conservation Status

### Current Status

National (Briggs & Leigh 1988)	Vulnerable
State (Gullan, Cheal & Walsh 1990)	Endangered
<i>Flora and Fauna Guarantee Act 1988</i>	Threatened

### Reasons for Conservation Status

Rough Eyebright has declined severely since European settlement. Likely causes include: gross habitat alteration due to goldmining (e.g. Ovens River); agriculture (e.g. Western Victoria, and southern tablelands of NSW); establishment of pine plantations (southern NSW); and competition from Blackberries (*Rubus fruticosus* spp.agg.) and introduced members of the Scrophulariaceae family such as Bellardia (*Bellardia trixago*), Common Bartsia (*Parentucellia latifolia*) and Sticky Bartsia (*Parentucellia viscosa*).

See Table 1 at end for currently known Rough Eyebright populations in Victoria.

Its decline in less disturbed semi-natural areas is something of a mystery. Increased grazing pressure from domestic and feral animals and altered burning and hydrological regimes may have contributed to its decline in these areas. The remaining populations of Rough Eyebright are small and subject to considerable annual fluctuation. Loss of any one would be a significant loss of genetic variation and therefore affect the species' potential long term survival. Six of the Victorian populations are in conservation reserves (Table 1). Only the smallest of the three Tasmanian populations is in a conservation reserve. None of the likely Rough Eyebright sites in Western Australia are reserved (G. Keighery, L. Gilfedder pers. comm.). Threats to remaining populations include invasion by Blackberries and other weeds, overcrowding by native shrubs, uncontrolled vehicle access, road maintenance, trampling, mining activities, Sphagnum moss harvesting, inappropriate

grazing and burning regimes, and the possibility of altered hydrological regimes due to timber harvesting. In its final recommendations the Flora and Fauna Guarantee Scientific Advisory Committee concluded that Rough Eyebright is:

- in a state of demonstrable decline; and
- significantly prone to future threats which are likely to result in extinction.

## Major Conservation Objectives

- Protect all existing populations and suitable adjacent habitat.
- Actively manage Rough Eyebright habitat to allow population expansion so that more than 1000 individuals are present in suitable years.
- Propagate Rough Eyebright and reintroduce it to areas of suitable habitat.

## Management Issues

**Grazing.** Rough Eyebright is commonly found among grasses and herbs that have been cropped short by a range of grazing animals. Wombats appear to be important in maintaining Rough Eyebright habitat in this way (Scarlett 1987). Bentley Plain is regularly grazed by cattle under licence and, along with Mundy Plain, is frequented by brumbies. Mundy Plain, Clearwater Creek, McNamara's Hut, Mt. Dawson, and King Spur are also covered by grazing licences with variable grazing pressure. Most sites are also grazed by rabbits. It remains unclear whether grazing by introduced herbivores is beneficial by helping control competition or deleterious, contributing to its decline through trampling, spreading weeds and affecting soil structure and nutrient status. However, changes to grazing regimes seem a likely cause of the species' apparent extinction from other alpine meadows such as the Dargo High Plains and the Nunniong Plateau. Clearly, there is an urgent need to determine a suitable grazing regime for Rough Eyebright. **Competition.** Blackberries have the potential to take over Rough Eyebright habitat, especially at the seasonally inundated sites. Former habitat on the Ovens River in north-east Victoria, and Red Jacket Creek in Central Gippsland have been completely overgrown (Scarlett 1987). Blackberries are evident at Little Bog Creek, Delegate River, Mundy Plain, Bentley Plain and McNamara's Hut.

Introduced herb and grass species such as Yorkshire Fog-grass (*Holcus lanatus*), White Clover (*Trifolium repens*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Spear Thistle (*Cirsium vulgare*), and St. Johns' Wort (*Hypericum perforatum*) have been recorded at Rough Eyebright sites although none of these pose any immediately evident threats.

The native shrub Burgan (*Kunzea ericoides*), Alpine Baeckea (*Baeckea gunniana*) and Saw-sedges (*Gahnia* spp.) take over Rough Eyebright habitat if not checked by grazing, fire or physical control. Encroachment of Alpine Baeckea is quite evident at Little Bog Creek. Control of these species will be required to maintain suitable Rough Eyebright habitat.

**Recreation activities.** Mundy Plain is accessible to vehicles although useage appears to be low. The main route onto the plain passes through the Rough Eyebright locality. Uncontrolled vehicle access may accentuate weed problems

and establish the area as an informal campsite creating further management problems.

The Bentley Plain population is approximately 100 m upstream from a well established picnic area on the Nunniong Rd. The site is accessible and attractive to walkers. While trampling and collection does not appear to be a problem at present, increased visitor numbers and more entrenched user patterns could create future problems.

The King Spur population is beside a minor walking track. Increased use of the track could lead to weed invasion, trampling, and illegal collection of Rough Eyebright.

The McNamara's Hut population occurs just below the vehicle track leading to the hut. This hut has been recently restored and is maintained by the outdoor education group 'Mittagundi'. It is proposed that the track remain open to 4WDs (DCE 1989a). Spread of weeds, mechanical disturbance associated with track maintenance, and increased accessibility to walkers are potential problems caused by its continued use.

**Fire management activities.** Mundy Plain is used as a helipad for fire management (DCE 1991). Occasional use would not pose any immediate threat to Rough Eyebright provided suitable vehicle access routes were used.

However, in the event of a major wildfire, helipads become the centre of much activity. At such times, vehicle movements or establishment of campsites could easily result in unintended damage to Rough Eyebright habitat. Use of bulldozers to construct fire control lines could have a direct physical impact on Rough Eyebright habitat. The use of chemical fire retardants in Rough Eyebright habitat has the potential to cause eutrophication of adjacent bog areas and promote growth of weeds.

Spring or early autumn fuel reduction burning could destroy Rough Eyebright seedlings prior to seed set and frequent burning could alter its habitat. However, fuel reduction burning does not pose a significant threat to Rough Eyebright as all populations are in areas that are either planned not to be burnt or have a low priority for burning.

**Sphagnum moss harvesting.** The Delegate River population occurs on either side of a stream that separates Errinundra National Park from private land. The private land contains approximately 15ha of Alpine Wet Heathland interspersed with Sphagnum moss beds and sedgeland. Suitable habitat for Rough Eyebright occurs in small gaps among this vegetation. This vegetation is a contiguous part of what is described as the Delegate River Swamp Complex by Westaway *et al.* (1990). Forbes *et al.* (1981) describe this community as a disjunct, low elevation example of Alpine Wet Heathland which is otherwise confined to the Nunniong Plateau-Cobberas area. As such it has biogeographic significance. It contains a number of other threatened plant species (see Wider Conservation Issues). Ladd (1979a) provides a vegetation map of this area. Small quantities of Sphagnum have been removed from this area in the past, and large scale harvesting has been proposed. Whinam *et al.* (1989) suggest that low-level sustainable Sphagnum moss harvesting in Tasmania is

possible provided a number of conditions are met; the most important being that harvesting be confined to sites where few species apart from Sphagnum are present. In Tasmania, Sphagnum moss harvesting on public land is only permitted in three areas of the state. These areas have been degraded by past activities and have few other values (R. Rich pers. comm.). This is not the case at Delegate River.

Sphagnum moss harvesting at this site could pose a major threat to the long term survival of Rough Eyebright and other threatened species in the area through alteration of drainage, direct disturbance, and the introduction of weeds.

**Mining.** The slopes immediately adjacent to Little Bog Creek have been considerably disturbed by past mining activities; shafts, water races and surface disturbances are abundant in the area and there is evidence of recent digging activities directly adjacent to the Rough Eyebright site. Although the population has survived these previous activities, the disturbed areas often support Blackberries. Continued disturbance could exacerbate existing weed problems, pollute the water or alter local drainage patterns to the detriment of Rough Eyebright.

**Hydrology** The catchment of Bentley Creek above the Rough Eyebright locality comprises approximately 200 ha of State forest, almost all of which has been logged over the past 30 years.

The Little Bog Creek population of Rough Eyebright is contained within a Flora Reserve. However, approximately 153 ha or 24% of the Little Bog Creek catchment above the Rough Eyebright locality has been logged in the last ten years, and another 131 ha or 21% is available for logging. If this remaining area is logged in the next ten years, approximately 45% of the catchment will have been logged over a period of 20 years. Clearfelling a catchment leads to an initial increase in streamflow (Doeg & Koehn 1990). It is generally accepted that streamflows then decline as the forest regrows, gradually returning to pre-logging levels when the forest reaches maturity. While no studies in Australia have been running long enough to demonstrate this, Langford & O'Shaughnessy (1980) estimate this would take 140 years for Mountain Ash forest in catchments near Melbourne. The streamflow-time curves presented by Langford & O'Shaughnessy should be broadly applicable to mountain forest catchments in East Gippsland and the presence of freely draining bogs should not significantly alter the analogy (C. Leitch pers. comm.). Assuming this, and ignoring the effect of fires, the following can be expected:

- Average annual base streamflows in Bentley Creek through the Rough Eyebright locality will be reduced by 25-30% from about the year 2000 to 2020 and gradually return to pre-logging levels by 2120.
- If the remaining area of Little Bog Creek catchment available for logging is harvested in the next ten years, average annual base streamflows would be reduced by 10-15% from about the year 2010 to 2030 and gradually return to pre-logging levels by 2130. If no further logging occurs in the catchment for 50 to 100 years the maximum reduction in average streamflow would be approximately 5%.

The effect of these changes on Rough Eyebright and its habitat

is unclear. The successful reproduction of Rough Eyebright appears to be closely related to water table levels. At seasonally inundated sites, Rough Eyebright is most abundant in areas that have been inundated and/or retain fairly high water tables through the summer. However seedlings will not survive in permanently wet conditions (N. Scarlett pers. comm.). At more elevated sites that are never inundated, Rough Eyebright appears to be associated with seepage and reproduces sporadically under these conditions (Scarlett 1987, pers. obs.). However the speculated hydrological changes at Bentley Plain and Little Bog Creek should be seen in the context of a system that can have quite dramatic annual fluctuations in streamflow.

**Feral Pigs.** Pigs (*Sus scrofa*) have recently been recorded in the Coast Range area, which is adjacent to the Little Bog Creek site (G. O'Neill pers. comm.). The feeding habits of pigs could be very damaging to Rough Eyebright habitat on the margins of the bog.

### Ecological Issues Specific to the Taxon

Rough Eyebright's reproductive success at a given site appears to be strongly influenced by seasonal factors. Difficulty relocating the species on elevated sites not subject to inundation suggests that population fluctuations are extreme in these areas (Scarlett 1987). Abundant seed is set without any observed insect vectors (Scarlett 1987) although Geoff Allen (pers. comm.) observed native bees using the flowers at the Clearwater Creek population in 1991. Scarlett (1987) and Barker (pers. comm.) believe Rough Eyebright to be self-fertilizing but a detailed study is required to confirm this.

Rough Eyebright has been successfully cultivated by La Trobe University researchers in association with a variety of host plants including monocotyledons and dicotyledons. Gilfedder (pers. comm.) has also observed the species growing in association with a wide variety of hosts and suggests Rough Eyebright is not very host specific. Germination was found to be most successful after vernalization and was inhibited above 25°C. Under outdoor conditions in Melbourne, seed germinated in winter but remained at the seed leaf stage until late September/early October. Plants then grew rapidly, overtopping host grasses, and flowering in November (Scarlett 1987). The seed's viability over time is not known. This information could be a critical factor in the management of Rough Eyebright localities where numbers fluctuate dramatically. Gilfedder (pers. comm.) intends examining silt and peat deposits from Dukes Marsh, Tasmania, for Rough Eyebright seed and testing the viability of any seed found.

### Wider Conservation Implications

Protection of known Rough Eyebright sites will also protect a number of other species and values as below.

**Delegate River.** Biogeographically significant communities and species include: Alpine Wet Heathland, Bog Saw-sedge (*Gahnia subaequiglumis*), and Hard-head Bush-pea (*Pultenaea capitellata*) (Forbes et al. 1981); Bog Sun-orchid (*Thelymitra circumsepta*) (Willis 1970); and Alpine Rush (*Juncus* sp. (I))

(Westaway et al. 1990). Latham's Snipe (*Gallinago hardwickii*) has also been observed in this area during summer (Author pers obs). This species is protected under the Japan-Australia and China-Australia Migratory Birds Agreements (JAMBA and CAMBA) Other values of this area are described in Westaway et al. (1990).

Sediments in this area have been sampled for pollen studies and have revealed much about the area's vegetation history over the last 12 000 years (Ladd 1979b) and more recent environmental changes associated with European occupation (Gell & Stuart 1989).

The heathland, swamp and bog communities at this site and at Little Bog Creek are all that is left of vegetation that was probably much wider spread on the Monaro Tablelands. Records indicate that swamp and bog communities were once more common in the western district of Victoria, where Rough Eyebright was previously recorded. The hydrology and vegetation of those areas is now altered (N. Scarlett pers. comm.). These remaining areas are poorly known and almost certainly contain additional rare and threatened flora and fauna. For example the small Gentian (*Gentiana baeuerlenii*) last collected in 1887 at Quedong, 20 km west of Bombala, and presumed extinct by Briggs & Leigh (1988) may still exist in these areas (Adams & Williams 1988).

**Mt. Dawson.** Hairy Anchor Plant (*Discaria pubescens*) (DCE 1989b) is also present at this site.

**Clearwater Creek and McNamara's Hut.** Austral Dandelion (*Taraxacum aristum*) (Scarlett 1985c) and Trailing Beard-heath (*Leucopogon piliferus*) (DCE 1989a) have also been recorded from these sites.

**Bentley Plain.** Austral Moonwort (*Botrychium australe*) also occurs here (Scarlett 1986).

**Little Bog Creek.** This site also holds Swamp Violet (*Viola caleyana*) and Giant Burrowing Frog (*Heleioporus australiacus*) (Carr et al. 1984); Sooty Owl (*Tyto tenebricosa*) and Latham's Snipe (*Gallinago hardwickii*) (LCC 1986); and an outlying population of Southern Emu Wren (*Stipiturus malachurus*) (G. O'Neill pers. comm.).

### Social and Economic Issues

Sphagnum moss on private land adjacent to the Delegate River site has a potentially very high economic value to the landholder. DCE is currently in receipt of a Sphagnum moss harvesting proposal and has made an offer to purchase the land in question.

No alterations to grazing licences are proposed at this stage but future consultations with licensees may be necessary to reduce grazing pressure on Rough Eyebright habitat. The areas involved are unlikely to be large but there could be practical difficulties and costs for licensees.

Prevention of timber harvesting in the catchment of Little Bog Creek would mean a reduction in the area available for meeting sawlog licence commitments, creating increased pressure on other areas of State forest.

Reducing recreation pressure on Bentley Plain and closing Mundy Plain to public vehicles will mean a reduction in available campsites and other recreation opportunities on the Nunniong Plateau. However social impacts would be

minimised by introducing changes gradually and developing alternative recreation opportunities in the area. Restrictions on the use of the track to McNamara's Hut would reduce public vehicle access and may affect the activities of outdoor education groups, commercial tour operators and others.

## Management Action

### Previous Management Action

- The Little Bog Creek Flora Reserve was created mainly on account of Rough Eyebright (LCC 1986)
- The Clearwater Creek, McNamara's Hut, King Spur, Mt. Dawson, and part of the Delegate River site in Errinundra National Park have all been proposed as Special Protection Zones in the relevant National Park Proposed Management Plans (DCE 1989a,b,c).
- Rough Eyebright seed has been collected and propagated by La Trobe University researchers as previously described.
- A cattle and brumby enclosure was constructed at Bentley Plain in 1988. One side of the enclosure was left unfenced because of dense vegetation. Monitoring plots were established inside and outside the enclosure. In autumn 1991, cattle got through this into the enclosure and the Rough Eyebright present was eaten before full seed set. So far this enclosure has shown that grazing by native herbivores and rabbits is sufficient to maintain open areas for Rough Eyebright in the short term (N. Scarlett pers. comm.)
- Specimens from all sites have been lodged with the National Herbarium in Melbourne.
- Population and location details have been lodged with Flora and Fauna Division, and the National Park & Public Land Division of DCE.
- In 1991 DCE made an offer to the purchase private land adjacent to the Delegate River site where Rough Eyebright occurs. The offer was declined.

### Intended Management Action

**Grazing.** An enclosure will be constructed at Mundy Plain to exclude cattle and horses while admitting native herbivores and rabbits. Plots will be established inside and outside the enclosure. The existing enclosure at Bentley Plain will be secured by an additional fence. Plots will be used to assess the effect of cattle and brumby grazing on Rough Eyebright habitat and determine whether cattle grazing of these areas should continue or if brumby control is necessary.

An assessment of these trials will be made in 1993 and if necessary licences will be modified accordingly in consultation with licensees.

**Experimental slashing and burning.** Burning and slashing trials to control shrub encroachment will be conducted at Little Bog Creek. The trials will not involve large machinery or soil disturbance. No more than a third of the known

habitat area will be treated until the effectiveness has been evaluated. The aim is to establish a practical means of promoting regeneration of Rough Eyebright.

**Site monitoring.** Habitat at Little Bog Creek, Delegate River, Mundy Plain, Bentley Plain, and Clearwater Creek will be characterised by measuring vegetation quadrats, taking soil samples, and recording relevant climatic and geographic variables.

A base map of each site will be prepared and each site visited at least twice per year to:

- map distribution and abundance of Rough Eyebright;
- assess the level of weed invasion;
- record period of flowering and seed set;
- assess the effects of grazing at Mundy Plain and Bentley Plain; and
- assess the degree of shrub encroachment at Little Bog Creek.

A monitoring pro-forma will be prepared and distributed to relevant DCE staff and researchers. Information gathered will also be entered on to the VROTPD monitoring database (National Parks and Public Land Division).

The Mt. Dawson, King Spur, and McNamara's Hut sites will be visited at least once per year and the presence of Rough Eyebright recorded. If present the distribution, abundance, seed set, and other relevant ecological information will be noted. Field searching for Rough Eyebright will be undertaken in the following areas of the Bogong Unit of the Alpine National Park predicted as suitable habitat by computer modelling (DCE 1989a):

- Buckety Plain area;
- Mount Cope and surrounds;
- Dinner Plain-McNamara's Hut
- Langford Gap-Marm Point-Hollands Knob area;
- Fitzgerald Hut-Kelly Track area; and
- Quartz Ridge area

Additional field searches will also be undertaken at:

- Wellington High Plains.
- Lower Delegate River;
- Plains on the Nunniong Plateau; and
- Upper Glenelg River

**Sphagnum moss harvesting.** DCE will not support applications to clear native vegetation where this may have a detrimental impact on Rough Eyebright populations or habitat, or associated significant vegetation.

**Blackberry control.** Blackberry will be controlled at Mundy Plain, Bentley Plain, Delegate River, Little Bog Creek, and beside the track leading to McNamara's Hut. These operations will be closely supervised to ensure that spray drift and vehicle movements do not affect Rough Eyebright stands.

**Recreation.** Visitor use of Bentley Plain will continue but facilities will not be upgraded. The Tambo Forest Management Plan will consider long term strategies to segregate recreation areas and endangered species localities.

Public vehicle access to Mundy Plain will be closed to discourage camping in the area and vehicle activity on the plain. The McNamara's Hut track will be designated as a track subject to seasonal road closure and a gate installed at a suitable location. This will enable the track to be closed when conditions are wet and the Bogong High Plains Road is open.

Damage to the track and the adjacent environment, and the need for track maintenance, will then be minimised.

The King Spur walking track is minor and does not pose a threat to Rough Eyebright at this stage. If use of the track increases and upgrading is required it will be re-routed around the Rough Eyebright site.

**Fire management.** The use of Mundy Plain as a helipad for fire protection purposes will be confined to the western edge of the northernmost plain. The helipad will be clearly defined and management vehicle access to the helipad and the plain generally will be established adjacent to this. Rough Eyebright sites will be noted on fire management asset maps and in regional fire protection plans so that fire control lines, chemical fire retardants and inappropriate fuel reduction burns will avoid damage to Rough Eyebright wherever practicable.

**Cultivation.** Seed will be collected from all sites and lodged with the Royal Botanic Gardens where a seed bank and Rough Eyebright population will be maintained.

**Reintroduction.** Small quantities of Rough Eyebright will be propagated and introduced to areas of suitable habitat at existing sites. If successful Rough Eyebright will be reintroduced to areas where it previously occurred in accordance with the following principles:

- Herbarium records show that Rough Eyebright formerly occurred, and scientific opinion considers it locally extinct;
- the processes that caused extinction are no longer operating;
- only seed collected from the closest extant Rough Eyebright population will be used;
- the lowland form will not be introduced to sites that would have supported the highland form, and vice versa.

**Critical habitat.** The critical habitat for Rough Eyebright will be identified and a Critical Habitat determination made under the Flora and Fauna Guarantee Act 1988. Forest Management Plans Mundy Plain and Bentley Plain will be included in special protection zones as part the East Gippsland and Tambo Forest Management Plans respectively.

## Other Desirable Management Actions

- Prepare a management plan for Little Bog Creek Flora Reserve.
- Commence a research program into the reproductive biology of Rough Eyebright with particular emphasis on factors that can be influenced by management.

See table 2 at end for summary of actions to be undertaken by DCE regions.

## Legislation and Permits

### Legislation

*Flora and Fauna Guarantee Act 1988* provides for listing of Rough Eyebright, determination of critical habitat, permits for collection, and production of this Action Statement.

*National Parks Act 1975* provisions for collection and management of flora within Parks and other land administered under this act.

*Planning and Environment Act 1987*, Native Vegetation Retention Regulations

*The National Park (Alpine National Park) Act 1989* provides for the continued grazing in the Alpine National Park (Wonngatta-Moroka unit-Mt Dawson and Kings spur; Bogong unit-Clearwater Ck and McNamaras Hut).

*Crown Land (Reserves) Act 1978* reserves the Little Bog Creek FLora Reserve and controls miner's rights and exploration licences in this reserve.

### Licence/Permit Conditions

Rough Eyebright is listed on Schedule 2 of the *Flora and Fauna Guarantee Act 1988* and a permit is required for any activities that would result in death or removal of Rough Eyebright from its habitat. In accordance with the Act DCE will not issue permits to remove Rough Eyebright if the species would be threatened by doing so. In National Parks an additional permit must be obtained from the Director of National Parks and Public Land.

### Consultation and Community Participation

Local residents, field naturalists and conservation groups will be encouraged to participate in monitoring Rough Eyebright. Contact will be maintained with the private landholder on the Delegate River regarding management and monitoring of the Rough Eyebright population. Permission will be requested to cross private land when visiting that population. User groups and licensees of public land will be consulted over any possible changes to permitted activities on public land as a consequence of this Action Statement.

### Implementation, Evaluation and Review

The Regional Managers of the Orbost, Bairnsdale, Central Gippsland, North East, Alexandra, and Horsham regions are responsible for the implementation of this Action Statement.

### Contacts

#### Management

DCE Flora and Fauna Guarantee Officers at Orbost, Bairnsdale, Central Gippsland, Alexandra and North East Regional Offices

#### Biology

Neville Scarlett, Research Botanist, Botany Dept., La Trobe University, Melbourne.

William Barker, Taxonomist, Adelaide Herbarium

Louise Gilfedder, Research Botanist, University of Tasmania, Hobart.

Greg Keighery, Research Botanist, Dept. of Conservation and Land Management, Perth.

**Table 1: Currently Known Rough Eyebright Populations in Victoria**

Site	Year Last Seen	Form	DCE Region	Land Status
Delegate River	1990	Lowland	Orbost	Public land water frontage/ Private land
Little Bog Creek	1991	Lowland	Orbost	Little Bog Creek Flora Reserve
Mundy Plain	1991	Lowland	Bairnsdale	State forest
Bentley Plain	1991	Lowland	Bairnsdale	Natural Features & Scenic Reserve
McNamara's Hut Track	1947	Highland	North East	Alpine NP (Bogong unit)
Clearwater Creek	1991	Highland	North East	Alpine NP (Bogong unit)
King Spur	1987	Lowland	Alexandra	Alpine NP (Wonnongatta-Moroka unit)
Mt Dawson	1984	Lowland	Central Gipps	Alpine NP (Wonnongatta-Moroka unit)

**Table 2: Summary of Actions to be Undertaken by DCE Regions**

Region	Orbost	Orbost	Bairnsdale	Bairnsdale	North-East	North-East	Central Gippsland	Alexandra
Site	Little Bog Creek	Delegate River	Mundy Plains	Bentley Plains	Clearwater Creek	McNamara's Hut	Mt Dawson	King Spur
<b>Action</b>								
Grazing - build enclosure - monitoring - review licences			X X X	X X X				
Slash/burn treatments	X							
Major site monitoring	X	X	X	X	X			
Low-level monitoring						X	X	X
Field searches	X	X	X	X	X	X	X	X
Sphagnum issues		X						
Blackberry control	X	X	X	X		X		
Recreation - planning - vehicle control			X X	X		X		
Fire management - planning - helipad and access	X	X	X X	X	X	X	X	X
Seed collection	X	X	X	X			X	X
Re-introductions					<i>For all</i>	<i>populations</i>		
Determine critical habitat	X				<i>as</i>	<i>appropriate</i>		
FMA Planning	X	X	X	X				
Little Bog Creek Manage. Plan	X							

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## Compiler

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## Further information

Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action Statements are available from the Department of Sustainability and Environment website:  
<http://www.dse.vic.gov.au>

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