DEPARTMENT OF
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Flora & Fauna Guarantee Action Statement

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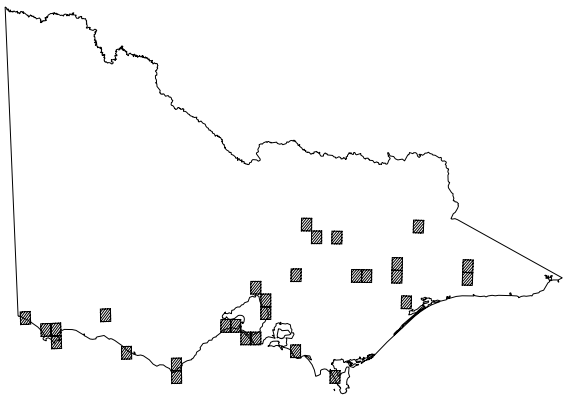
Victoria
The Place To Be

Leafy Greenhood

Pterostylis cucullata

Leafy Greenhood *(Pterostylis cucullata)*



Distribution in Victoria (DSE 2002)

Description and Distribution

The Leafy Greenhood *(Pterostylis cucullata* R. Brown) is a ground-dwelling orchid. It produces a single flower which emerges from a bright green basal rosette of about 5-7 oblong to elliptical leaves. Some flowers are nestled and cloaked amongst the basal leaves while others can reach up to 45 cm in height with lanceolate leaves scattered up and around the stem. The tip of the hood is reddish brown, the lower part is predominantly white with green stripes. The lateral sepals loosely embrace and protrude slightly above the hood; they are mostly reddish brown (Nicholls 1969). The Leafy Greenhood is summer deciduous, dying back after flowering to a fleshy rounded tuberoid up to about 1 cm in diameter at a depth of 2-8 cm. Several extra tuberoids may also be produced. The Leafy Greenhood remains dormant underground for one of the longest periods of any Greenhood species (Jones pers. comm.).
The Leafy Greenhood occurs in South Australia and on islands off the north-east coast of Tasmania (Davies, 1986). In Victoria the taxon displays two distinct distributions: inland and coastal. Plants in coastal populations appear above ground in late autumn and early winter, inland populations emerge later in winter. Similarly the coastal populations may begin flowering towards the end of winter while the inland populations begin in spring.
Coastal populations occur from Wilsons Promontory in the east to Nelson in the west including Mornington Peninsula (Cape Schanck, Rye and Tootgarook), Cape Otway, and Portland (Bridgewater Lakes and Cape Bridgewater).
Inland it is found in the Central Highlands (Lake Eildon, Howqua River and Licola)the Strathbogie Ranges and East Gippsland (Serpentine Creek, Buchan and Benambra), with one small population in a remnant of the lowland Gippsland plains at Moormurng Reserve east of Bairnsdale. The Moormurng area is closely allied vegetatively to coastal areas despite being geographically inland. There is also a record of the Leafy Greenhood at Broadmeadows (Beardsell 1984-6, Tribe pers. comm.).
The typical habitat of coastal populations is stabilised sand dunes under open to closed

scrub of Coast Tea-tree *(Leptospermum laevigatum)* or Moonah *(Melaleuca lanceolata)* with an open ground stratum. The sites are usually sheltered, south-east to west facing, with seasonally damp but well-drained humus-rich sandy loams, often with moss and deep leaf litter (Beardsell &Scarlet 1986, Walsh, pers. comm.). Dune swales with dense herbaceous ground strata, dry dune crests or areas of young regrowth vegetation are unsuitable for the species (Beardsell & Scarlett 1986).

Some coastal populations of Leafy Greenhood also occur in Coast Manna Gum *(Eucalyptus pryoriana)* woodland with a sparse shrub layer.

The habitat of the Moormurng population is dominated by a Forest Red Gum (*E. tereticornis)* forest on clay loamy soils with a grassy understorey of Branched Wallaby-grass *(Danthonia racemosa)* and Weeping Grass *(Microlaena stipoides)* as well as Spiny-headed Mat Lily *(Lomandra longifolia)* and Thatch Saw-sedge *(Gahnia radula).*

The numerous populations at Licola represent the most important known occurrence of the orchid in the state (James 1992). Most of them are in the Alpine National Park, although some occur on nearby private property. These populations are often found protected from hot sun on southerly or easterly aspects of steep river banks amongst a diverse herbfield under an open canopy of Apple Box *(E. bridgesiana)*. A few taller shrubs are present in places. Other Leafy Greenhood populations at Licola are found in herbfields on alluvial flood plains beneath a canopy of Apple Box and other eucalypts such as Yellow Box *(E. melliodora)*, Red Stringybark *(E. macrorhynca)*, Manna Gum *(E.viminalis)* and Blue Gum *(E. globulus* ssp. *pseudoglobulus)*.

Populations at Lake Eildon and the Strathbogie Ranges occur in similar habitats; that is, shaded sites on both alluvial flats and easterly slopes close to creeks.

The number of populations in any one location varies significantly. Existing populations are as follows:

Geographic Area	**Locality**
Coastal	
Wilsons Promontory	Yanakie Isthmus
Mornington Pensinsula	Cape Schanck
	Rye
	Tootgarook
Cape Otway	Cape Otway
South West	Bridgewater Lakes
	Cape Bridgewater
	*Nelson
Inland	
Strathbogie Ranges	Strathbogie Ranges
Central Highlands	Lake Eildon
	Licola
East Gippsland	Benambra
	Buchan
	*Moormurng
	*Serpentine Creek

** Only one known population in these locations.*

To minimise the risk of trampling by enthusiasts and the likelihood of collection, the precise location of the orchid populations will remain confidential.

Conservation Status

Current Status

Briggs & Leigh (1988)	Vulnerable (Australia)
Endangered Species Protection Act 1992	Vulnerable (Australia)
Gullan *et al*. (1990)	Vulnerable (Victoria)
SAC (1991)	Threatened

Reasons for Conservation Status

The Leafy Greenhood is more secure inland than in coastal areas where it is presumed extinct at Frankston, Hampton, Nelson, Queenscliff and Sorrento.

Human habitation has caused most of the decline in coastal populations through habitat clearing for development, weed invasion and the change in species composition of remnant habitat.

Several populations at Wilsons Promontory are thought to have been eliminated by grazing rabbits and by clearing Coast Tea-tree from beside paths (Beardsell & Scarlett 1986). Part of a known population's Coast Tea-tree habitat was slashed in a program of grassland and open woodland restoration on Yanakie Isthmus.

About half the remaining coastal populations are on private property. Possibly the last coastal strongholds for Leafy Greenhood on public land are several populations on Yanakie Isthmus, in Wilsons Promontory National Park and Tootgarook, Mornington Peninsula. With future surveying Cape Otway may also be found to be a significant coastal area.

The Moormurng population is in an area with a history of light grazing that has rarely been burnt and is relatively free of weeds.

Of the inland populations on public land, only that at Frys Hut on the Howqua River, is thought to have disappeared. Weed invasion in the last 20 years, accelerated by the presence of stock and intensive recreation pressure nearby is believed to be partly responsible.

A range of threats face remaining inland and coastal populations: urban development, roadworks, vehicle movement, recreational activities, weed invasion, introduced animals and trampling of habitat and collection by enthusiasts. Many populations are more vulnerable to natural catastrophes and changes in environmental factors over time because of their small size (Schaffer 1981).

The Leafy Greenhood is endangered in other states (Carr pers. comm.). Populations on the Bass Strait islands near north-east Tasmania are threatened by cattle trampling and grazing by introduced snails (Zeigler pers. comm.). South Australia's Mt. Lofty Ranges have most recorded populations, of which more than half are extinct (Davies 1986).

In its final recommendations, the Scientific Advisory Committee (1991) determined that the Leafy Greenhood Orchid is significantly prone to future threats likely to result in extinction.

Major Conservation Objectives

- To secure all remnant populations of Leafy Greenhoods and allow for their expansion by controlling threats to their survival.

- To secure the range of genetic variation held within threatened or small populations (less than 100 individuals).
- To expand the knowledge of the ecological requirements of Leafy Greenhood as a basis for informed future management decisions.

Management Issues

Ecological Issues Specific to the Taxon

Characteristics of the species There is little published information on the biology and ecology of the orchid although several individuals have detailed knowledge of its life history (Beardsell, Carr, Eichler, pers. comm.)

Reproduction The Leafy Greenhood reproduces predominantly by tuberoids (Jones 1988). Most populations consist of one or more dense colonies, often with hundreds or thousands of individuals. The area covered ranges from a few to as much as 50 m2 (Jeanes pers. comm.). James (1992) has recorded 65 flowering plants in an area of 0.25 m2. Few populations are scattered sparsely over a wide area.

Little is known about the Leafy Greenhood's rate of vegetative reproduction. In cultivation the rate appears slower than with some other Greenhoods, which produce a replacement for the parent tuberoid and up to four extra (daughter) tuberoids each year (Carr pers. comm.).

The daughter tuberoids have a delicate water balance as they are often only a few cm under the surface. Consequently there is a decrease in survival rates of daughter tuberoids in dry seasons (Beardsell pers. comm.). Greater recruitment has been noted after wetter summers (Carr pers. comm.).

The Leafy Greenhood is regarded as having a relatively low potential for seed production. Estimates of the number of individuals which flower in a colony vary from 5 to 25% (Carr, Clements, Eichler, pers. comm.). This is partly explained by the time it takes to reach flowering maturity and partly by climatic effects. It may take three seasons for a plant to flower under optimal conditions in cultivation and subsequent flowering only occurs if conditions are favourable (Carr pers. comm.). Some commercially available forms of Leafy Greenhood from South Australia apparently flower more freely (Backhouse pers. comm.).

Conditions under which seedling recruitment occurs are not known. Soil disturbance may enhance seedling establishment but as with many other Greenhoods it is unlikely that the Leafy Greenhood is dependent on it (Carr pers. comm.).

Management priorities Maintaining genetic variation is vital to the long-term survival of a species (Frankel & Soule 1981). It is likely that the amount of genetic variation within any particular colony is limited by this species' propensity for vegetative reproduction. Since the number of individuals is not indicative of the level of genetic significance, a population's rarity is more important. This is determined by the number of populations in an area and their location with respect to the overall distribution. Leafy Greenhood populations at Moormurng, Nelson and Serpentine, are significant because of their geographic isolation even though they are small.

Small populations of clonal species have a greater potential to remain genetically viable in the long term, given their capacity for vegetative reproduction, than species reliant on sexual reproduction.

Setting priorities for the Leafy Greenhood's conservation should therefore be determined on factors other than population size (Refer to the discussion of management of clonal species in the Brittle Greenhood Action Statement).

No attempts should be made to cross Leafy Greenhood populations from widely separated parts of the state as it may be deleterious to their long-term survival (refer to Enhanced Recruitment and *ex situ* Conservation under Wider Conservation Issues).

Threatening Processes

Animals

- Cattle threaten the Leafy Greenhood at Bridgewater Lakes, Cape Otway and Licola by trampling and grazing the orchid.
- At Cape Otway, horses on private property have trampled one of the larger coastal populations and when last inspected in the mid 1980s the population was in serious decline (Beardsell pers. comm.).
- Grazing of flowers by introduced snails (*Theba pisana* and *Helix aspera*) has been recorded at Nelson and Cape Otway (Beardsell, Allen, pers. comm.). Plants are at risk from secondary viral and/or fungal infection from mollusc grazing apart from losing their potential for seed dispersal with flower destruction (Daniel pers. comm.). Introduced molluscs may also threaten the Tootgarook population on the Mornington Pensinsula with the increase in shelter and food on a newly developed adjacent block.
- Grazing by rabbits is considered a threat at Cape Otway and Wilsons Promontory.

Competition The Leafy Greenhood is very sensitive to competition from other herbaceous species, ferns and dense young shrub species, but few details are known (Beardsell & Scarlett 1986). Populations under varying degrees of threat are found at Bridgewater Lakes, Cape Otway, Cape Schanck, Lake Eildon, Licola, Spring Creek (Buchan), Serpentine Creek, Strathbogie Ranges, Tootgarook and Wilsons Promontory. Weed invasion is the biggest threat to the Benambra populations.

Forestry Logging activities further upstream or uphill of the orchid population at Serpentine Creek, north of Orbost, could affect the hydrology of the river. Studies by Melbourne Water (1991) indicate that streamflows in ash-type forests can decline by 50% after logging.

Natural catastrophes Riparian populations are susceptible to flooding. A major flood in 1989 deposited sand and other debris over a large area of the Wellington River 'last bridge' campsite, a Licola population, destroying a large number of orchids.

Orchid collection Leafy Greenhoods are reported to have been taken from Wilsons Promontory (Clark, pers. comm.) and from the Tootgarook population (Adams, Clift, pers. comm.).

Recreation

- *Ad hoc* camping, 4WD, trail bikes, horse riding, and trampling threaten populations at Lake Eildon, Licola, Cape Bridgewater and Tootgarook.
- Trees have been removed around Wellington River populations, presumably for firewood. The removal of firewood may threaten the orchid near these campsites in the long term by stimulating weed invasion and through alteration of the natural habitat.

Roadside populations Road construction and maintenance threaten populations at Tootgarook, and may threaten those at Serpentine Creek and Benambra. Park management vehicles are a threat to roadside orchids along a management road at Wilsons Promontory (Jeannes, pers. comm.). The Strathbogie Ranges population occurs along a roadside and is threatened with the erosion of the road batter.

Urban Development

- Development threatens several populations of Leafy Greenhood on uncleared privately owned lots on the Mornington Peninsula. The survival of many populations on private property will depend on the cooperation of landholders. Translocation to public land where other Leafy Greenhoods occur, while not desirable, may be a last resort.
- One of the largest known coastal populations is in relatively intact habitat on the Mornington Peninsula at Tootgarook on public land. Part of this population was destroyed when a house was built on adjoining private property. The impact of the new residents on the remaining colonies immediately adjacent to the property is a potential threat that needs management, as does partial revegetation near the rear of the property (see Previous Management Action).

Wider Conservation Issues

Efforts to protect the Leafy Greenhood will help two other plant species. The regionally rare Pale Fruit Ballart *(Exocarpos strictus)* at Bridgewater Lakes could be included within a cattle exclosure constructed for the Leafy Greenhood. The other plant is the vulnerable Enigmatic Greenhood *(Pterostylis aenigma)* which could benefit from weed management around Leafy Greenhood populations. The Enigmatic Greenhood is only known from two populations near Benambra in East Gippsland (see Land Management below).

Several management issues were found in need of resolution for the management of the Leafy Greenhood and other threatened flora. Some entail the need to formulate policy and guidelines for population management, others deal with conflicts of land management. The issues are outlined below under population management and land management. One other threat, grazing by introduced molluscs, is also discussed.

Population Management

Several issues arise when considering management of individual populations. These include determining a population's significance and management priorities. One important component of this is the need for enhancing recruitment and ex-situ conservation. The methodology of population monitoring is also in need of addressing.

Determining population significance and management priorities. The complex balance needed to determine the allocation of resources for protecting Leafy Greenhood illustrates the need for guidelines to assess management options in the conservation of rare flora.

Enhanced recruitment and *ex situ* conservation. In some instances there are rare populations with very few individuals which may require assistance with recruitment. This may be achieved via sexual or vegetative means, or both.

Seedling recruitment of the Leafy Greenhood may be enhanced through artificial (hand) pollination as individuals do not naturally self-pollinate but rely on fungus gnats (Mycetophilid species (Bates 1989)). Such intervention is controversial but has been promoted particularly where habitat modification is believed to have either reduced or eliminated the orchid's pollinators. It is not recommended that this approach be undertaken in the absence of a policy or guidelines for using artificial pollinators for threatened plants.

An alternative is to remove one or several tuberoids and cultivate these for propagating other tuberoids for re-establishment or translocation. Some of these orchids may need to be maintained *ex situ* (off-site) as a safeguard against loss of genetic diversity. Policy and guidelines are needed for *ex situ* conservation, re-establishment and translocation. (Refer to Management costs under Social and Economic Issues.)

Monitoring. A method is needed for detailed monitoring of population dynamics, and quantitative methods for structural and floristic analysis to ensure a uniform approach to management of threatened flora by staff in all areas.

Land Management

In some instances the Leafy Greenhood has been affected by CNR land management for other purposes, including habitat management for introduced and invasive native plant species and management of camping and recreation.

The use of inappropriate herbicides for weed management poses a threat, as does manual removal where disturbance affects the tuberoids or facilitates further weed invasion. Weed management policy guidelines are needed for sensitive areas with threatened species such as the Leafy Greenhood.

Populations of several other threatened orchids and other plant species have been affected elsewhere by a variety of land management agencies. CNR must ensure that all information is fully taken into account when operations, both within and outside the department, are planned and undertaken. Management agreements may also be needed with other authorities.

Instances of conflicting land management are given below.

- (Benambra) In November 1991, an area with the Leafy Greenhood and the Enigmatic Greenhood at Benambra was sprayed at the time of flowering with a herbicide

(GrazonÒ) to protect the general habitat from English Broom *(Cytisus scoparius)*. The impact of this action is unknown. Further control of the English Broom is needed.

- (Wilsons Promontory) In 1992 a slashing operation by CNR for Coast Tea-tree (*Leptospermum laevigatum*) resulted in the disturbance of a known Leafy Greenhood population.
- (Lake Eildon) The management of weeds and *ad hoc* camping and recreation in parts of Lake Eildon is difficult because of the ambiguous land status and lack of clear legislative controls. The Leafy Greenhood is found in the 200 m strip of land between full supply level of Lake Eildon and the Eildon State Park. An agreement is needed between CNR and the RWC over the management of this strip of land.
- (Licola population) Campers have been allowed to collect their own firewood in the Alpine National Park along the Wellington River provided it is collected away from camping areas. This has proved impossible to enforce and trees within the camping areas have been removed-a threat to at least one population of Leafy Greenhoods. It is likely that other flora and fauna have also been adversely affected, particularly as habitat trees are being removed and conditions favouring weed invasion are enhanced. The removal of hollow bearing trees is recognised as a Potentially Threatening Process. Alternative arrangements for firewood should be investigated.

Introduced molluscs Introduced molluscs have been recorded as a threat to several populations (Cape Otway, Nelson, Tootgarook). Molluscicides may not be as effective for controlling some species, such as *Theba pisana,* as the use of fire when snails are aestivating in vegetation (Daniel pers. comm.).
The potential for seed production for those dozen or so individuals remaining at Nelson has not been realised for many years due to snails eating the flowers. The Leafy Greenhood was far more common in this area before recreationists and development destroyed habitat. Establishing colonies in other suitable habitat, if any remains, would greatly enhance the orchid's prospects of survival in this region.
Introduced molluscs may be a threat to other flora species (Parsons pers. comm.). Grazing of native flora by introduced molluscs may therefore be eligible for listing as a potentially threatening process.

Social and Economic Issues

Achievement of the major conservation objectives raises social and economic issues.
Management costs There may be some benefit in undertaking genetic comparisons of populations of this species to ensure that the most effective protection is achieved for minimum economic and social cost.
Ex situ conservation may be necessary as an interim measure in instances where management is unlikely to secure a population or where the costs are prohibitive. This approach is a safeguard in light of the absence of knowledge of the orchidÕs genetic variation.
Management of recreation activities Human activities will be modified near a population on Cape Bridgewater. Campsites along the Wellington River and Lake Eildon will also be managed to protect the orchid, and alternative facilities should be provided.

Exclusion of Animals

- Cattle are likely to damage the indigenous vegetation communities in the Alpine National Park, including habitat of the Leafy Greenhood near Licola, by selective grazing and weed introduction (James 1992). Removal of stock from populations of the Leafy Greenhood in this area is recommended.
- Horses may also need to be excluded near several populations, thus affecting recreationists (see Intended Management Action).

Management Action

Previous Management Action

Surveys, discussion with land holders, *ex situ* conservation, translocation from 'rescue digs', and halting the development of an area found to have the Leafy Greenhood have all been undertaken.
Cattle exclusion Fencing was undertaken in the early 1980s to exclude cattle from the more vulnerable and larger of the two Bridgewater Lakes populations. The fence has since fallen into a state of disrepair.
(Licola) In 1991, to conserve the 'last bridge' campsite population along the Wellington River which at the time was known as the largest inland population, bollards and signs were used to limit access to the vegetation around the orchid and tracks were closed to restrict campers and their vehicles. Monitoring in the following two years indicated successful management.
***Ex situ* conservation** (Tootgarook) Leafy Greenhood plants were removed from the Tootgarook population prior to clearing for a house site. These orchids are maintained *ex situ.*
Surveys (Howqua River) Project Mansfield undertook a survey in the area in 1993 although no Leafy Greenhoods were found. The group has offered to undertake further surveys.
(Lake Eildon) The Upper Goulburn Field Naturalists assisted CNR with a survey in 1993. A site reported to CNR was visited and a habitat description made.
(Licola) Decades of unregulated camping along the Wellington River in the Alpine National Park has lead to significant environmental damage. Plans to develop the 'last bridge' campsite along the Wellington River were halted following drafting of this action statement. A two-week survey for Leafy Greenhoods was undertaken during November 1992 to ascertain the status and distribution of the orchid along the Wellington River and its environs for future management decisions. Local field naturalists and other members of the community assisted with the survey. Thirty-three new locations for the orchid were discovered and a total of over 15 000 flowering plants counted for the area. Future surveys are

likely to uncover other populations as time and resource constraints limited the areas surveyed.
(Strathbogie Ranges) The Upper Goulburn Field Naturalists, who originally found the population in 1982, assisted CNR in 1993 with its relocation and the recording of details. The population is large and has over 1,000 individuals. It is threatened with erosion of a roadside and the Ancona LandCare Group have offered to help with the stabilisation of the road batter.
(Tootgarook) CNR surveyed the coastal population at Tootgarook in 1992 and 1993. A general flora description of the site was recorded and ten 1 m2 subplots established for permanent population monitoring.
Translocation (Rye) In the late 1980s some 40 orchids were moved from private property at Rye, with the owners approval, to two suitable sites on public land at Cape Schanck. Monitoring of these two populations over several years indicates survival but no additional recruitment.
Visitor management (Spring Creek-Buchan) A walking track was realigned in 1991 to direct walkers away from the Leafy Greenhood area.
Weed control (Licola) In 1991, RoundupÒ was sprayed at the Wellington River 'last bridge' campsite to control blackberries (*Rubus* sp.) and wild roses (*Rosa* sp.). As a precaution Roundup¨ was only sprayed over half the population in summer when the orchids had died back. The results could be a useful indicator of the effectiveness of this approach despite it not being a controlled experiment. Subjective monitoring has indicated no deleterious effects on the orchid.
(Bridgewater Lakes) Local field naturalists have assisted CNR with weed management.

Intended Management Action

Determine critical habitat for the Leafy Greenhood, once further details information is available.

Public Authority Management Agreement

- CNR will reach an agreement with the Rural Water Corporation for the management of the strip of land between the existing Eildon State Park and the full supply level of Lake Eildon.
- CNR will reach an agreement with VicRoads to ensure that proposed road construction does not interfere with the Tootgarook population.

Monitoring

- Monitor all populations annually during flowering period. Adopt methods for monitoring and assessment advised by Flora and Fauna Branch of CNR.
- Assess threats and evaluate success of any previous management.
- Register all monitoring data on relevant department data base.

Search

- Search appropriate habitat near historic locations of the orchid where there is uncertainty about the orchid's existence. Search in areas where other populations are likely to occur but are not yet recorded. To ensure populations are easily locatable for future monitoring, record locations with Global Positioning System device (GPS).
- In areas likely to undergo extensive modification or management, consult with Flora and Fauna Branch for assistance with surveys and/or encourage community participation. This affects populations at Lake Eildon and Howqua River; Licola; Moonlight Head, Wonthaggi, Cape Schanck, private property on the Mornington Peninsula, Orbost Serpentine Creek, Bay of Islands Coastal Reserve and Wilsons Promontory.

Management

- Evaluate the situation annually and where necessary protect populations with barriers/fences or exclude animals or people totally from the area. On public land that contains the orchid, incorporate orchid protection details d into management plans.
- Fence site to prevent cattle entry at Bridgewater Lakes.
- Evaluate the need for planning in areas with ad hoc camping and recreational use at Lake Eildon near the Leafy Greenhood population.
- Investigate options for camping areas, horse riding and car-park development along the Wellington River with an emphasis on preservation of existing populations and any other good quality sites considered potential habitat.
- Prevent cattle disturbing habitat at Licola. Investigate and implement actions to improve and monitor conservation of hollow-bearing trees in and near camping areas.
- Redirect sightseers to an alternative vantage point at Cape Bridgewater.
- Evaluate likely impact of changes in hydrology of Serpentine Creek from upstream logging. Incorporate prescriptions for protecting the population into the East Gippsland Forest Management Plan.
- Erect barrier to protect orchids from inadvertent damage from residents at Tootgarook. Discuss issue with VicRoads and private landholders before erecting a fence.
- Other populations in need of immediate evaluation are at Howqua River, Cape Otway, Rye, Cape Schanck, Cape Bridgewater, Nelson and Wilsons Promontory.

Weed Control

- Assess weed problem annually and determine management action, especially at Bridgewater Lakes, Cape Otway, Lake Eildon, Licola, Serpentine Creek, Spring Creek, Tootgarook and Wilsons Promontory.

Pest Animals

- Undertake measures to reduce the threat posed by rabbits at Wilsons Promontory and Cape Otway and snails at Cape Otway and Nelson.

Small or Threatened Populations

- Secure genetic variation of threatened or small populations (i.e. less than 100 individuals) at Cape Otway, Moormurng, Nelson and Rye. The options may include:

  - enhancing seedling recruitment through artificial pollination.
  - restocking populations with tuberoids propagated *ex situ*
  - re-establishing orchids in other suitable habitat by either direct translocation of tuberoids (with precautions against disease transfer) or by using tuberoids propagated *ex situ*.
- Continue monitoring the translocated populations at Cape Schanck.

Liaison

- Provide information to private landholders at Cape Otway, Tootgarook, Rye, Cape Schanck and Bridgewater Lakes on how to manage the Leafy Greenhood. Encourage or provide incentives to landholders to conserve the Leafy Greenhood. Encourage them to consider planning agreements, conservation covenant and/or to consider registering their properties with the 'Land for Wildlife' scheme.

Community Involvement

- Encourage local conservation groups to participate in the conservation of the species by assisting with surveys or other activities such as weeding. This species is a high priority for Botanic Guardian funding to community groups.

Other Desirable Management Actions

- Encourage research by tertiary institutions into the biology of the Leafy Greenhood, looking at the demography, genetic variation, and recruitment.
- Evaluate the impact of introduced molluscs on other threatened species for nomination as a potentially threatening process.

Legislative Powers Operating

Legislation

Flora and Fauna Guarantee Act 1988: provides for protected flora controls and determination of critical habitat if so designated. Provides for Public Authority Management Agreements.
National Parks Act 1975: provides for protection of all flora within areas listed under the Act.
Planning and Environment Act 1987: provides for agreements on land use controls as covenants on title between landholder and responsible authority with input from referral authority (e.g. CNR)
Victorian Conservation Trust Act 1972: provides for the establishment of conservation covenants on land titles.

Licence/Permit Conditions

Permits for collection of seed and tuberoids will only be given in accordance with the conservation objectives and management actions prescribed in this action statement.

Consultation and Community Participation

Local field naturalists and other members of the community have assisted by providing information on the location of populations and through participation in surveys. Others have helped with management operations (refer to Previous Management Actions).

Implementation, Evaluation and Review

Area Managers where the Leafy Greenhood is found are responsible for the implementation of the action statement proposals. Flora and Fauna Branch will evaluate and review the progress of regions.

Contacts

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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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