National Recovery Plan for the Maroon Leek-orchid *Prasophyllum frenchii*

Mike Duncan

Australian Government

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Prepared by Michael Duncan, Arthur Rylah Institute for Environmental Research, Department of Sustainability and Environment, Heidelberg, Victoria

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This Recovery Plan has been developed with the involvement and cooperation of a range of stakeholders, but individual stakeholders have not necessarily committed to undertaking specific actions. The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved. Proposed actions may be subject to modification over the life of the plan due to changes in knowledge.

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TABLE 1. POPULATION INFORMATION FOR *PRASOPHYLLUM FRENCHII* 4

Summary

The Maroon Leek-orchid is a tall, slender, deciduous terrestrial orchid endemic to south-eastern Australia, where it occurs across southern Victoria and in south-eastern South Australia. Formerly more widely distributed in south-eastern Australia, the species has suffered a major decline in both range and abundance. Only about seven populations containing about 1,000 plants remain, and these are under threat from disturbance to and destruction of habitat, weed invasion and predation. The Maroon Leek-orchid is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999, as Threatened under the Victorian *Flora and Fauna Guarantee Act* 1988, and Endangered under the South Australian *National Parks and Wildlife Act* 1972. This national Recovery Plan for the Maroon Leek-orchid details its distribution, habitat, threats and recovery objectives and actions necessary to ensure its long-term survival.

Species Information

Description

The Maroon Leek-orchid is a tall, slender, deciduous, terrestrial orchid emerging annually from an underground tuber. It has a single, terete, erect, slender leaf to 60 cm long that is green with a purplish base. A slender to stout greenish stem to 70 cm tall bears 20–60 small (to 8 mm across), fragrant, greenish and reddish flowers. The dorsal sepal is ovate with a pointed apex, and incurved to obliquely deflexed, while the lateral sepals are broadly lanceolate, erect, free, parallel and the tips are divergent and the margins in-rolled. The labellum is broadly ovate with undulate margins, the base is pouched, and it is sharply recurved at right angles just beyond the middle. The callus is short, horse-shoe shaped, raised, fleshy, warty, somewhat irregular, and extends just beyond the bend in the labellum (description from Bates 1994; Backhouse & Jeanes 1995; Bishop 1996; Jones 2006). The Maroon Leek-orchid is illustrated in Backhouse and Jeanes (1995, p. 240), Bishop (1996, plate 95) and Jeanes and Backhouse (2006, p. 260).

Prasophyllum frenchii was described by von Mueller in 1889, based on plants collected east of Melbourne (between the Yarra River and the Dandenong Ranges). However, the identity of *P. frenchii* was only relatively recently determined in relation to the closely related *P. hartii*, under which name many Victorian *P. frenchii* populations were commonly referred to for many years (Backhouse & Jeanes 1995).

Very little is known of the biology and ecology of the Maroon Leek-orchid. The single leaf emerges in late autumn, following the onset of seasonal rains. Flowering commences in late October and is usually completed by late November in populations around Melbourne and Gippsland. In populations in southwest Victoria and South Australia, flowering commences in late November and is completed by late December. About four weeks after flowering finishes, the leaf has shrivelled, and if pollination has occurred, the seed capsule is ripening. The species survives the dry summer and early autumn as a dormant tuber that is replaced annually.

The pollinator of *P. frenchii* flowers is unknown, but many *Prasophyllum* species are visited by a range of insects such as bees, wasps, beetles and ants, attracted to the flowers by strong perfumes and/or rewards of nectar (Backhouse & Jeanes 1995), so the species may not have a specific insect pollinator. A few *Prasophyllum* species appear to be primarily self-pollinating (Backhouse & Jeanes 1995). The Maroon Leek-orchid usually flowers well in the absence of fire, but at some grassland sites, occasional hot summer fires promote flowering of dormant plants. These fires are probably necessary to prevent thick swards of grass (e.g. Kangaroo Grass) from developing, which can inhibit orchid flowering.

Distribution

The Maroon Leek-orchid is endemic to south-eastern Australia, where it occurs from south-eastern South Australia to eastern Victoria, in the Naracoorte Coastal Plain, South East Coastal Plain, and South East Corner bioregions (*sensu* DEH 2000) (Figure 1). Maps showing the distribution of *P. frenchii* are available from the Department of Sustainability and Environment (for Victoria), and the Department for Environment and Heritage (for South Australia).

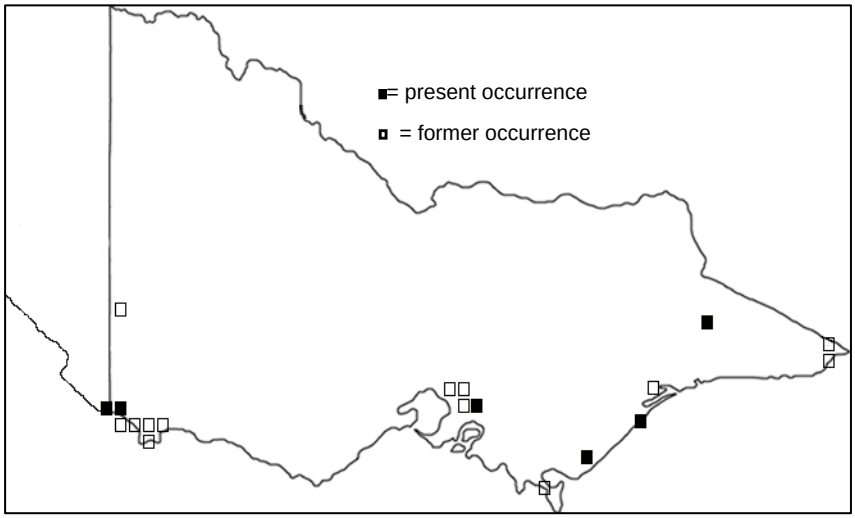

Figure 1. Current and former distribution of *Prasophyllum frenchii*

Population Information

The Maroon Leek-orchid is currently known only from seven populations containing about 1,000 plants (Table 1), with one population occurring in South Australia and the remainder in Victoria. The largest population, containing about 420 plants, occurs in South Australia, in the Piccaninnie Ponds Conservation Park (managed by the Department for Environment and Heritage) and on adjoining private land. The next largest population occurs at Yarram (Parkside airfield), where about 250 plants occur. These two populations contain more than two-thirds of all known *P. frenchii* plants, and their protection and management is critical to the survival of the species. All populations are considered important to the survival of the species.

Table 1. Population information for *Prasophyllum frenchii*

Location	Pop. size	Extent	Land Mgr	Comments
South Australia				
Piccaninnie Ponds Conservation Park and adjoining private land	~420 plants (2006)	<10 ha	DEH & private landowners	Plants occur in about 4 separate groups; ~120 plants in park, ~300 plants on adjoining private property.
Victoria				
Yarram (Parkside)	~250 plants (2006)	<10 ha	Shire of Yarram	Largest population in Victoria ; some plants destroyed by site development
Greenhills Nature Conservation Reserve	~150 plants (2006)	<15 ha	Parks Victoria	Most easterly & inland occurrence of species.
Clyde	~100 plants (2000)	<5 ha	V-Line	Plants occur on rail reserve.
Gippsland Lakes Coastal Park	~50 plants (2006)	<1 ha	Parks Victoria	A few plants occur on adjoining roadside reserve.
Discovery Bay Coastal Park	~20 plants (2004)	<2 ha	Parks Victoria	
Pakenham	~10 plants (2004)	<1 ha	V-Line	Plants occur on rail reserve.
Wilsons Promontory National Park	?	?	Parks Victoria	Last seen in late 1980s; extinct?
Mount Clay State Forest	?	?	DSE	Last seen in late 1980s; extinct?

Habitat

The Maroon Leek-orchid occurs in grassland and grassy woodland habitats, on sandy to black clay loams that are generally damp but well drained, although some sites are seasonally waterlogged. Sites include the seasonally damp transition zone on the margins of shallow freshwater marshlands. Little is known of specific habitat requirements, and some sites have been disturbed by periodic fire or

stock grazing. A proposed action in this Recovery Plan is to more precisely determine habitat that is critical to survival of the Maroon Leek-orchid.

Decline and Threats

The Maroon Leek-orchid was formerly more widespread in south-eastern Australia, but has suffered a substantial decline in range and abundance. The species has disappeared from many locations including Kentbruck, Gorae West, Poolagielo and Surrey River in southwest Victoria, Beaconsfield, Boronia, Brighton, Dandenong Creek, North Croydon and Officer in eastern Melbourne, Bairnsdale, Woodside and Mallacoota in Gippsland. The species has not been seen at the Wilsons Promontory or Mt. Clay sites for about 20 years, and is probably extinct at these sites.

The main reason for the decline of the Maroon Leek-orchid is loss and degradation of its grassland and grassy woodland habitat across its range, principally for agriculture. Remaining populations are mostly small and occur in highly fragmented and often degraded habitat. Populations along roads or rail lines are at risk from maintenance or development works. Some sites have been subjected to frequent fires while others have been grazed at low intensity/frequency; the impact of this disturbance is not known.

Given the extensive habitat destruction and disturbance that has occurred across the range of *P. frenchii*, and that remaining populations are small and isolated, it is likely that the conditions for maintenance of the pollinator and fungal activity have been adversely affected at most sites. The small size and highly fragmented distribution of remaining populations renders them at a very high risk of extinction due to stochastic events. Individual threatening processes vary in size, severity and relative importance at the known sites. Particular threats include:

Grazing/predation

Grazing by native herbivores such as kangaroos and/or introduced herbivores such as rabbits, hares feral goats and domestic stock is an existing or potential threat at most sites. Grazing by sheep is a serious threat at the private property sites at Piccaninnie Ponds, while grazing by kangaroos, wallabies and deer are a serious problem at the Wilsons Promontory site. Grazing by invertebrates (caterpillars) is a serious problem at the Discovery Bay and Piccaninnie Ponds sites, while flowers and seed capsules are frequently removed at many sites, possibly by invertebrate grazers such as caterpillars or grasshoppers.

The Greenhills NCR is subject to an annual grazing lease, with up to 50 cattle periodically grazing the site over summer. This action has possibly favored *P. frenchii* by reducing the biomass on the site, however, the impact of the cattle on the *P. frenchii* population (and other threatened flora species) needs to be assessed.

Weed invasion

A variety of weed species, particularly perennial grasses, causes a serious problem at most sites and will require active and ongoing management for control. In addition, *Acacia longifolia* subsp. *sophorae* is considered a serious threat at Piccaninnie Ponds CP (C. Houston. NOSSA, pers. comm.), *Watsonia meriana* and *Rubus fruticosus* are a problem at Clyde and *Gladiolus* sp. is a problem at Pakenham.

Disturbance/destruction

Disturbance to and destruction of plants and habitats is a major ongoing threat. Part of the Pakenham site was destroyed by works and machinery activity related to the Fast Rail Project, while plants and habitat were destroyed during development of the Parkside airfield. Soil disturbance caused by vehicle and machinery movement is a threat at some sites where plants grow close to roads and tracks, such as at Piccaninnie Ponds and Gippsland Lakes, where there is also the potential for accidental trampling by people. Soil disturbance and trampling by stock are a threat at the private land sites. There is the potential for herbicide spraying along roadsides and railway lines to adversely affect plants at some sites.

Altered fire regimes

Periodic fire (outside the growing/flowering/seed production time) is probably beneficial to some *P. frenchii* populations by reducing the amount of competing vegetation biomass, and promoting growth and flowering. There is anecdotal evidence that this species responds positively to frequent (3–4 year cycle) biomass reduction. In the absence of fire (or mowing), thick grass swards can develop which inhibit growth and flowering. The absence of biomass reduction is potentially a serious problem at many sites including Discovery Bay CP, Gippsland Lakes CP, Greenhills NCR, Mt. Clay SF, Yarram (Parkside), Clyde and Pakenham sites.

Changes to hydrological regimes

Some populations of *P. frenchii* appear to occupy the narrow margins of marshy sites, but are absent

from adjacent higher drier ground, and seasonal inundation of these shallow wetlands is probably important for maintenance of populations. Alteration of wetting/drying cycles, such as through draining of shallow freshwater marshes or extended flooding such as through dam construction could adversely affect populations.

Climate change

Climate change poses a substantial long-term threat to *P. frenchii*. The species lives in seasonally damp to wet microhabitats, which are likely to increasingly dry out with the predicted increase in temperatures, decrease in rainfall and increase in evaporation rates for south-eastern Australia. All sites, but particularly the Piccaninnie Ponds, Discovery Bay and Wilsons Promontory sites are at risk of drying out and permanently changing due to the ongoing dry weather in southern Australia and/or altered groundwater levels.

Recovery Information

Existing Conservation Measures

A number of initiatives are already in place to conserve the Maroon Leek-orchid, including:

- Surveys of remnant native grassland habitat to search for the species.
- Establishment of monitoring transects at the Clyde and Greenhills sites, and annual monitoring.
- Annual population counts at the Pakenham, Piccaninnie Ponds, Discovery Bay, Gippsland Lakes, and Yarram (Parkside) sites.
- Collection of seed capsules from the Clyde site and storage at the Royal Botanic Gardens, Melbourne.
- Ecological burning and seasonal grazing at the Clyde site, and burning and mowing at the Gippsland Lakes site to reduce the biomass of native grasses and weeds.
- Liaison with the local landholders at the Piccaninnie Ponds site to cooperatively manage the sites on private land, and with the adjoining landowners at the Clyde site, who are involved in monitoring and weed management activities.
- Liaison between DSE, V-Line and VicRoads (and their contractors) to help ensure the protection of the Clyde and Pakenham sites.
- Negotiations are continuing with the Parkside Airfield Committee to protect the Yarram (Parkside) site.
- Involvement of community groups including the Bairnsdale Field Naturalists Club, Native Orchid Growers Network and Native Orchid Society of South Australia for the conservation of this and other threatened orchids.

Recovery Objectives

The Overall Objective of recovery is to minimise the probability of extinction of the Maroon Leek-orchid in the wild and to increase the probability of populations becoming self-sustaining in the long term. Within the duration of this Recovery Plan (five years), the Specific Objectives for the recovery of the Maroon Leek-orchid are to:

1. Determine distribution, abundance and population structure
2. Determine habitat requirements
3. Ensure that all populations and their habitat are protected and managed
4. Manage threats to populations
5. Identify key biological functions
6. Determine growth rates and viability of populations
7. Establish a population in cultivation
8. Build community support for conservation

Implementation and Evaluation

This Recovery Plan guides recovery actions for the Maroon Leek-orchid and will be implemented and managed by the Department of Sustainability and Environment (for Victoria) and the Department for Environment and Heritage (for South Australia), supported by other agencies, educational institutions, regional natural resource management authorities and community groups as appropriate. Technical, scientific, habitat management or education components of the Recovery Plan will be referred to specialist groups on research, *in situ* management, community education and cultivation as required. Contact will be maintained between the State agencies on recovery issues concerning the Maroon

Leek-orchid. The Recovery Plan will run for a maximum of five years from the date of its adoption under the EPBC Act, and will be reviewed and revised within five years of the date of its adoption.

Recovery Actions and Performance Criteria

Action	Description	Performance Criteria
Specific Objective 1: Determine distribution, abundance and population structure		
1.1	Undertake surveys to determine the area and extent of populations, the number, size and structure of populations, and inference or estimation of population change. **Responsibility: DSE, PV, DEH**	• All current population sites searched during flowering season. • All sites mapped for population size, condition and habitat.
Specific Objective 2: Determine habitat requirements		
2.1	Survey known habitat and collect floristic and environmental information relevant to community ecology and condition. **Responsibility: DSE, PV, DEH**	• Species/habitat specific survey design prepared. • Habitat critical to survival mapped for any extant populations.
2.2	Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat preference. In particular, searching suitable habitat at Greenhills, Piccaninnie Ponds and Discovery Bay will have a high probability of discovering new populations. **Responsibility: DSE, DEH**	• Potential habitat surveyed at five sites. • Predictive model for potential habitat developed & tested at five sites.
Specific Objective 3: Ensure that all populations and their habitat are protected and managed		
3.1	Protect unreserved populations on public land. **Responsibility: DSE**	• Public Authority Management Agreements (or equivalent) under the *FFG Act 1988* initiated at the Clyde and Pakenham sites. • Actions to protect species incorporated in relevant management plans.
3.2	Protect populations on private land. **Responsibility: DSE, DEH**	• Voluntary agreements in place to protect plants on private land at Piccaninnie Ponds. • Public Authority Management Agreements (or equivalent) under the *FFG Act 1988* initiated at the Yarram (Parkside) site.
Specific Objective 4: Manage threats to populations		
4.1	Control threats from pest plants. Particular problems include *Acacia longifolia* ssp. *sophorae* at Piccaninnie ponds, *Watsonia meriana* and *Rubus fruticosus* at Clyde, *R. fruticosus* at Greenhills, and *Gladiolus* sp. at Pakenham, and perennial grasses at all sites. **Responsibility: DSE, PV, DEH**	• Reduction in cover of weeds at and near all sites.
4.2	Control grazing threats from domestic stock and pest animals. In particular, negotiate removal of sheep from Private Property (Piccaninnie Ponds) site during flowering period. **Responsibility: DSE, PV, DEH**	• Introduction of an appropriate grazing regime to reduce damage by grazing at and near all sites. • Impacts of grazing at Greenhills NCR reviewed.
4.3	Control the threat of direct damage by human activities. **Responsibility: DSE, PV, DEH**	• Impact of vehicle movement, visitor activity and other disturbance monitored. • Protection/restoration works implemented to prevent and repair damage, especially at the Pakenham site.
4.4	Manage microhabitat for seedling recruitment, collect seed and restock populations with seed. **Responsibility: DSE, PV, DEH**	• Measurable increase in recruitment at three treated sites.
Specific Objective 5: Identify key biological functions		
5.1	Evaluate current reproductive status, seed bank status, longevity, fecundity and recruitment levels. **Responsibility: DSE, DEH**	• Reproductive ecology and regenerative potential quantified for four representative sites. • Seed bank potential quantified for five

		representative sites.
5.2	Identify key stimuli for seed germination requirements. **Responsibility: DSE, DEH**	• Stimuli for recruitment identified.
5.3	Identify optimal fire/disturbance regimes to maintain habitat. **Responsibility: DSE, DEH**	• Preparation and implementation of management prescriptions for ecological burning (or management grazing or mowing) at five sites to reduce plant biomass accumulation.
Specific Objective 6: Determine the growth rates and viability of populations		
6.1	Measure population trends and responses against recovery actions by collecting demographic information including recruitment and mortality, timing of life history stages and morphological data. **Responsibility: DSE, PV, DEH**	• Techniques for monitoring developed and implemented. • Population growth rates determined and Population Viability Analysis completed for all populations.
Specific Objective 7: Establish a population in cultivation		
7.1	Develop techniques for *ex situ* cultivation and maintenance of *Prasophyllum* species and establish plants in cultivation to provide a research population and to guard against loss of plants from the wild. **Responsibility: RBG, NOGN, DSE**	• Development of effective propagation and cultivation techniques. • Mycorrhizal fungus isolated and in culture. • At least 50 healthy, genetically diverse, mature plants in cultivation.
7.2	Establish a seed bank and determine seed viability. **Responsibility: RBG**	• Seed from all extant populations in storage.
Specific Objective 8: Build community support for conservation		
8.1	Identify opportunities for community involvement in the conservation of the Maroon Leek-orchid. **Responsibility: DSE, PV, DEH**	Community nature conservation and Landcare groups aware of the species and support its conservation.

Abbreviations: DEH – Department for Environment and Heritage (SA); DSE – Department of Sustainability and Environment (Victoria); NOGN – Native Orchid Growers Network; PV – Parks Victoria; RBG – Royal Botanic Gardens, Melbourne

Management Practices

The philosophy of the strategy for recovery is habitat conservation, restoration and management combined with an understanding of the ecological and biological requirements of *P. frenchii* necessary for specific population management. The emphasis is on using knowledge to better implement *in situ* management techniques that protect populations and promote regeneration and recruitment. To achieve this, recovery actions are structured to acquire baseline data, assess habitat condition, including ecological and biological function, and maintain or improve population growth through protection and management. On-ground site management will aim to mitigate threatening processes and thereby insure against extinction. Major threats requiring management include accidental destruction, competition from pest plants, inappropriate fire regimes / biomass accumulation, and grazing by pest animals. A range of strategies will be necessary to mitigate these threats including weed control, caging / fencing, control of pest animals, and biomass management.

Broadscale protection measures applicable to all populations include legal protection of sites, habitat retention and liaison with land managers and private landholders. In addition, searches of known and potential habitat should continue to better define the distributions and size of populations. The recovery plan also advocates strategies to fill some of the major gaps in our knowledge to date. These include an understanding of seed bank dynamics and recruitment. Successful *in situ* population management will be founded on understanding the obligate relationships between *P. frenchii* and associated flora, as well as its response to environmental processes. These are directly linked to seed production, recruitment and regeneration and are thus vital to recovery. Demographic censusing will be necessary to gather life history information and to monitor the success of particular management actions. In addition to the above, *ex situ* conservation measures will be required and will include seed storage and plant cultivation. Cultivating *ex situ* populations will also serve to increase the amount of seed available for reintroduction to sites. Community participation in recovery actions will be sought, particularly in regard to recovery team membership and implementation of on-ground works.

Affected Interests

The seven populations of *P. frenchii* occur on a variety of public and private land tenures. Consequently, their management is variously the responsibility of the Department of Sustainability and Environment (Vic),Parks Victoria, Department for Environment and Heritage (SA), the Shire of Yarram (owners of Parkside Airfield), V-Line (country rail lines in Victoria) and private landowners in South Australia. The recovery plan has the support of government agencies, statutory authorities and community groups involved in orchid conservation in Victoria and South Australia, who will assist in the management and monitoring of this species.

Role and Interests of Indigenous People

Indigenous communities on whose traditional lands the Maroon Leek-orchid occurs are being advised, through the relevant regional Indigenous facilitator, of the preparation of this Recovery Plan and will be invited to provide comments and be involved in the implementation of the plan.

Biodiversity Benefits

The recovery plan includes a number of potential biodiversity benefits for other species and vegetation communities in Victoria and South Australia. Principally, this will be through the protection and management of habitat. The adoption of broad-scale management techniques and collection of baseline data could also benefit a number of other plant species growing in association with *P. frenchii*, particularly those species with similar life forms and/or flowering responses. The Maroon Leek-orchid grows with *Pterostylis tenuissima* and *Corybas* sp. aff. *diemenicus* (Coastal) at the Piccaninnie Ponds and Discovery Bay sites, with *Thesium australe* at the Greenhills site, and with *Thelymitra epipactoides* at the Gippsland Lakes CP site, all of which are nationally threatened and the subject of current recovery plans (Coates *et al.* 2002; Duncan *et al.* 2003; Murphy *et al*. 2009). The conservation of *P. frenchii* will also benefit these species. The development of *in situ* and *ex situ* conservation techniques for *P. frenchii*, especially germination and cultivation techniques, will be of use for other threatened orchids elsewhere in south-eastern Australia, particularly the many threatened *Prasophyllum* species currently listed under the EPBC Act.

Social and Economic Impacts

The implementation of this recovery plan is unlikely to cause significant adverse social and economic impacts. Most populations occur on public land, either crown land reserved for various public purposes, or on road reserves, managed by a variety of local and State government agencies. Any protection measures required at these sites (e.g. fencing, signage, track closures) will have minimal impact on current recreational and commercial activities. Protection of these populations has been negotiated with the relevant land manager. Protection of the few populations on private land or on land managed by other authorities will be achieved through voluntary agreements with landowners and managers.

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Priority, Feasibility and Estimated Costs of Recovery Actions

Action	*Description*	*Priority*	*Feasibility*	*Responsibility*	*Cost estimate*					
					Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	**Distribution, abundance**									
1.1	Surveys	1	100%	DSE, PV, DEH	$10,000	$10,000	$10,000	$10,000	$10,000	$50,000
2	**Habitat requirements**									
2.1	Known habitat	1	100%	DSE, PV, DEH	$15,000	$15,000	$0	$0	$0	$30,000
2.2	Potential habitat	2	90%	DSE, PV, DEH	$0	$0	$15,000	$15,000	$0	$30,000
3	**Habitat protection**									
3.1	Public land	1	100%	DSE, PV, DEH	$5,000	$5,000	$0	$0	$0	$10,000
3.2	Private land	1	75%	DSE, PV, DEH	$5,000	$5,000	$0	$0	$0	$10,000
4	**Threat management**									
4.1	Pest plants	1	75%	DSE, PV, DEH	$15,000	$15,000	$10,000	$10,000	$10,000	$60,000
4.2	Pest animals	1	75%	DSE, PV, DEH	$10,000	$10,000	$8,000	$5,000	$5,000	$38,000
4.3	Human damage	1	75%	DSE, PV, DEH	$15,000	$10,000	$10,000	$5,000	$5,000	$45,000
4.4	Seedling recruitment	2	50%	DSE, PV, DEH	$5,000	$5,000	$5,000	$5,000	$5,000	$25,000
5	**Biological functions**									
5.1	Reproductive status	2	100%	DSE, PV, DEH	$5,000	$5,000	$5,000	$5,000	$5,000	$25,000
5.2	Seed germination	2	75%	DSE, PV, DEH	$5,000	$5,000	$5,000	$5,000	$5,000	$25,000
5.3	Disturbance regimes	1	50%	DSE, PV, DEH	$5,000	$15,000	$15,000	$10,000	$10,000	$55,000
6	**Population viability**									
6.1	Censusing	1	90%	DSE, PV, DEH	$10,000	$10,000	$10,000	$10,000	$10,000	$50,000
7	**Cultivation**									
7.1	Cultivated plants	2	50%	DSE, PV, DEH	$10,000	$10,000	$5,000	$5,000	$5,000	$35,000
7.2	Seed bank	2	90%	DSE, PV, DEH	$5,000	$5,000	$5,000	$2,000	$2,000	$19,000
8	**Community support**									
8.1	Community extension	3	75%	DSE, PV, DEH	$5,000	$5,000	$5,000	$5,000	$5,000	$25,000
				TOTALS	$125,000	$130,000	$108,000	$92,000	$77,000	$532,000