Department of Sustainability and Environment

# Action Statement

Flora and Fauna Guarantee Act 1988 No. 139

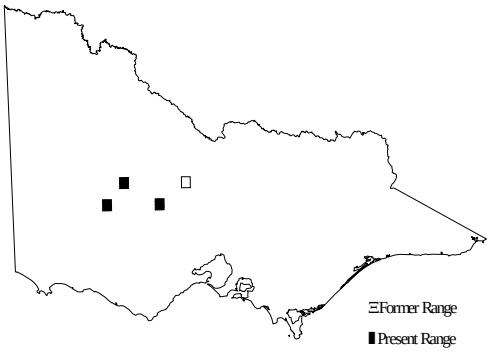
# Brilliant Sun-orchid

*Thelymitra mackibbini*

## Description and distribution

The Brilliant Sun-orchid *Thelymitra mackibbinii* is endemic to Victoria and occurs in the Goldfields Bioregion (Stawell, St Arnaud and Maryborough areas). It was formerly known from near Bendigo and also recorded from near Port Elliot, South Australia although the latter is highly likely to have been mis-identified. Fewer than 30 plants known in the wild, in three populations. The Brilliant Sun-orchid is likely to have been naturally rare but more common prior to landscape scale disturbance from gold exploration and mining. It is reserved at Mt Bolangum Flora and Fauna Reserve, Deep Lead Nature Conservation Reserve and Paddys Ranges State Park. These sites are managed by Parks Victoria (Victoria West Region).

**Brilliant Sun-orchid *Thelymitra mackibbinii***




Distribution in Victoria
(from *Flora Information System*, NRE 2002)

## Habitat

The Brilliant Sun-orchid occurs in open forest dominated by *Eucalyptus leucoxylon* sens. lat. and sometimes with *Allocasuarina verticillata*, with a heathy understorey typically consisting of *Acacia paradoxa*, *Acacia montana* and *Pultenaea largiflorens* on well-drained, light brown silt with quartz and lateritic lag deposits. Critical habitat has not been determined but likely to require an undisturbed ground layer well covered by leaf litter.

## Conservation status

### National conservation status

The Brilliant Sun-orchid has been listed as vulnerable under the Commonwealth **Environment Protection and Biodiversity Conservation Act 1999** .

An assessment under the IUCN Red List criteria (2000) undertaken by Coates *et al* (2002) determined the Brilliant Sun-orchid to be Critically Endangered.

#### Victorian conservation status

The Brilliant Sun-orchid is listed as threatened under the **Flora and Fauna Guarantee Act 1988**.

The Brilliant Sun-orchid is considered 'endangered' in Victoria (DSE 2003).

## Decline and threats

#### Current threats and estimated risk

Weed invasion

Low – weeds are scarce at sites.

Grazing

Low – Mt Bolangum FFR at present; Moderate – macropods and rabbits at Paddys Ra. SP.

Inappropriate fire regimes

Low –sites are long unburnt and fire risk is low, but may require fire.

Site disturbance

Moderate – sites are subject to disturbance by recreational vehicles.

Reservation status

Adequately reserved with implementation of ECC recommendations.

#### Potential threats and estimated risk

Illegal collection

Moderate – no evidence of collection in the past but may be sought by collectors.

Ecology/biology

High - conditions for maintenance of pollinator and fungal activity unknown; increased extinction risk due to small population sizes; response to fire unknown.

#### Other issues

- This taxon variously appears in the literature as a species or a hybrid. To date, no sound evidence has been presented to support its putative hybrid status, so it is prudent to treat it as a species until such evidence is forthcoming.
- Brilliant Sun-orchid populations are vulnerable to damage from trampling and site confidentiality is vital. Involvement from non government organisations and individuals will be limited to a small number of individuals with a proven track record in its conservation (ANOS conservation group, Stawell Field Naturalists Club).
- One population at Mt Bolangum FFR is close to tracks and extremely vulnerable to damage from recreational vehicles.
- The Paddys Ranges SP population has not been seen in recent years and kangaroo numbers require assessment particularly in relation to loss of ground flora and soil disturbance. Searches may prove more fruitful after protective measures have been implemented.

## Existing conservation measures

- Monitoring at one site by Stawell Field Naturalists.
- Searches conducted by ANOS members in 2001.
- All sites were visited during recovery plan preparation.

## Conservation objectives

#### Long term objective

That the Brilliant Sun-orchid can survive, flourish and retain its potential for evolutionary development in the wild.

#### Objectives of this Action Statement

1. Improve knowledge of population sizes, trends and habitat requirements.
2. Protect sites and manage habitat.
3. Maintain and/or increase existing population sizes.

#### Overall approach

Known populations will be monitored and searches will be conducted at similar sites in the region. Risk management in the short term will include protection of populations from grazing and vehicle damage, and maintenance of site confidentiality. Populations will be managed to promote seedling recruitment, using fine-scale habitat management techniques and re-stocked using seed from cultivated plants. Recovery will be jointly managed by NRE and PV. Involvement from ANOS conservation group and Stawell Field Naturalists will continue.

## Intended management actions

*The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation database. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.*

1. Determine current conservation status by acquiring baseline population data.

*Responsibility: DSE (Biodiversity & Natural Resources Division, SW and NW Regions), Parks Victoria*

2. Measure population trends and responses against recovery actions. Conduct annual censusing of populations, collate, analyse and

report on census data and re-prioritise and adjust recovery actions and/or threat management

*Responsibility: DSE (Biodiversity & Natural ResourcesDivision, SW and NW Regions), Parks Victoria*

3. Determine habitat requirements of key populations. Identify key populations, conduct surveys, identify ecological correlates of populations and prepare habitat descriptions.

*Responsibility: DSE (Biodiversity & Natural Resources Division, SW and NW Regions), Parks Victoria*

4. Provide information and advice, including maps, regarding the location and management of Brilliant Sun-orchid sites to landholders, land managers and other authorities, especially Catchment Management Authorities and local government authorities.

*Responsibility: Parks Victoria, DSE (Biodiversity & Natural Resources Division, SW and NW Regions)*

5. Incorporate actions to protect, enhance and restore Brilliant Sun-orchid habitat into relevant Regional Catchment Strategies or their subordinate strategies via Biodiversity Action Plans. Implement these actions, according to priority, as resources become available, in conjunction with other agencies, community groups and landholders.

*Responsibility: Wimmera and North Central Catchment Management Authorities*

6. Incorporate information regarding the location and management of Brilliant Sun-orchid sites into local planning schemes, including environmental significance overlays, and apply the Victorian Planning Provisions so as to protect these sites.

*Responsibility: local government authorities*

7. Manage risks to populations. Identify and implement strategies to control threats and identify disturbance regimes to promote regeneration and recruitment for key populations and their habitat.

*Responsibility: DSE (Biodiversity & Natural Resources Division, SW and NW Regions), Parks Victoria, landholders*

8. Promote in-situ recruitment by preparing habitat for seedling recruitment and re-stocking populations with seed.

*Responsibility: Parks Victoria, DSE (Biodiversity & Natural Resources Division, SW and NW Regions)*

9. Undertake or encourage and support research, including the following:

- Describe life history
- Evaluate natural pollination levels and causes of pollinator limitation
- Determine the effects of artificial pollination on growth survival and reproduction
- Determine spatial distribution of mycorrhizal fungi
- Determine optimal conditions for growth of mycorrhizal fungi in-situ

*Responsibility: DSE (Biodiversity & Natural Resources Division), Parks Victoria*

10. Increase populations ex-situ. Hand pollinate plants, collect and store seed and determine seed viability. Collect and store mycorrhizal fungi . Establish and maintain cultivated populations and record such collections in a database of threatened orchid taxa in cultivation.

*Responsibility: DSE (Biodiversity & Natural Resources Division), Royal Botanic Gardens*

11. Develop and implement materials for land manager, landholder and community information, including technical information on *in-situ* recovery techniques.

*Responsibility: DSE (Biodiversity & Natural Resources Division, SW and NW Regions), Parks Victoria*

12. Involve community groups in recovery actions where appropriate and provide support under the Botanic Guardians scheme.

*Responsibility: Parks Victoria, DSE (Biodiversity & Natural Resources Division, SW and NW Regions)*

## References


Coates, F., Jeanes, J. & Pritchard, A. (2002) Recovery Plan for Twenty-five Threatened Orchids of Victoria, South Australia and New South Wales 2003 - 2007. Department of Natural Resources and Environment, Melbourne.

DSE (2003) *Advisory List of Rare or Threatened Plants in Victoria – 2003.* Department of Sustainability and Environment: East Melbourne. (available on the DSE web site)

DSE (2004) *Flora Information System* (electronic flora database). Department of Sustainability and Environment: Melbourne.



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**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**

**This Action Statement was prepared under section 19 of the Flora and Fauna Guarantee Act 1988 under delegation from Chloe Munro, Secretary, Department of Natural RAesources and Environment, November 2002.**





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