

Action Statement

Flora and Fauna Guarantee Act 1988

No. 148

Gorae Leek-orchid *Prasophyllum diversiflorum*

Description and distribution

Gorae Leek-orchid (*Prasophyllum diversiflorum* Nicholls). The flower stem grows to 60 cm tall with a single terete, robust leaf to 45 cm long and 1.3 cm diameter. Ten to 40 fragrant flowers up to 10 mm wide are arranged in an open to congested spike up to about 15 cm long. The flowers are greenish brown with reddish tones, with a labellum white to pinkish and green callus. Flowering occurs from November to February depending on the site and seasonal conditions. The species is endemic to south-western Victoria, being first collected at Gorae West near Portland in 1941, and was described in 1942 by Nicholls. This population was destroyed as a result of agricultural development in 1948. It was rediscovered during the summer of 1983-84 on a narrow road reserve and on the adjoining private land near Hotspur.

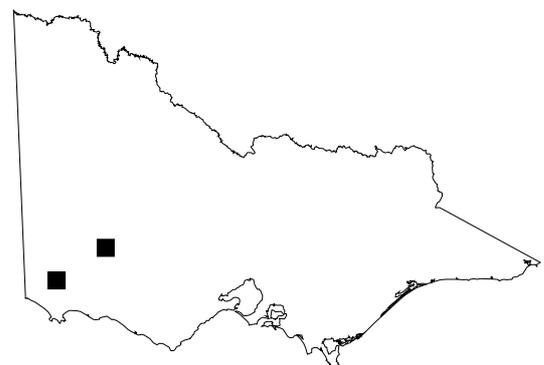


Gorae Leek-orchid *Prasophyllum diversiflorum*

A new population has since been discovered, on private land near Glenthompson. The known range extends from Glenthompson in the east to Hotspur in the west, a distance of some 90 kilometres apart. A further population in Cobboboonee State Forest and one at Lake Condah are still to be located and confirmed.

Habitat

At the type locality, the Gorae Leek-orchid grew along watercourses and around swamps on heavy black loams in open forest. The new populations grow in heavy clay soils, again in wet areas in Western Basalt Plains Grassland. Habitat and associated species present vary, but both sites are seasonally inundated.



Distribution in Victoria (DSE 2004)

The population on the road reserve and adjoining private land near Hotspur is on river floodplain consisting of heavy basalt clay soils. Associated species present on the road reserve site include *Themeda triandra*, *Poa labillardierei* tussocks and

a scattering of *Leptospermum lanigerum*. Poa tussocks dominate the private land adjoining this site.

The Glenthompson site on private land is the largest site, with the orchid scattered over an area of 5ha. Higher numbers occur in the wetter areas. The site is a native grassland remnant containing over 61 indigenous species and occurs on brown basalt loam.

Life history and ecology

The following is a summary of the current understanding of the ecology of the Gorae Leek-orchid. It is a deciduous terrestrial orchid that dies back annually to a subterranean tuber. The plants emerge from their dormant state after sufficient late autumn rains. A leaf emerges during the winter months and if sufficient moisture is present a flower is initiated in spring. Peak flowering is generally during early to late December dependant on season. When the plant is flowering the opening of the individual flowers is from the centre of the flower spike to the outside. The plant produces seeds after pollination by native bees or wasps, which are attracted to the flower by either perfume or rewards of nectar. After pollination the flowers quickly form seedpods, mature and then dehisce over the next 3-4 weeks. The seed is dispersed by wind and lies on the ground until favourable conditions the following Autumn. Seed production can be prolific but there is possibly a high mortality rate of the seed dispersed.

It is possible that the species can be propagated but, like many orchids, this is complicated by the interrelationship with soil fungi, insects and other organisms. Even if propagation is successful it may be extremely difficult to reintroduce the species into the wild to form self-sustaining populations.

The species appears to require seasonal inundation, which may also be the stimulus for flowering and germination. The seasonal inundation also influences the growth phases of the species.

All sites have had grazing pressures, generally by sheep, which may have had an impact on populations. However, it does appear that the species is compatible with light grazing. On both private land sites the owners are aware of the populations and manage them accordingly. The population at Glenthompson has been fenced of and managed for the native grassland species that coexist with the orchid. At the Hotspur property negotiations are under way for the fencing of habitat areas.

Conservation status

National conservation status

Endangered (EPBC Act 1999)

Victorian conservation status

Endangered (DSE 2003)

Prasophyllum diversiflorum has been listed as 'Endangered' under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and listed as threatened under the Flora and Fauna Guarantee Act 1988.

Decline and threats

The Gorae Leek-orchid has disappeared from its type locality due to the land being converted to agriculture in 1948 and is now confirmed from only two remnant localities with two other sites being unconfirmed. At the two known sites the orchid is relatively stable in annual numbers with the Condah Rd and the Glenthompson private land site having a slight increase in numbers over the last few years. Surveying for this species was conducted during the 1994/95, 1995/96, 1998, 2000/01, and 2001/02 seasons. Three populations of Leek Orchids were discovered whilst undertaking surveys for *Prasophyllum diversiflorum*. Searching during 1998 located three new populations of Leek orchids. These three populations were originally identified as Gorae Leek Orchid but after further taxonomic review by David. L. Jones (Centre for plant Biodiversity Research Australian National Herbarium Canberra), they were determined to be *Prasophyllum* aff. *diversiflorum* and *Prasophyllum* aff. *murfetii*.

Weed invasion is of major concern at all sites. At the Condah Rd site introduced *Phalaris aquatica*, *Juncus acutus*, pasture species and native species such as *Poa labillardierei* and *Themeda triandra* can potentially effect the plant. Fertiliser and herbicide application from adjacent farmland for both the roadside and private land sites in the form of drift or direct application, grazing and trampling by stock within the paddock or being driven along the roadside. Vehicle movement, road works, altered management regimes and altered hydrological regimes are the major threats to the species at the present sites. These practices in the past have been the major reason for the species to be declining from its range. A new threat is the emergence of Blue Gum plantations being established in the area that the orchid habitat is located. The establishment of these plantations has the potential to alter hydrology and land use in the Condah Rd. site.

The Glenthompson site is located in an area that has been fenced off from stock and is being

managed by the landholder for its floristic values. Pasture species and *Phalaris aquatica* are the greatest threats. This site could be important as a safe area that orchid in situ conservation practices could occur.

The roadside reserves are under the most threat, with the private land sites being managed for the orchids conservation.

Existing conservation measures

- Weed control of invasive weed species (*Phalaris aquatica*, *Juncus acutus*)
- Establish permanent quadrants to monitor species stability.
- Liaison with local landholders and field naturalists.
- Increase awareness with Landcare groups to incorporate species within Catchment plan for Smokey River Landcare group.
- Establish Recovery team
- Annual monitoring of all sites for plant numbers, pollination, and weed presence.
- Continue annual surveys for new populations.

Conservation objectives

Long term objective

The reverse the recent decline in Gorae Leek-orchid populations so that it can survive, flourish and retain its potential for evolutionary development in the wild.

Objectives of this Action Statement

1. To determine the abundance, distribution and population trends of Gorae Leek-orchid.
2. To protect all known sites from destruction, by fencing, signposting and agreements with land managers.
3. To manage known sites in a manner beneficial to Gorae Leek-orchid.
4. To investigate further aspects of Gorae Leek-orchid biology and ecology.

Intended management actions

The intended management actions listed below are further elaborated in 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. Continue to survey potential sites in the Western District to increase the range and populations of the species.

Responsibility: DSE South West Region

2. Develop materials to raise community awareness of orchids and assist in locating new populations.

Responsibility: DSE SW Region

3. Control weed invasion at all sites.

Responsibility: DSE, landholders, Shires

4. Collect vital attribute data in relation to all sites.

Responsibility: DSE Biodiversity and Natural Resources Division

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

Responsibility: DSE (SW Region)

6. Incorporate actions to protect, enhance and restore Gorae Leek-orchid habitat into the Glenelg Hopkins Regional Catchment Strategy or its 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: Glenelg Hopkins Catchment Management Authority

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

Responsibility: Shires

8. Fence private land sites to protect the orchid, subject to landholder agreement.

Responsibility: DSE (SW Region), Glenelg Hopkins Catchment Management Authority

9. Negotiate Public Authority Management Agreements with Shires for roadside populations.

Responsibility: DSE SW Region

10. Monitor known populations annually to assess numbers, pollination, and health.

Responsibility: DSE SW Region

11. Establish an ex situ population to assist in the conservation of the Gorae Leek-orchid.

Responsibility: DSE Biodiversity and Natural Resources Division, Royal Botanic Gardens

12. Encourage research to determine pollinator and habitat requirements.

Responsibility: DSE Biodiversity and Natural Resources Division

13. Encourage in situ mycorrhizal trials for the presence of fungus at sites that are suitable for orchid relocation.

Responsibility: DSE Biodiversity and Natural Resources Division

References

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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 Resources and Environment, November 2002.

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Published by the Department of Sustainability and Environment, Victoria. 8 Nicholson Street, East Melbourne, Victoria 3002 Australia

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ISSN 1448-9902