

# Action statement

*Flora & Fauna Guarantee Act 1988*

## Gorae Leek-orchid (*Prasophyllum diversiflorum*)

Taxon ID: 502706

Action statements are developed under the *Flora and Fauna Guarantee Act 1988* (FFG Act). Their preparation and implementation complement the FFG Act strategy *Protecting Victoria's Environment – Biodiversity 2037* and its vision that “Victoria’s biodiversity is healthy, valued and actively cared for”.

### Species and Distribution



Gorae Leek-orchid. Image by Laura Prentice



This habitat distribution model displays the indicative range of the Gorae Leek-orchid based on occurrence records and likely habitat. See [NatureKit](#) for an interactive map.

### Conservation Status

**Critically endangered**

**Listing criteria:** 3.1.1; 3.1.2(a),(b)(i,ii,iii,iv,v) of the Flora and Fauna Guarantee Regulations 2020.

This means that:

- The Gorae Leek-orchid has undergone, is suspected to have undergone, or is likely to undergo in the immediate future, a very severe reduction in population size.
- Its geographic distribution is extremely restricted; and
- the distribution of the population or habitat of the taxon is severely fragmented; and
- it is restricted to a limited number of areas that are subject to the same threat or suite of threats that can impact all individuals present; and
- there is a continuing decline or reduction in:
  - its extent of occurrence; and
  - its area of occupancy; and
  - the area, extent or quality of habitat; and
  - the number of locations or subpopulations; and
  - the number of mature individuals.

**Corresponding International Union for the Conservation of Nature (IUCN) criteria:** A2ace+3ce+4ace; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v).

More information on IUCN listing criteria can be found here: [IUCN Red List criteria](#).

## Species Information

Species information such as its description, distribution, ecology and references are provided in the [Gorae Leek-orchid Species Forecast Report](#) and [VicFlora](#).

## Threats

Threats listed below have been identified through expert consultation, published literature and spatial analysis.

Threat	Description
<b>Population dynamics</b>	
Population fragmentation	<ul style="list-style-type: none"> <li>Fragmentation of once connected populations into smaller, isolated populations increases the risk of genetic decline and associated changes to recruitment and/or mortality rates.</li> <li>Known populations of Gorae Leek-orchid are severely fragmented.</li> </ul>
Small population size	<ul style="list-style-type: none"> <li>Small populations have lower resilience to the risk of stochastic events, and increased risk of genetic decline.</li> </ul>
<b>Habitat loss, degradation or modification</b>	
Excess biomass	<ul style="list-style-type: none"> <li>Excess growth of either native plant species such as Kangaroo Grass (<i>Themeda triandra</i>), and Tussock Grass (<i>Poa labillardierei</i>), or introduced plant species such as Spiny Rush (<i>Juncus acutus</i>) can change the structure and composition of habitat and lead to loss of Gorae Leek-orchids.</li> </ul>
Land use change	<ul style="list-style-type: none"> <li>Land use change alters vegetation extent and condition, and may impact water regimes, contributing to Gorae leek-orchid habitat loss and degradation.</li> <li>Pasture improvement, cultivation, raised bed cropping, altered hydrology from plantations, and drainage of wetlands including those in the surrounding landscape, may pose a threat to surviving Gorae Leek-orchid populations on private land.</li> </ul>
Livestock	<ul style="list-style-type: none"> <li>Livestock can cause habitat degradation through the combined effects of herbivory, trampling, soil compaction, soil erosion, pugging of wet areas, and excess nutrient loads.</li> <li>Grazing and trampling, particularly during the above ground active phase for the Gorae Leek-orchid, after leaf emergence (typically following the autumn rains), but before seed is set (usually by late summer), can physically damage plants, limit seed set and cause direct mortality.</li> </ul>
Plantation operations	<ul style="list-style-type: none"> <li>Establishment of new plantations may remove or degrade habitat. Operational management of plantations may cause disturbance to native habitats and groundwater and may result in direct mortality of some individuals.</li> <li>Extensive Blue Gum plantations have been established around the Hotspur site, with potential to impact habitat for Gorae Leek-orchid through the above mechanisms.</li> </ul>

Threat	Description
<b>Introduced species</b>	
Introduced herbivores	<ul style="list-style-type: none"> <li>Introduced herbivores degrade habitat through herbivory, trampling, pugging of wet soils, increasing nutrient loads, and increasing the accessibility of habitat to introduced plants.</li> <li>Introduced herbivores of potential concern to Gorae Leek-orchid include rabbits (<i>Oryctolagus cuniculus</i>) and feral pigs (<i>Sus scrofa</i>).</li> </ul>
Introduced plants	<ul style="list-style-type: none"> <li>Introduced plants can directly compete for resources, reduce species abundance and diversity and change the structure and function of Gorae Leek-orchid habitat.</li> <li>Introduced plants of known concern in the Gorae Leek-orchid's habitat include Canary-grass (<i>Phalaris</i> spp.), Ox-tongue (<i>Helminthotheca echioides</i>), Paspalum (<i>Paspalum dilatatum</i>), Spiny Rush (<i>Juncus acutus</i>), Sweet Vernal-grass (<i>Anthoxanthum odoratum</i>), Harlequin Flower (<i>Sparaxis bulbifera</i>), Bishop's Weed (<i>Ammi majus</i>), Pennyroyal (<i>Mentha pulegium</i>) and Radiata Pine (<i>Pinus radiata</i>).</li> </ul>
<b>Fire</b>	
Altered fire regimes	<ul style="list-style-type: none"> <li>Both infrequent and frequent fires may lead to Gorae Leek-orchid population decline and alter vegetation structure and habitat quality (including leading to increased biomass that may outcompete and smother Gorae Leek Orchid).</li> <li>Fire (including planned burns) that occur during the active growth phase of Gorae Leek-orchid, after the leaf emergence (typically following the autumn rains), but before seed is set (usually by late summer), or fire which is more frequent than the species' tolerable fire interval, can lead to seedbank exhaustion, reduced recruitment and mortality.</li> <li>The optimal fire regime for Gorae Leek-orchid is not known.</li> </ul>
Fire management activities	<ul style="list-style-type: none"> <li>Fire management operations such as creation of fuel breaks (soil disturbance, slashing) may remove or modify habitat, cause mortality of individuals, reduce regeneration and increase the accessibility of habitat to introduced plants.</li> </ul>
<b>Human disturbance</b>	
Construction, development and/or infrastructure	<ul style="list-style-type: none"> <li>Construction and development may result in direct removal of habitat, or indirect impacts to habitat through changes to water regime, increased risk of weed incursion, and increased access to native habitats by introduced predators and domestic pets.</li> <li>Installation of utilities along roadsides are of potential concern for Gorae Leek-orchid.</li> </ul>
Illegal take	<ul style="list-style-type: none"> <li>Illegal collection may pose a threat to the Gorae Leek-orchid due to its rarity.</li> <li>Unauthorised take, trade and removal of this species may contribute to reduced recruitment, increased mortality and reduced population size.</li> </ul>
Recreational activities	<ul style="list-style-type: none"> <li>Recreational activities such as walking, dog walking, horse-riding, cycling, trail bike riding, and off-road driving, may damage habitat, potentially impacting recruitment and mortality rates, and/or persistence at a site.</li> </ul>
Road and track construction or maintenance	<ul style="list-style-type: none"> <li>Roadside populations are vulnerable to loss or damage to individuals and habitat, as a result of direct impacts of road construction and maintenance works (e.g.,</li> </ul>

Threat	Description
	grading/mowing/slashing/lopping) and indirect impacts from associated run-off, soil erosion, and potential weed and pathogen introduction.
<b>Native species</b>	
Problematic native plants	<ul style="list-style-type: none"> <li>Native woody species such as Woolly Tea-tree (<i>Leptospermum lanigerum</i>) can alter habitat structure and out-compete or reduce habitat availability for Gorae Leek-orchid. Woolly Tea-tree are encroaching on Gorae Leek-orchid habitat at one roadside population.</li> </ul>
<b>Pollutants and toxicants</b>	
Nutrient enrichment	<ul style="list-style-type: none"> <li>Application of fertiliser or increased nutrient loads from livestock grazing within or adjacent to subpopulations of Gorae Leek-orchid may impact plants and habitat.</li> <li>Nutrient enrichment alters soil chemistry, habitat structure and composition, and ecosystem function, reducing habitat extent and/or condition, and potentially impacting site persistence.</li> </ul>
Pesticide use	<ul style="list-style-type: none"> <li>Spray drift or off-target damage from herbicide application within or immediately adjacent to populations may impact recruitment and may cause mortality of Gorae Leek-orchid.</li> </ul>
<b>Climate change</b>	
Altered rainfall and temperature regimes	<ul style="list-style-type: none"> <li>Climate change, increasing temperature and altered rainfall are likely to magnify existing threats and may reduce the stability, extent and condition of habitat.</li> <li>Gorae Leek-orchid populations and habitat are considered at risk from increasingly dry conditions from declining rainfall.</li> </ul>

## Conservation Objectives

Conservation objectives are informed by the conservation status and criteria under which the species was listed under the FFG Act. This provides a framework to understand how we can work towards recovery and improve the species' conservation status over time as per the objectives of the FFG Act.

The key objectives of this action statement are:

- Mitigate threats to populations and habitat to increase resilience, improve genetic fitness and minimise future population decline.
- Increase the Gorae Leek-orchid range and/or extent, by providing opportunities for natural and /or assisted movement.
- Increase the wild population size to at least 500 mature individuals.
- Establish at least two new viable populations within its historic range.
- Increase knowledge of biology, ecology, distribution, demography, emerging threats, and conservation requirements.
- Support community participation and improve awareness of the Gorae Leek-orchid and conservation of its habitat.

## Conservation Actions

The actions below have been identified through expert consultation, published literature and spatial analysis. Actions are listed in alphabetical order to allow all interested parties to prioritise based on their context, capacity and capability. Landscape scale actions may mitigate threats for other species. For more information on where to

undertake actions that benefit multiple species and identify the most beneficial locations to undertake actions for this species, please refer to [NatureKit](#).

Action	Description
Avoid and/or mitigate impacts associated with fire management	<ul style="list-style-type: none"> <li>Ensure that species distribution data and ecological information is available and considered in fire management activities.</li> <li>Undertake biodiversity values check prior to fuel management in areas of the species habitat, to confirm treatment suitability and timing.</li> </ul>
Biomass management	<ul style="list-style-type: none"> <li>Periodically undertake appropriate and culturally sensitive disturbance activities (preferably fire) to reduce the biomass of Kangaroo Grass and other native and exotic grasses and improve the habitat.</li> </ul>
Collect and store reproductive material	<ul style="list-style-type: none"> <li>Undertake appropriate seed collection for long-term storage. Ensure that adequate supply and genetic diversity is secured for future reintroduction, and that essential information (such as dormancy) is known.</li> <li>Maintain seed collections from target populations within the Victorian Conservation Seedbank at the Royal Botanic Gardens Victoria (RBGV).</li> </ul>
Community engagement and awareness	<ul style="list-style-type: none"> <li>Continue to raise landholder and broader community awareness of the importance of protecting Gorae Leek-orchid habitat and managing threats.</li> <li>Continue to identify, promote and support opportunities for community involvement in conservation efforts.</li> <li>Increase landholder awareness of the Gorae Leek-orchid and the impacts of livestock grazing. Provide guidance on the changes to grazing that may be required, such as exclusion during the growth phase of the orchid, to support the recovery of the species.</li> </ul>
Compliance and enforcement	<ul style="list-style-type: none"> <li>Undertake risk-based compliance and enforcement activities to limit the impacts of illegal collection to the species.</li> </ul>
Conservation management planning	<ul style="list-style-type: none"> <li>Review and update, or develop, relevant plans or planning tools to support conservation management for Gorae Leek-orchid.</li> </ul>
Control introduced herbivores *	<ul style="list-style-type: none"> <li>Implement and maintain effective control of introduced herbivores in priority areas.</li> </ul>
Control introduced plants *	<ul style="list-style-type: none"> <li>Implement and maintain effective control of introduced plants in priority areas and undertake revegetation with appropriate native species where required.</li> </ul>
Develop, update and apply forestry protections	<ul style="list-style-type: none"> <li>Maintain prescriptions for this species under the <i>Code of Practice for Timber Production 2014 (as amended in 2022)</i> (the Code).</li> <li>Where relevant, incorporate species-specific protection measures into plans and permits relating to timber harvesting operations in native forest on private land.</li> <li>Incorporate measures to protect relevant environmental values into timber harvesting plans for plantations.</li> </ul>
Ecological fire regime *	<ul style="list-style-type: none"> <li>Implement fire management actions that promote an appropriate fire regime for the Gorae Leek-orchid.</li> </ul>
Establish and maintain fencing	<ul style="list-style-type: none"> <li>Establish and/or maintain fencing or cages to protect populations or individuals from impacts of introduced herbivores if required.</li> </ul>

Action	Description
Ex-situ management	<ul style="list-style-type: none"> <li>Establish and maintain ex-situ populations in suitable secure sites, to service the conservation objectives of the Gorae Leek-orchid.</li> </ul>
Improve habitat connectivity	<ul style="list-style-type: none"> <li>Restore habitat and/or provide appropriate engineering solutions to improve connectivity between habitat patches.</li> </ul>
Manage problematic native species	<ul style="list-style-type: none"> <li>Implement and maintain appropriate control of problematic native species, including Woolly Tea-tree, and manage habitat to minimise further impacts.</li> </ul>
Manage public access	<ul style="list-style-type: none"> <li>Exclude access from vehicles and motorbikes, and discourage human trampling by fencing, signage and/or education where appropriate.</li> </ul>
Manage road and track works	<ul style="list-style-type: none"> <li>Ensure Gorae Leek-orchid distribution data is considered in planning road and track works.</li> </ul>
Permanent protection*	<ul style="list-style-type: none"> <li>Investigate incentives, voluntary agreements, covenants and other permanent protection measures to protect populations of Gorae Leek-orchid and restore habitat.</li> </ul>
Protect key habitat	<ul style="list-style-type: none"> <li>Minimise alterations to hydrological regimes upstream or in surrounding landscapes.</li> <li>Ensure that Gorae Leek-orchid distribution data and ecological information are available and considered in planning for developments, land use changes and utilities maintenance. Ensure that incremental losses are included in consideration of potential losses.</li> <li>Identify opportunities to manage threats of land use change and development, including programs to encourage protection and management of remaining habitat areas, and restoration of habitat to improve connectivity and increase the amount of available habitat.</li> </ul>
Research	<ul style="list-style-type: none"> <li>Improve understanding of reproductive requirements, including pollinators and pollination regimes and seed germination cues.</li> <li>Improve understanding of mycorrhizal relationships and ecological requirements for associated mycorrhizal fungi.</li> <li>Improve understanding of, and develop guidelines for, habitat restoration and management approaches.</li> <li>Investigate the impacts of known threats and potential management actions.</li> <li>Investigate and determine a suitable fire regime that meets the Gorae Leek-orchid's ecological requirements and promotes its recovery.</li> </ul>
Survey and monitoring	<ul style="list-style-type: none"> <li>Undertake targeted field surveys to confirm the extent of all known Gorae Leek-orchid populations and seek to discover previously undetected populations based on predicted habitat and ecological information.</li> <li>Monitor populations at known sites and other suitable locations to assess distribution, population trends and habitat condition.</li> <li>Monitor the impact of threats to inform management interventions.</li> </ul>
Translocation	<ul style="list-style-type: none"> <li>Design and implement a translocation program to meet the objectives of the action statement, considering future climate suitability when selecting sites.</li> </ul>

\*Indicates landscape-scale actions that may deliver benefits to multiple species

## Past Actions

The key conservation management actions listed below have been delivered in the past 10 years.

Past action	Description
Avoid and/or mitigate impacts associated with fire management	<ul style="list-style-type: none"> <li>Impacts associated with fire management activities have been managed through a values checking and risk mitigation process for planned burning and roading activities.</li> </ul>
Collect and store reproductive material	<ul style="list-style-type: none"> <li>Seed has been collected and stored in the Victorian Conservation Seedbank at the Royal Botanic Gardens Victoria.</li> </ul>
Community engagement and awareness	<ul style="list-style-type: none"> <li>Management recommendations were provided land managers of an important location in 2013/14 and 2014/15.</li> </ul>
Control introduced plants	<ul style="list-style-type: none"> <li>Selective control of introduced plants has been undertaken at the Hotspur roadside population site and within the Dunkeld private land site.</li> </ul>
Develop, update and apply forestry protections	<ul style="list-style-type: none"> <li>The Gorae Leek-orchid has a current species-specific prescription in the Code: In the Portland-Horsham Forest Management Area, manage occurrences in consultation with the Department unless already protected.</li> <li>The risk of forestry operations was assessed for this species in 2020 under the Victorian Government Threatened Species and Communities Risk Assessment. Additional permanent protections were not found to be required.</li> </ul>
Ecological fire regime	<ul style="list-style-type: none"> <li>An ecological burn was completed across part of the Dunkeld covenanted private land site in 2015 and again in 2021.</li> </ul>
Establish and maintain fencing	<ul style="list-style-type: none"> <li>Cages were established and maintained to exclude inappropriate grazing pressures at Hotspur roadside site.</li> </ul>
Manage problematic native species	<ul style="list-style-type: none"> <li>Control of Woolly Tea-tree undertaken on the Hotspur roadside site.</li> </ul>
Permanent protection	<ul style="list-style-type: none"> <li>Populations at the Dunkeld private land site are protected under a Trust for Nature covenant.</li> </ul>
Research	<ul style="list-style-type: none"> <li>All existing data from the Hotspur roadside and Dunkeld private land site populations was collated and assessed in 2013/14.</li> <li>Review of monitoring data from 2013/14 confirmed a steep decline in Gorae Leek-orchid numbers. This information was used to inform management (recommencement of weed and biomass management works at both sites).</li> </ul>

## Decision Support Tools

Decision making for conservation actions is supported through the following Victorian Government tools which may be of assistance in choosing the most appropriate or beneficial actions for biodiversity:

- [Choosing actions for nature: NatureKit](#)
- [Biodiversity Knowledge Framework](#)

## Further Information

- [Gorae Leek-orchid Species Forecast Report](#)
- [Threatened Species Assessment report – Gorae Leek-orchid \(\*Prasophyllum diversiflorum\*\)](#)

- [Commonwealth Species Profile and Threats database](#)
- [Threatened Species and Communities Risk Assessment](#)
- [Code of Practice for Timber Production 2014](#)
- [Victoria's changing climate – drivers and impacts of climate change in Victoria](#)
- [Commonwealth Threat Abatement Plans](#)
- [Genetic Risk Index](#)
- [Flora and Fauna Guarantee Regulations 2020](#)
- [IUCN Red List criteria descriptions](#)

## Get Involved and Take Action

If you are interested in supporting this species' recovery, there are some important things you need to consider.

The Department of Energy, Environment and Climate Action (DEECA) is committed to engaging and partnering with Traditional Owners on how they wish to be involved in the planning and implementation of actions for this species. Steps must be taken to avoid harm and where appropriate ensure actions can deliver cultural benefits.

You can find advice about required approvals, land manager and/or owner permissions, options and incentives for private land conservation, and engagement with Traditional Owners and public land managers here: [Action statements \(environment.vic.gov.au\)](#)

To identify the relevant Traditional Owners, use the [Aboriginal Cultural Heritage Register and Information System \(ACHRIS\) Welcome to Country and Acknowledgements Map](#).

You can also register your interest in taking action so we can connect you to other people or organisations working to help us secure the future for this species at [threatened.species@deeca.vic.gov.au](mailto:threatened.species@deeca.vic.gov.au)

## Reporting Actions

Activity data is critical to monitoring the implementation and progress of actions and evaluating action statements. These data are also used to:

- Determine progress towards achieving the contributing targets for [Protecting Victoria's Environment – Biodiversity 2037](#).
- Inform the five-yearly State of the Environment Report.

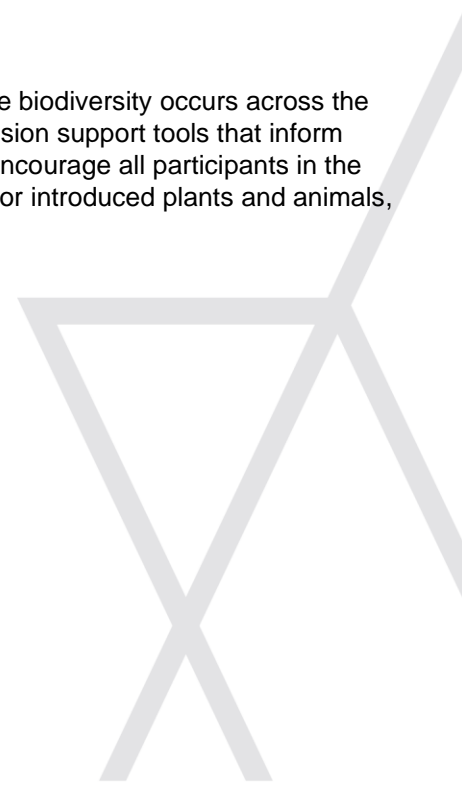
For guidance on reporting actions undertaken on this species, refer to [Activity Data](#).

## Submitting Monitoring Data

The Victorian Biodiversity Atlas (VBA) provides a foundational dataset showing where biodiversity occurs across the Victorian landscape and how it may have changed over time. As a core input for decision support tools that inform conservation action, public land management, research activities and reporting, we encourage all participants in the delivery of on-ground actions to submit species records and observations, including for introduced plants and animals, as they carry out their projects.

For further information see: [Victorian Biodiversity Atlas \(environment.vic.gov.au\)](#)

Sign up and begin submitting your data today at: <https://vba.biodiversity.vic.gov.au/>



## Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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