

Action statement

Flora and Fauna Guarantee Act 1988

Black Stem (*Adiantum formosum*)

Taxon ID: 500132

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



Black Stem. Image source: Royal Botanic Gardens Victoria.



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

Conservation Status

Critically Endangered

Listing criteria: 3.1.1; 3.1.3(b)(i) of the Flora and Fauna Guarantee Regulations 2020.

This means that:

- the taxon has undergone, is suspected to have undergone, or is likely to undergo in the immediate future, a very severe reduction in population size; and
- the total number of mature individuals is very low, the number is likely to continue to decline and each subpopulation is extremely small.

Corresponding International Union for the Conservation of Nature (IUCN) criteria: A2ce+3ce+4ce; C2a(i).

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 [Black Stem Species Forecast Report](#) and [VicFlora](#).

Threats

The threats below have been identified through expert input, published literature and spatial analysis.

Threat	Description
Fire	
Altered fire regimes	<ul style="list-style-type: none"> Increased frequency and intensity of fire may cause mortality of plants before they reach maturity. Fires contribute to vegetation change by opening the habitat and permitting drying winds to enter, facilitating overgrowth by short-lived shrubs and herbs, and allowing expansion of eucalypt species. A hotter, drier climate may increase the likelihood or frequency of fire impacting habitat, with the potential to reduce habitat extent and/or condition. This includes the drying of buffers which act to prevent planned burns from entering rainforest.
Fire management activities	<ul style="list-style-type: none"> Fire management operations such as creation of fuel breaks (soil disturbance, slashing) may lead to siltation, remove habitat, cause mortality of individuals, and reduce regeneration.
Habitat loss, degradation or modification	
Land use change	<ul style="list-style-type: none"> Land use change alters vegetation extent and condition, and may impact water regimes, contributing to habitat loss and degradation.
Introduced species	
Deer	<ul style="list-style-type: none"> Introduced deer species (Sambar Deer (<i>Cervus unicolor</i>), Red Deer (<i>Cervus elaphus</i>) and Fallow Deer (<i>Dama dama</i>)) degrade habitat through herbivory, antler-rubbing, trampling, pugging of wet soils, increasing nutrient loads, erosion of waterway edges, and increasing the accessibility of habitat to other introduced species.
Feral pigs	<ul style="list-style-type: none"> Feral pigs (<i>Sus scrofa</i>) cause direct mortality and damage habitat through pugging and wallowing that compacts soils. Pigs can also cause erosion and increase nutrient loads that result in degraded water quality and changes to vegetation structure.
Introduced plants	<ul style="list-style-type: none"> Introduced plants can directly compete for resources and reduce species abundance and diversity.
Native species	
Other native plant species	<ul style="list-style-type: none"> Invasion of eucalypt recruits from surrounding forest outcompete rainforest stands and significantly impact the retention of Victoria's rainforest habitat.
Over-abundant native mammals	<ul style="list-style-type: none"> Herbivory by over-abundant native herbivores (e.g., Eastern Grey Kangaroos (<i>Macropus giganteus</i>)) can damage native habitats.
Pathogens and disease	
Myrtle Wilt	<ul style="list-style-type: none"> Myrtle Wilt is a natural disease of Myrtle Beech (<i>Nothofagus cunninghamii</i>). It is caused by a fungus (<i>Chalara australis</i>) infecting plants through wounded tissue, and almost always kills the infected tree. This is a major threat to habitat throughout areas where Myrtle Beech is the dominant or co-dominant canopy species.
Population dynamics	
Loss of genetic diversity	<ul style="list-style-type: none"> Small, greatly reduced, and/or isolated populations are at increased risk of loss of genetic diversity, which leads to a heightened risk of reduced recruitment and/or increased mortality rates.

Conservation Objectives

Conservation objectives are informed by the conservation status and criteria in 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, increase genetic fitness and minimise future population decline;
- Increase the Black Stem's range and/or extent, by providing opportunities for natural movement/dispersal;
- Increase knowledge of biology, ecology, distribution, demography, emerging threats, and conservation requirements; and
- Support community participation and improve awareness of the Black Stem and conservation of its habitat, including the restoration of cultural knowledge where appropriate.

Conservation Actions

The actions below have been identified through expert input, 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. Holistic management of the cultural landscape where this species occurs is encouraged noting additional actions including cultural practice may benefit this 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"> • Ensure that species distribution data and ecological information is available and considered in fire management activities. • Undertake biodiversity values check prior to fuel management in areas of the species' habitat, to confirm treatment suitability and timing.
Collect and store reproductive material	<ul style="list-style-type: none"> • Undertake appropriate collection of propagules 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.
Conservation management planning	<ul style="list-style-type: none"> • Apply best practice methods to determine areas of highest value for restoration and consideration of permanent protection mechanisms to conserve the species and its habitat.
Control deer*	<ul style="list-style-type: none"> • Implement and maintain effective control of deer in priority areas.
Control feral pigs*	<ul style="list-style-type: none"> • Implement and maintain effective control of feral pigs in priority areas.
Control introduced plants*	<ul style="list-style-type: none"> • Implement and maintain effective control of introduced plants in priority areas and undertake revegetation with appropriate native species, where required.
Establish and maintain fencing	<ul style="list-style-type: none"> • Where required, establish and maintain fencing to prevent access and damage to individuals or populations from introduced species or over-abundant native species.
Manage over-abundant native plant species	<ul style="list-style-type: none"> • Manage eucalypt encroachment in rainforest following intense fire events. Removal should occur within four years following fire and focus on habitat for known threatened species.
Mitigate the risks posed by pathogens and disease	<ul style="list-style-type: none"> • Minimise damage to the crown or root system of Myrtle Beech (<i>Nothofagus cunninghamii</i>) to limit infection by the airborne and waterborne spores of the fungal pathogen.
Restoration and/or revegetation*	<ul style="list-style-type: none"> • Undertake restoration and/or revegetation to increase habitat suitability and/or create new habitat areas.

Action	Description
Survey and monitoring	<ul style="list-style-type: none"> • Monitor representative populations to determine trends and management needs. • Undertake targeted field surveys to confirm the extent of all known populations and seek to discover previously undetected populations based on predicted habitat and ecological information.

**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
Control deer	<ul style="list-style-type: none"> • Implemented and maintained effective control of deer in priority areas.

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](#)
- [Biodiversity Knowledge Framework](#)

Further Information

- [Black Stem Species Forecast Report](#)
- [Threatened Species Assessment Report - Black Stem \(*Adiantum formosum*\)](#)
- [Victorian Deer Control Strategy](#)
- [Victoria's changing climate - understanding the impacts of climate change in Victoria](#)
- [Commonwealth Threat Abatement Plans](#)
- [Flora and Fauna Guarantee Regulations 2020](#)
- [IUCN criteria summary](#)
- [Natural Environment Climate Change Adaptation Action Plan 2022-2026](#)

Get Involved and Take Action

If you are interested in supporting this species' recovery, there are some important things 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 \(environment.vic.gov.au\)](https://environment.vic.gov.au/action-statements)

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

Reporting Actions

Activity data are 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 weeds or introduced 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/>

Indigenous Data Sovereignty

DEECA is committed to recognising and enabling Indigenous Data Sovereignty (IDS). Indigenous data comprise any information or knowledge of species and Country collected or recorded by, or about, Traditional Owners. IDS asserts Traditional Owner rights to access and have governance over the collection, ownership and use of their data, including that which is included or referred to in this Action Statement.

Acknowledgement

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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