

# Action statement

*Flora & Fauna Guarantee Act 1988*

## Slender Tree-fern (*Cyathea cunninghamii*)

Taxon ID: 500896

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



Slender Tree-fern. Image from Atlas of Living Australia.



This habitat distribution model displays the indicative range of the Slender Tree-fern based on occurrence records and likely habitat. See [NatureKit](#) for an interactive map. The Slender Tree-fern also occurs outside of Victoria.

### Conservation Status

#### Critically endangered

**Listing criteria:** 3.1.1 of the Flora and Fauna Guarantee Regulations 2020.

This means that:

- the Slender Tree-fern has undergone, is suspected to have undergone, or is likely to undergo in the immediate future, a very severe reduction in population size.

**Corresponding International Union for the Conservation of Nature (IUCN) criteria:** A2ac.

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 [Slender Tree-fern Species Forecast Report](#) and [Vicflora](#).

## Threats

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

Threat	Description
<b>Fire</b>	
Altered fire regimes	<ul style="list-style-type: none"> <li>Increased frequency and intensity of fire may cause mortality of adult plants before they reach maturity. The species' tolerable fire interval to reach maturity is &gt;25 years. Fires can open the habitat, cause drying and facilitate overgrowth by short-lived shrubs and herbs as well as incursion by eucalypts where the canopy is removed.</li> <li>A hotter, drier climate may increase the likelihood or frequency of fire impacting Slender Tree Fern habitat, with the potential to reduce habitat quality and/or extent.</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 habitat, cause individual mortality, and reduce regeneration. Hazardous tree removal opens the canopy and contributes to canopy gaps and drying of sites.</li> </ul>
<b>Pathogens and disease</b>	
Myrtle Wilt	<ul style="list-style-type: none"> <li>Myrtle Wilt is a major threat to habitat throughout the Otways, Strzelecki Ranges and Wilson Promontory. In these regions, Myrtle Beech (<i>Nothofagus cunninghamii</i>) is the dominant or co-dominant canopy species. Myrtle Wilt is a natural disease of Myrtle Beech. Caused by a fungus (<i>Chalara australis</i>) infecting plants through wounded tissue, it almost always kills the infected tree. This causes canopy gaps which reduce the habitat quality for Slender Tree-fern.</li> </ul>
<b>Climate Change</b>	
Extreme weather	<ul style="list-style-type: none"> <li>More extreme or frequent storms and flooding lead to increased soil erosion, sedimentation and/ or altered hydrology. Canopy loss due to storm events creates canopy gaps with impacts to species' persistence. Strong winds may cause adult plants to fall, particularly when canopy gaps have been created by other processes.</li> </ul>
Increased frequency or length of droughts	<ul style="list-style-type: none"> <li>Changes in frequency, magnitude and length of droughts may cause mortality and reduce recruitment. Reduced annual rainfall and/ or changes in rainfall patterns are likely to reduce the availability of suitable habitat. Prolonged drought stress can lead to recruitment failure. These impacts cumulatively contribute to population declines.</li> </ul>
<b>Introduced species</b>	
Deer	<ul style="list-style-type: none"> <li>Sambar Deer (<i>Cervus unicolor</i>), damage plants and habitat by browsing on young fronds, trampling, and creating wallows. Deer also antler-rub and ring-bark canopy species, killing them and opening up the canopy.</li> </ul>
Introduced plants	<ul style="list-style-type: none"> <li>Invasion by introduced plants such as Blackberry (<i>Rubus fruticosus</i> spp. agg.), English Holly (<i>Ilex aquifolium</i>), Japanese Honeysuckle (<i>Lonicera japonica</i>), Atlantic Ivy (<i>Hedera hibernicahibernica</i>), and Black Nightshade (<i>Solanum nigrum</i>) can degrade habitat and out-compete young plants.</li> </ul>
<b>Native species</b>	
Problematic native plants	<ul style="list-style-type: none"> <li>Eucalypt colonisation and dense regrowth following intense fires which destroy the canopy of rainforest stands and habitat negatively impact the species' recovery.</li> </ul>

### Habitat loss, degradation or modification

- |                     |  |
|---------------------|--|
| Forestry operations | <ul style="list-style-type: none"> <li>• Timber harvesting can cause mortality through mechanical disturbance (machinery or falling trees). Forestry operations may alter structure and composition of adjacent vegetation, leading to increased risk of bushfire severity and drying of the habitat. Timber harvesting upslope of recharge areas can alter hydrology and may reduce soil moisture in rainforest stands.</li> <li>• This threat is mostly mitigated by the exclusion of timber harvesting in rainforest and the application of prescribed buffers.</li> <li>• The species can be difficult to identify, particularly before it reaches maturity (estimated 20–25 years). It can be misidentified as the more common Rough Tree Fern (<i>Cyathea australis</i>), and as a result be unintentionally harvested.</li> </ul> |
| Land use change     | <ul style="list-style-type: none"> <li>• Land clearing and land use change in the catchment of Slender Tree-fern has the potential to alter habitat suitability through changes to microclimates and soil hydrology.</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 Slender Tree-fern's range and/or extent, by providing opportunities for natural movement.
- Increase knowledge of biology, ecology, distribution, demography, emerging threats, and conservation requirements.
- Support community participation and improve awareness of the Slender Tree-fern 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 are 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. Implement appropriate buffers to protect species from fire management impacts.</li> </ul>

Action	Description
Collect and store reproductive material	<ul style="list-style-type: none"> <li>Maintain sporebank storage. Ensure that adequate supply and genetic diversity of spores are secured from across its range for future reintroduction; and that essential information (such as dormancy) is known.</li> </ul>
Community engagement and awareness	<ul style="list-style-type: none"> <li>Raise awareness of the species with the community, land managers and landowners including tools to help with species identification.</li> </ul>
Control deer*	<ul style="list-style-type: none"> <li>Implement effective management and control of Sambar Deer (<i>Cervus unicolor</i>), at known areas and catchments.</li> </ul>
Control introduced plants*	<ul style="list-style-type: none"> <li>Implement effective management and control of woody weeds and invasive vines including Blackberry (<i>Rubus fruticosus</i> spp. agg.), English Holly (<i>Ilex aquifolium</i>), Japanese Honeysuckle (<i>Lonicera japonica</i>), Atlantic Ivy (<i>Hedera hibernica</i>), and Black Nightshade (<i>Solanum nigrum</i>).</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>Apply the following additional permanent protection as recommended in the Victorian Government Threatened Species and Communities Risk Assessment (TSCRA): <ul style="list-style-type: none"> <li><i>Forest zoning amendments</i> Within the Central Highlands Regional Forest Agreement Region, the Secretary will establish Special Management Zone(s) of 200 m radius over populations of strategic importance.</li> </ul> </li> </ul>
Establish and maintain fencing	<ul style="list-style-type: none"> <li>Erect and maintain fences and/ or cages around populations where practical, to protect juvenile plants from browsing.</li> </ul>
Manage problematic native plants	<ul style="list-style-type: none"> <li>Manage dense eucalypt regeneration and colonisation in rainforest and other habitats to promote the recovery of Slender Tree-fern following intense fire events which have impacted the canopy.</li> </ul>
Mitigate pathogens and disease risk	<ul style="list-style-type: none"> <li>Minimise the impact to canopy species Myrtle Beech (<i>Nothofagus cunninghamii</i>) to infection of Myrtle Wilt, by reducing the spread of air-borne and water-borne spore of the fungal pathogen.</li> </ul>
Permanent protection	<ul style="list-style-type: none"> <li>Investigate incentives, voluntary agreements, covenants and other permanent protection measures to protect and restore habitat.</li> </ul>
Research	<ul style="list-style-type: none"> <li>Investigate the species' ecological requirements that are relevant to persistence, particularly in the context of climate change and high fire frequency.</li> <li>Investigate and determine a suitable fire regime that meets the ecological requirements of the Slender Tree-fern and promotes its recovery.</li> <li>Undertake research into genetic risks and management options for Slender Tree-fern to promote the species' recovery.</li> </ul>
Survey and monitoring	<ul style="list-style-type: none"> <li>Establish monitoring sites and collect baseline data.</li> <li>Monitor known sites to detect changes in population size / persistence and threat status and identify and treat emergence of any new threats.</li> </ul>

Action	Description
	<ul style="list-style-type: none"> <li>Comprehensively survey likely habitat, including previously known sites, to locate any additional populations.</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
Collect and store reproductive material	<ul style="list-style-type: none"> <li>Spores have been collected and stored in the Sporebank at the Royal Botanic Gardens Victoria (RBGV).</li> </ul>
Control deer	<ul style="list-style-type: none"> <li>Deer control has been undertaken by the Department of Energy, Environment and Climate Action (DEECA) and Parks Victoria in Rainforest Sites of Significance, after the 2019-20 fires. Focus has been on Priority 1 and 2 National Significance and Priority 1 State significance sites.</li> <li>Trust for Nature have undertaken deer control on covenanted land.</li> </ul>
Control introduced plants	<ul style="list-style-type: none"> <li>DEECA have conducted post fire control of introduced plants in Rainforest Sites of Significance, following the 2019-20 fires. Focus has been on control of Blackberry and other high threat introduced plant species at Priority 1 and 2 National Significance and Priority 1 State significance sites.</li> </ul>
Develop, update, and apply forestry protections	<ul style="list-style-type: none"> <li>The Slender Tree-fern has current species-specific prescriptions in the Code: <ul style="list-style-type: none"> <li>In the Gippsland and East Gippsland Forest Management Areas (FMAs): Apply a management area of 200 m radius over populations. Conduct a site inspection and detailed planning in consultation with the Department to ensure the species is adequately protected during timber harvesting operations.</li> <li>In the Otways FMA: Manage occurrences in consultation with the Department unless already protected.</li> </ul> </li> <li>The risk of forestry operations was assessed for this species in 2020 under the Victorian Government TSCRA. Additional permanent protections were recommended in 2022 and are being implemented.</li> </ul>
Permanent protection	<ul style="list-style-type: none"> <li>Permanent protection of known and new populations on private land in Strzelecki Ranges, East Gippsland and Central Highlands has occurred through conservation covenants.</li> </ul>
Survey and monitoring	<ul style="list-style-type: none"> <li>Post fire surveys have been undertaken by the East Gippsland Conservation Management Network.</li> <li>Surveys have been undertaken as part of Trust for Nature covenant stewardship program.</li> <li>Surveys were conducted by Friends of Sassafrass Creek to map and assess population size, condition and threats in 2016.</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

- [Slender Tree-fern Species Forecast Report](#)
- [Threatened Species Assessment report – Slender Tree-fern \(\*Cyathea cunninghamii\*\)](#)
- [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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ISSN 1448-9902 (online)

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