Statewide Conservation Plan 2021 — 2030

TRUST FOR NATURE

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Statewide Conservation Plan

2021 — 2030

CONTENTS

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Executive summary

The 2021-2030 *Statewide Conservation Plan* builds on Trust for Nature's initial *Statewide Conservation Plan* (SCP) published in 2013. That Plan remains a critical resource for private land conservation in Victoria. This updated plan aims to complement that resource by refining the Trust's conservation objectives and priorities in the context of new plans, strategies and datasets developed since the first SCP was prepared.

An important policy change since the preparation of the 2013 SCP has been the publication of the Victorian Government's *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017), which includes specific targets for additional protection and revegetation on private land. In addition, recently Australia has committed to the Convention on Biological Diversity's post 2020 target to protect at least 30 per cent of land areas and of sea areas globally by 2030 Both of these developments have provided the impetus for the SCP to articulate a protected hectare target for 2030 based on the science in the plan. Much more still needs to be done quickly to increase the extent of protected areas being managed for conservation across all land tenures.

Key findings from this plan are:

- 18 focal landscapes have been identified for private-land conservation
- two new landscapes identified (East Gippsland Uplands and Mid Goulburn) and some of the landscapes identified in the 2013 SCP have been refined
- the proportion of private land within the focal landscapes is 89%, compared with 49% in the 2013 SCP
- the focal landscapes encompass
  - 13.5% of private land in Victoria
  - 62% of the Trust's protected areas (including covenants and Trust properties)
  - representation of every under-represented Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and subregion in Victoria
  - 36% of all native vegetation on private land in Victoria
  - 40% of the remaining extent of under-represented ecosystems on private land, and
  - 45% of the extent of climate refuges occurring on private land.
- analysis of native vegetation in protected areas on private and public land found that:
  - 48% of Victorian IBRA subregions still do not meet the Convention on Biological Diversity's recommended protection target of 17%
  - 64% of all Ecological Vegetation Classes (EVC) do not meet the thresholds set for 'adequacy' under the National Reserve System (NRS) guidelines (NRMMC, 2009)
  - 64% of IBRA subregions do not meet the threshold for EVC inclusion in protected areas
  - 29% of all subregional EVCs present in Victoria are not represented in formal protected areas
- climate refuges on private land comprise nearly 750,00 hectares of habitat, notably in north-east Victoria and Gippsland
- the number of priority species of flora and fauna has increased, mostly due to access to data from the Victorian Government, enabling more refined analyses than available in 2013.

Key changes from the 2013 Plan are:

- the number of focal landscapes has increased to reflect refined mapping and a more regional focus
- the ecosystem protection objective has been expanded to encompass ecosystems which provide climate refuges as well as a goal to increase protection of under-represented ecosystems
- the threatened species objective includes modelled data on priority areas to target for conservation of priority fauna and flora. The modelled fauna layer was used to help define the refined focal landscapes
- the threatened species objective includes modelled data on many more species of fauna and flora than previously (nearly 4,000 species versus 500 species). A short-list of 21 fauna and 21 flora 'flagship species' have been developed
- the landscape connectivity and restoration objective encompasses a new goal relating to sustainable farming practices in line with the Trust's strategic plan
- a new objective relating to maintaining and improving the condition of protected ecosystems and species has been included. This aligns with the Trust's strategic plan.

Introduction

The SCP was prepared by Trust for Nature in 2013 to provide a strategy and prioritisation framework to guide the Trust's conservation program. The SCP has underpinned the Trust's strategic direction, policy input and operations.

The SCP was based on analysis of government biodiversity datasets. In the eight years since its publication, many of these datasets have been updated by the Department of Environment, Land, Water, and Planning (DELWP) as part of its 20-year *Protecting Victoria's Environment – Biodiversity 2037* plan (DELWP, 2017). Other state and national reviews and strategies have also been undertaken during this period, including:

- Victorian Environmental Assessment Council's Statewide Assessment of Public Land (VEAC, 2016, 2017)
- *The State of the Environment* report (CES, 2018)
- *Nature Conservation Review* (VNPA, 2014)
- Zoos Victoria's *Wildlife Conservation Master Plan 2019-2024*
- catchment management authority climate adaptation plans
- Parks Victoria's conservation action plans
- *Marine and Coastal Policy* (2020)
- Australian Government's threatened species strategies (DAWE, 2021)

Due in part to advocacy by Trust for Nature, *Protecting Victoria's Environment - Biodiversity 2037* provides a strong impetus for an increased focus on private land conservation. It includes a range of priorities and targets relating specifically to increased protection and improved management of private land for conservation, such as:

- a target to increase the extent of protected areas on private land by 200,000 ha by 2037 (3.4, priority 1)
- a commitment to maintain and enhance a world-class reserve system through increases in protected areas on both public and private land (priority 18)
- a commitment to improve biodiversity management across the landscape (9.1, priority 17); and
- a priority action to increase incentives and opportunities for private landholders to conserve biodiversity (6.3, priority 11).

These Victorian Government targets and the new Trust for Nature strategic plan have provided a good opportunity to review the Trust's SCP objectives and targets.

This *Statewide Conservation Plan 2021-2030* aims to provide clear goals and targets for strategic conservation on private land across Victoria over the next 10 years to 2030.

Background

Changes since the 2013 Statewide Conservation Plan

Trust for Nature context

The key change since the publication of the 2013 SCP has been the systematic use by the Trust and its partners to use the plan's priorities to inform strategic planning and project development.

Two examples have been the use of the focal landscapes to help identify priority landscapes for protection and restoration with every CMA as part of a Vic Catchments project in 2017/18 and the use of the landscapes to identify priority areas for investment as part of DELWP's Biodiversity Response Planning (BRP) program. The focal landscapes and other priority layers have been shared widely with partner organisations and have been used to underpin submissions and policy documents. This updated plan builds on that strategic work.

Since June 2012, which was the baseline for the 2013 SCP, the number and extent of covenanted land parcels has increased from 1,189 (covering 50,860 ha) to 1,567 (covering 72,906 ha) in June 2021.

Several additional reserves have been acquired by the Trust, including the Murray Family Long Swamp Reserve, near Maryborough (160 ha) and a 300 ha addition to Wanderers Plain Reserve on the Northern Plains. The Trust has also enabled acquisition and transfer of two properties at Yellingbo to help add to the Yellingbo Nature Conservation Reserve.

The Revolving Fund has continued and as of June 2021 had purchased 72 properties and re-sold 77; achieving permanent protection of an additional 6,923 ha of conservation land.

As part of recent investments by the Australian and Victorian Governments, the Trust has been part of many large, cross-tenure projects that have included protection and land-management activities. For example:

- habitat protection, fox control and boxthorn control on the Northern Plains
- deer management and weed control on private protected areas in East Gippsland to complement similar work on public land, and
- feral pig and goat control on Neds Corner Station and on adjacent public land.

In 2020-21, these land management actions resulted in feral animal control across more than 48,000 ha of private protected areas and weed management on nearly 18,000 ha of land.

Since the publication of the 2013 SCP, Trust for Nature has increased its level of engagement and commitment with Australia's first peoples. Significant actions include:

- development of a Statement of Intent and Commitment to Victorian Traditional Owner groups
- a land management training program with Traditional Owner organisations and education institutions
- a MOU with the First People of Millewa-Mallee Aboriginal Corporation and being awarded Safe Havens funding
- working on country with land management teams from multiple Traditional Owner organisations, and
- supporting Indigenous trainees in several regions.

Environmental policy and legislative context

There have been many new environmental legislations and major environmental policies and program initiatives in Victoria and/or relevant to Victoria since 2013. These include:

- a review of the Australian Government's Environment Protection and Biodiversity Conservation Act (2020)
- development of new Convention on Biological Diversity targets (2020 and ongoing)
- release of the Victorian Government's Biodiversity 2037 Plan and subsequent implementation framework and delivery program (DELWP, 2017)
- establishment of the Victorian Environment Forum, with representatives from all environmental portfolio agencies
- enactment of the *Flora and Fauna Guarantee Amendment Act* in 2019
- Native Vegetation Regulations Review (2017)
- enactment of the *Climate Change Act* (2017)
- enactment of the *Marine and Coastal Act* (2018)
- Marine and Coastal Policy (2020)
- development of an Integrated Catchment Strategy, 'Our Catchments, Our Communities' and more structured partnership approaches in each CMA region (DELWP, 2021)
- renewed Regional Catchment Strategies
- renewed Healthy Waterways Strategies by each of the CMAs and Melbourne Water
- Water for Victoria Water Plan (2016)
- development and implementation of Regional Riparian Action Plans (2016)
- development of Conservation Action Plans by Parks Victoria.

Internationally, the Convention on Biological Diversity's post-2020 global biodiversity framework has set as a target for 2030: *'Ensure that at least 30 per cent globally of land areas and of sea areas, especially areas of particular importance for biodiversity and its contributions to people, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.'*

This target (paraphrased as '30 by 30') has been adopted by more than 70 countries worldwide who form part of the 'High Ambition Coalition', including Australia, and has helped inform this Plan.

Conservation context

The extent of formally protected areas on public and private land has increased since 2013 from 3,496,003 ha to 3,981,165 ha in 2020 (CAPAD, 2020), which represents 17.5% of Victoria's land area. This includes Crown land reserves, private protected areas and Indigenous Protected Areas.

Notable additions to the reserve system since 2013 include:

- Long Swamp near Maryborough by Trust for Nature, in partnership with the Victorian Government and NCCMA
- new Forest Park of > 1000 ha in Strzeleckis established in 2017 as part of long-term land-transfer and protection agreement between the Victorian Government and HVP
- establishment of expanded Yellingbo Conservation Area through public land tenure change and strategic acquisitions

- continued expansion of private protected areas through Trust for Nature's covenanting program (CES 2018; CAPAD 2020), particularly in the South West, Eastern Riverina, Western Riverina and Gippsland Plains focal landscapes, and
- formal commitment in Zoos Victoria's Wildlife Conservation Master Plan 2019-24 to support covenanting programs to assist with habitat protection for the Plains-wanderer.

Other conservation actions on public and private land include:

- declaration of Long Swamp, near Portland, as a new Ramsar Wetland
- declaration of Budj Bim as a World Heritage area
- establishment of formal land settlement agreements between the Victorian Government and the Dja Dja Wurrung Clans Aboriginal Corporation (2013) and with Taungurung Land and Waters Council (2018)
- enactment of the *Yarra River Protection (Wilip-gin Birrarung murron) Act* 2017
- establishment of the Murray-Darling Basin Balanced Water Fund by The Nature Conservancy in 2015
- commitment to end native forest logging in Victoria by 2030
- expanding role of other conservation trusts and not-for profit organisations aiming to protect and restore private land for conservation as part of their mission, including Nature Glenelg Trust, Conservation Ecology Centre, Connecting Country and Biolinks Alliance
- expanding role of conservation businesses in the protection and restoration of native vegetation for a range of carbon and biodiversity benefits
- establishment of four Distinctive Areas and Landscapes under the Planning & Environment Act to retain landscape integrity and control future development (Bellarine, Surf Coast, Macedon, Bass Coast)
- preparation of Habitat141 strategic plan and landscape conservation plan to help guide planning and investment across this tri-state habitat corridor RESOURCES | habitat141, and
- declaration of feral cats as pest species on some categories of Crown land

On the negative side, the most recent State of Environment (SOE) report (CES, 2018) found that for 35 biodiversity indicators, only one showed a positive trend and 18 were reported as 'deteriorating'. Trends of most concern were:

- deteriorating status of most groups of native fauna and flora species
- deteriorating trend for the extent and condition of native vegetation
- increased impacts of weeds and pest animals
- landscape-scale change.

The extent and quality of native vegetation has continued to shrink by an estimated 4,000 habitat hectares each year (DELWP, 2017), largely as a result of entitled uses, exemptions under the planning system and declines in condition through invasion by environmental weeds and other threats (DELWP 2017; CES, 2018). Part of this loss has occurred as a result of increased cropping of shallow wetlands on private land over the past 10 years, with increases of up to 40% reported in parts of southwest Victoria (Casanova & Casanova, 2016).

Notwithstanding the increases in the reserve system since 2013 (CAPAD, 2020), it is salutary that the most recent Victorian assessment of public land representation in the reserve system VEAC (2016 and supporting data) indicated that there was still a 2.1 million hectare 'deficit' in the Victorian reserve system which needs to be addressed to meet the national standards for a Comprehensive, Adequate and Representative Reserve (CAR) system, with much of that deficit necessitating

increases in permanent protection on private land (TFN, 2013; VEAC, 2016; DELWP, 2017). A national assessment of Australia's protected area system in 2021 also highlighted major gaps and lags in Victoria's protected area system, relative to some other jurisdictions (Taylor 2021).

A broader view of private land conservation

Since the SCP in 2013 Trust for Nature has invested considerable time exploring conservation finance —specifically, how to use non-traditional financing sources to support private land conservation in the sector and to Trust for Nature's work.

This is reflected in a body of work which includes:

- leading a national conversation on conservation finance on behalf of the Australian Land Conservation Alliance, including a Conservation Finance Scoping Paper and three well-attended Conservation Finance workshops
- developing a proposal for expanding Trust for Nature's Revolving Fund
- investigating opportunities for private land conservation in productive landscapes, including producing a farm covenants report
- exploring carbon opportunities, including commissioning a carbon stock assessment (see the climate change section below)

Trust for Nature is also exploring cultural covenants with Traditional Owner organisations and private landholders, which would specifically acknowledge the cultural assets of a property alongside its ecological assets.

National context

Nationally, the private land conservation sector has significantly matured and coalesced. Trust for Nature is a founding member of the Australian Land Conservation Alliance, which formed in 2012 with each state's covenanting organisation and The Nature Conservancy. It has now expanded to include Australia's leading on-ground conservation organisations. The Alliance's strategic purpose is to maximise the collective impact of organisations having similar purposes by supporting and enabling co-operation, collaboration and sharing between them.

Social and economic changes

Victoria's population has continued to grow rapidly, at almost 2% per annum (DELWP, 2016), particularly on the urban fringe where there have been substantial impacts on native vegetation.

In regional Victoria, growth has also occurred in peri-urban areas around large regional centres and on Melbourne's peri-urban fringe (Pop. Bulletin). Across much of the state, there have been substantial increases in the extent of land classified as residential-rural/rural lifestyle over the past decade (Figure 1).

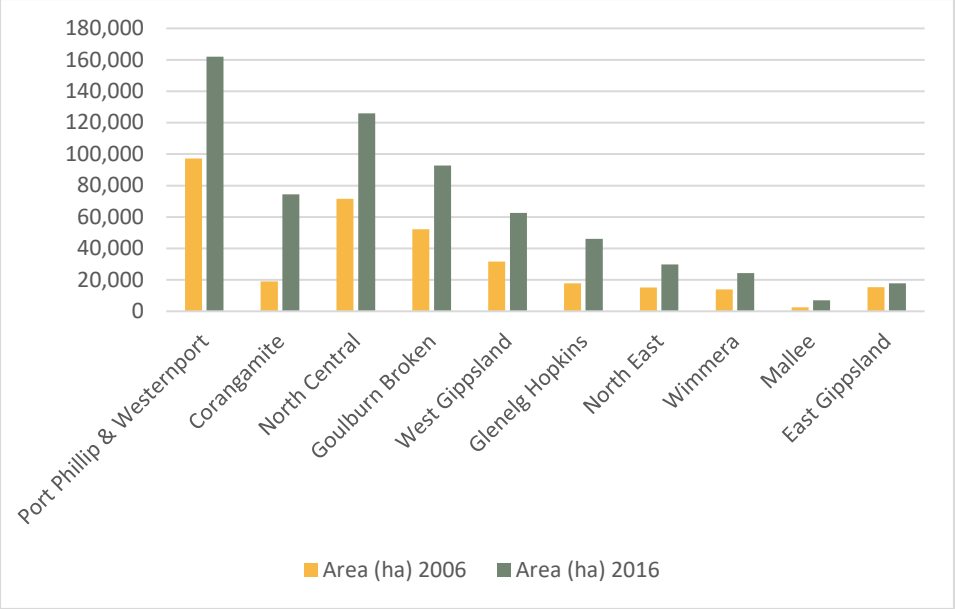

Figure 1. Extent of private land classified as residential-rural/rural lifestyle (04-20 ha) in 2006 and 2016 (source: Victorian Land Use Information datasets)

Agricultural land-use has continued to move towards increased cropping and reduced dryland grazing, over the past 15 years, with the area of cropping land doubling to more than two million hectares of all private land (Figure 2). The extent of orchards and horticultural plantations has also nearly doubled during the past 15 years, leading to significant changes in the irrigated agricultural sector in terms of land use and water allocations.

Figure 2. Extent of private land used for mixed farming/grazing or cropping in 2006 and 2016 (source: Victorian Land Use Information datasets)

An important economic and environmental driver over this period was the implementation of the Murray Darling Basin Plan in 2012. The Plan has coincided with long-term drought, leading to significant environmental, economic and social impacts throughout the Murray Darling Basin. There

have been significant environmental benefits from the Plan including the development of programs supporting environmental watering of wetlands at Neds Corner Station, and several covenants in North Central and Goulburn Broken regions. New strategic partnerships have also emerged between Trust for Nature, the Murray-Darling Basin Balanced Water Fund and Murray Darling Wetlands Working Group to deliver environmental water to private-land wetlands which are not part of CMA watering plans.

Climate change

Since 2013, climate change considerations have become central to conservation planning and policy (e.g. Reside *et al*. 2018).

The Victorian Government's Biodiversity Plan (DELWP, 2017) defines its biodiversity goal as 'Victoria has functioning plant and animal populations, improved habitats and resilient ecosystems, even under climate change'; and recognises the need for scaled-up conservation actions and innovative recovery actions to help ecosystems and species persist in the face of a rapidly changing climate (e.g. section 3.3). This policy initiative occurred concurrently with the enactment of Victoria's *Climate Change Act 2017*, which commits Victoria to net zero greenhouse gas emissions by 2050. 'Planting trees and other vegetation on cleared land, revegetating degraded land and managing existing forests better' are recognised as important strategies under this Act to increase the amount of carbon stored in natural systems and thus help contribute to the 2050 target.

With funding from the Australian Government, each of the CMAs has prepared a climate-change adaptation plan since 2013 to help identify priority areas for conservation and/or revegetation to contribute to climate-adaptation goals.

Trust for Nature has adapted its conservation planning and delivery to consider climate change mitigation and adaptation actions more explicitly. Since 2013, the Trust has undertaken research to identify priority areas for carbon sequestration in Victoria, and the contributions of its protected areas towards carbon sequestration. It has also developed resources for landholders and the community to help them think about options to help mitigate the impacts of climate change on biodiversity. It is increasingly focussed on helping protect land for restoration as a means of contributing to carbon sequestration and climate-change mitigation, including through partnering with DELWP to co-design the private land component of DELWP's 15 year program, Nature Restoration for Carbon Storage—BushBank.

Development of the SCP

Methods

The starting point for the 2013 SCP was to develop a systematic, statewide planning approach to identify priority locations for increased permanent protection as part of the National Reserve System (NRS), as there was no other statewide strategy or plan which focused on private land protection. The methodology and approach were closely aligned with NRS guidelines and criteria (Commonwealth of Australia, 1999; NRMMC, 2009). The approach was also informed by the Victorian Department of Sustainability and Environment's (DSE's) recommended conservation-planning methodology for the development of CMA Regional Catchment Strategies at that time, which entailed the identification of assets to be targeted for conservation and identification of key locations for investment to help conserve those assets (DSE, 2011).

From this combined approach, three asset classes and six conservation objectives were identified. Priority locations or habitats were then identified for each of these objectives. The three broad classes of biodiversity asset identified were:

- terrestrial ecosystems on private land
- aquatic ecosystems on private land, and
- threatened species on private land

The six objectives were:

1. Improve the viability of ecosystems and species at a landscape scale
2. Improve protection of the least protected ecosystems and threatened communities
3. Improve protection of significant aquatic and coastal ecosystems
4. Improve protection of threatened species
5. Enhance and protect landscape connectivity, and
6. Enhance and protect habitat quality.

Detailed summaries of the datasets and methods used are in the Appendices to the SCP (TFN, 2013).

2021 approach

Conservation planning

The context to this review of the SCP, as outlined in a paper to the Conservation Committee in November 2018, has been:

- timeliness as a review and evaluation of objectives, priorities and progress after eight years
- release of the 20-year *Victorian Biodiversity 2037 Plan*, and the opportunity to align the review with that Plan's associated priorities and targets where applicable
- subsequent development and release of important new reports and datasets by DELWP and other NRM agencies, including Strategic Management Prospects (SMP) layer, Natureprint v4, Habitat Distribution Models, Statewide Assessment of Public Land (VEAC 2016), CMA climate-change adaptation plans, and
- opportunity to align the SCP more closely with the organisational strategic plan.

As noted above, the increased focus on adaptive conservation planning and conservation action in the context of climate change has also been central to this review, with an increased focus on the National Reserve System's criterion of achieving 'Adequacy'. This criterion encompasses the key

concept of ensuring that sufficient land is protected to ensure the viability, integrity and resilience of ecosystems and species and specifically encompasses climate change considerations (NRMMC, 2009).

Scope of plan

Trust for Nature's statutory objectives encompass:

- conservation of ecologically significant areas
- conservation of areas of natural interest or beauty, and
- conservation of areas of historical interest.

To date, more than 95% of all protection proposals have been based on the ecological significance objective, although there have been some significant protection achievements relating to the other objectives—for example the acquisition of Mount Elephant at Derrinallum as a site of major geological significance.

Noting that the application of current conservation criteria to the natural interest and historical interest objectives also includes consideration of ecological significance, this plan only addresses priorities relating to that statutory objective. However, given the evolution of covenants for protection of farming land and cultural heritage, for example, it is envisaged that future reviews would consider priorities relating to the other two objectives.

Methods

The review broadly applies the same methods as used in the 2013 SCP. Part of the scope of the review was to evaluate whether or not the conservation objectives should stay the same, and whether or not the priorities identified for each objective in the SCP needed to be refined.

For the initial SCP, we tried to access all relevant datasets that had been developed subsequent to the SCP by DELWP or other conservation agencies. We used these to evaluate existing conservation assets, objectives, priorities and locations.

With researchers from RMIT University and the Arthur Rylah Institute for Environmental Research, we also undertook a review of the methods used to identify priority landscapes and priority species. These collaborations allowed more detailed analyses than done in the previous Plan and have helped refine our conservation objectives, goals and spatial priorities for the next 10 years.

More detailed descriptions of the methods and datasets are provided in Appendix 1.

Ecological assets and conservation objectives for private land

The three broad classes of biodiversity asset identified in the 2013 Plan were retained as:

- terrestrial ecosystems on private land
- aquatic ecosystems on private land, and
- priority species on private land

Six conservation objectives and associated goals were developed to support the long-term conservation of these assets as follows:

1. Increase protection of ecosystems and species at a landscape scale
2. Increase protection of priority ecosystems
3. Increase protection of priority aquatic and coastal ecosystems
4. Increase protection of habitat for priority species
5. Enhance and protect landscape restoration and connectivity, and

6. Maintain and improve condition of ecosystems and populations

Target setting and prioritisation

One of the aims of this SCP review was to articulate measurable and spatially explicit targets for all of the conservation objectives. The review has been assisted here by the establishment of concrete targets for Victoria in the Victorian Biodiversity 2037 Plan, which were in part advocated for by Trust for Nature, notably:

- 200,000 ha of new permanently protected areas on private land, and
- 200,000 ha of revegetation in priority areas for connectivity between habitats.

These Biodiversity 2037 targets and Australia's recent 30 x 30 protection commitment have helped guide the development of Trust for Nature's over-arching conservation objective in this updated Statewide Conservation Plan: 'to increase the extent of permanently protected habitat on private land by at least 100,00 ha by 2030.' This indicative target builds on the protection target of 50,000 ha in the strategic plan for the period 2017-2021, and incorporates the target of permanently protecting 35,000 ha in the current Strategic Plan 2021-2025. It is used to help articulate subsidiary targets for supporting goals under conservation objectives 1, 2, 3, 4 and 5, with a notional breakdownfor each objective and associated goals as shown in the table below. The notional breakdown of the proposed 100,000 ha target is based on the relative weighting given to the different objectives in terms of their conservation impact, and estimates of likely gains based on achievements to date.

Learning from the 2013 SCP, the datasets have been developed to enable the development of explicit conservation targets and spatial locations at multiple scales. Additional prioritisation and target-setting, based on the modelled risk of vegetation loss over the next 50 years, will occur as part of the implementation of this updated plan.

Summary of indicative 2030 conservation targets for conservation objectives and goals

Conservation objective/goals	Hectare target or other target
Overarching objective: to achieve an additional 100,000 ha of permanently protected habitat on private land by 2030, through direct or enabled protection.	100,000
Objective 1. Increase protection of ecosystems and species at a landscape scale	
Goal 1.1 Increase extent of privately protected areas PPAs) in focal landscapes (encompassing priorities identified under goals 2, 3, 4 and 5)	50,000
Goal 1.2 Increase extent of PPAs in additional priority landscapes identified under objectives 2 and 3	Included below
Objective 2. Increase protection of priority ecosystems	
Goal 2.1 Increase protection of under-represented ecosystems outside of focal landscapes	25,000
Goal 2.2 Increase extent of climate change refuges protected outside of focal landscapes	5,000
Objective 3. Increase protection of priority aquatic and coastal ecosystems	
Goal 3.1 Increase protection of priority wetlands outside of focal landscapes	5,000
Goal 3.2 Increase protection of priority waterways and floodplains outside of focal landscapes	2,500
Goal 3.3 Increase protection of coastal habitat outside of focal landscapes	2,500
Objective 4. Increase protection of habitat for priority species	
Goal 4.1 Increase protection of habitat for priority species outside of focal landscapes	5,000
Objective 5. Enhance and protect landscape restoration and connectivity	
Goal 5.1 Increase extent of habitat permanently protected and restored/revegetated outside of focal landscapes	5,000
Goal 5.2 Increase extent of land restored/revegetated with partners under short-term agreements	(5000)[1]
Goal 5.3 Support increased stewardship for farmland being managed for sustainable agriculture and biodiversity conservation across Victoria	>25% increase in proportion of properties with covenants on farming land
Objective 6. Maintain and improve condition of ecosystems and species	
Goal 6.1 Maintain and improve the ecological health of covenanted land	>90% stable or improving
Goal 6.2 Maintain and improve the ecological health of TFN reserves	>90% stable or improving

1. Not included in 100,000 ha protection target as it is not long-term protection

Objectives, goals and targets

Objective 1. Increase protection of ecosystems and species at a landscape scale

Rationale

Maintaining the resilience and integrity of ecosystems, species and populations in the context of climate change is a key objective of the National Reserve System (NRS) under the Adequacy criterion (NRMMC, 2009). As noted in the NRS guidelines (Commonwealth of Australia, 1999), there is no single threshold that guarantees the persistence of all ecosystems and species (Commonwealth of Australia, 1999). Instead, the most common approach applied in Australia since the establishment of the NRS has been to aim to protect and manage at least 15% of the pre-1750 extent of all bioregional ecosystems (JANIS 1997), on the basis that larger areas:

- encompass a broader range of environments
- are more likely to be resilient to major disturbance events, including climate change
- are more likely to maintain intact ecological processes
- provide greater landscape connectivity for movements of fauna and flora at different time and spatial scales
- support more species
- support larger populations of species, and
- are more likely to support higher-order species (Poinani & Richter 1999; Bennett & Mac Nally, 2004; Bennett *et al.* 2009; Dunlop *et al*. 2012).

This objective therefore identifies a set of focal landscapes and other priority areas across Victoria that are considered to provide the best opportunities for maintaining and improving viable ecosystems and viable populations on private land.

More details about the methods used to identify the focal landscapes and other priority areas are provided in Appendix 1.

Goal 1.1. Increase extent of privately protected areas in focal landscapes by at least 50,000 ha by 2030

Methods

In contrast to the first iteration of the SCP, where focal landscapes were identified on the basis of their strategic biodiversity values at a statewide scale, the approach this time was based on reserve selection theory (Margules & Pressey, 2000). We focussed on identifying private land landscapes where additional permanent protection would have maximum conservation impact (Pressey & Taffs, 2001). We integrated two datasets to help identify potential focal landscapes:

- a spatial layer which classified the importance of mapped native vegetation for additional protection on private land at a scale of 250 m x 250 m across Victoria, weighted by proportional occurrence on private land and extent of depletion, and
- a spatial layer which modelled fauna-habitat importance at a scale of 250 m x 250 m across Victoria, fauna habitat, based on habitat distribution models for nearly 600 vertebrate species and weighted by their conservation status and proportional, private land occurrence.

The rationale for applying these two layers was that:

- the EVC layer directly addressed gaps in the national reserve system from a private land protected area perspective and provides a strategic underpinning for where to target additional protection efforts; and
- the fauna layer, applied at scale, helps ensure that the 'Adequacy' component of the NRS criteria is addressed for species and populations which depend on private land.

Potential landscapes were defined as cross-tenure polygons of 2500+ ha, as this patch-size threshold in theory met population viability criteria developed for a range of vertebrates (Verboom *et al*. 2001). Based on dispersal threshold data for more than 70 Australian vertebrate species (Doerr *et al*. 2010), polygons within 2 km of one another were aggregated into consolidated biodiversity priority zones (BPZs) (Figure 3), on the basis that some dispersal of animals would occur between those patches. The final step was to aggregate multiple BPZs located within the same and/or adjacent bioregion and catchments into focal landscapes. More detail is provided in Appendix 1.

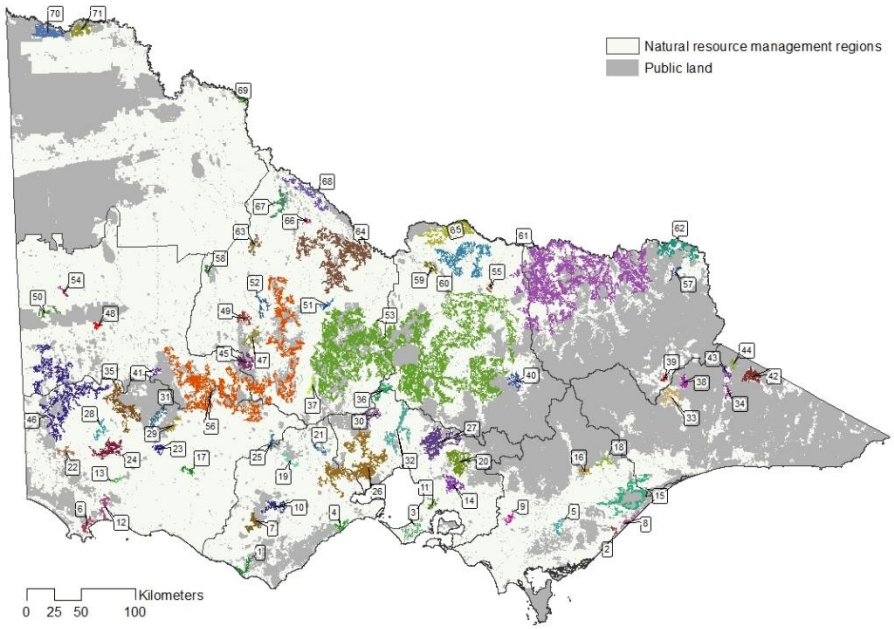

Figure 3. Private land distribution of the 71 biodiversity priority zones (BPZs).

Key findings

Eighteen focal landscapes have been identified across the state to target for additional protection to increase ecological health and resilience at a landscape scale (Figure 4).

Notable changes from the 2013 focal landscapes are:

- addition of one new focal landscape in the East Gippsland Uplands, comprising mostly rain-shadow woodland sin the Upper Tambo and Snowy River catchments, along with sub-alpine and montane woodland around Cobungra and Omeo.
- addition of one new landscape in the mid Goulburn-Broken foothills, named Mid Goulburn
- re-defining the Victorian Midlands focal landscape into three separate landscapes (Western Box-ironbark, Eastern Box-ironbark, Greater Grampians).

- splitting the former South West focal landscape into two separate landscapes better aligned with respective CMA regions. These are called Glenelg Woodlands and Wimmera Woodlands.
- splitting the Northern Inland Slopes focal landscape into two, called Northern Foothills and Upper Murray.
- expanding the former Murray Scrolls landscape to encompass a priority area around Boundary Bend and re-naming the landscape as the Neds Corner-Lower Murray focal landscape.
- inclusion of the stony rises around Lake Corangamite as part of a revised Otways and Western Lakes focal landscape.

More detailed descriptions are provided in Appendix 2.

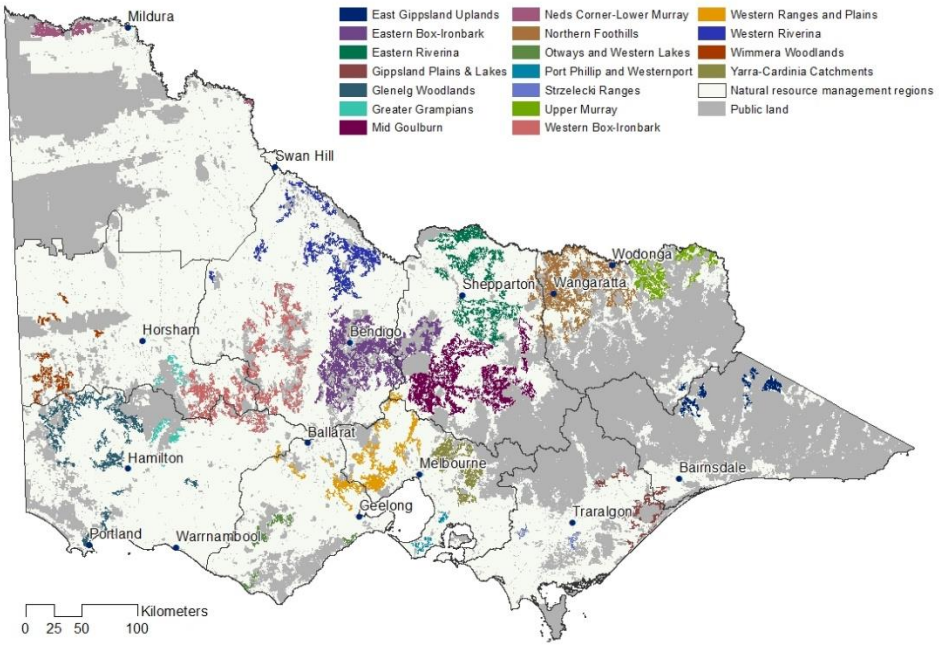

Figure 4. Location of focal landscapes on private land

Overall, the total extent of the revised focal landscapes represents 2,099, 282 ha of land, of which 89% (1,872,970 ha) is on private land, compared with the 2013 SCP which encompassed a total extent of 3,466,385 ha, of which 49% was on private land. Collectively, the 18 focal landscapes encompass:

- 13.5% of all private land in Victoria
- 62% of the Trust's protected areas (including both covenants with landholders and Trust properties) on private land
- representation of every under-repesented IBRA bioregion and subregion in Victoria, altogether comprising 90% of the private-land extent
- 36% of all native vegetation remaining on private land in Victoria
- 40% of the extent of under-represented EVCs occurring on private land
- 45% of the extent of climate refuges occurring on private land.

Summary statistics for these updated focal landscapes are below (Table 1).

Focal landscape	Total hectares	Private land (ha)	Extent of native vegetation on private land (ha)	Extent of under-represented EVCs on private land (ha)
East Gippsland Uplands	46,717	43,698	36,617	7,016
Eastern Box-Ironbark	303,277	264,414	175,592	98,255
Eastern Riverina	169,352	155,840	74,742	72,023
Gippsland Plains & Lakes	49,930	41,279	29,107	23,947
Glenelg Woodlands	143,198	131,234	67,918	66,733
Greater Grampians	36,741	32,980	22,196	15,826
Mid Goulburn	257,285	237,044	130,687	117,799
Neds Corner-Lower Murray	41,280	39,967	38,787	2,663
Northern Foothills	245,770	211,843	101,150	90,048
Otways and Western Lakes	30,033	27,084	15,148	13,584
Port Phillip and Westernport	11,187	9,719	4,746	3,992
Strzelecki Ranges	8,013	6,561	5,037	5,037
Upper Murray	86,895	78,645	46,055	39,666
Western Box-Ironbark	249,518	220,946	144,366	100,613
Western Ranges and Plains	131,057	116,341	66,439	56,762
Western Riverina	155,212	139,944	75,545	75,215
Wimmera Woodlands	54,487	50,162	29,271	21,202
Yarra-Cardinia Catchments	79,327	65,266	41,614	25,072
Total	**2,099,282**	**1,872,970**	**1,105,014**	**835,452**

Table 1. Land tenure and native vegetation attributes for each focal landscape

Indicators and targets

Statewide criteria, indicators and targets are described in Table 2. Based on the extent of focal landscapes within each region and the overall target of an additional 50,000 ha protected in focal landscapes, regional targets are as follows. (Table 3).

Criterion	Indicator	Target
Extent of protected habitat in focal landscapes	Extent of habitat protected within focal landscapes compared with 2021 baseline	50,000 ha
	Proportion of all land protected which includes focal landscapes	> 50%
	Proportion of sites protected which include focal landscapes	> 50%

Table 2. Statewide criteria, indicators and targets for focal landscapes (Goal 1.1)

NRM region	Focal landscape extent on private land (ha)	Regional target (ha)
Corangamite	58,990	1,575
East Gippsland	46,112	1,231
Glenelg Hopkins	188,323	5,027
Goulburn Broken	464,309	12,395
Mallee	39,967	1,067
North Central	467,132	12,470
North East	277,871	7,418
Port Phillip & Westernport	152,753	4,078
West Gippsland	42,849	1,144
Wimmera	134,656	3,595
Total	**1,872,962**	**50,000**

Table 3. Regional targets for focal landscape protection by 2030.

Goal 1.2. Increase extent of privately protected areas in other priority landscapes (determined under objectives 2 and 3) by at least 15,000 ha

Methods

Under objectives 2 and 3 we identified patches of priority habitat to target for permanent protection, on the basis that the Trust should prioritise efforts towards patches and landscapes

which are large enough to provide the best chance of maintaining ecological viability of ecosystems and populations. Details of the methods used are outlined under the respective objectives in Appendix 1.

Key findings

Key findings linked to goal 1.2 are described under objectives 2 and 3.

Indicators and targets

Targets linked to goal 1.2 are described under objectives 2 and 3.

Objective 2. Increase protection of priority ecosystems

Rationale

This objective articulates how TFN will contribute to building the national reserve system by addressing gaps in ecosystem protection on private land and by increased protection of climate change refuges. While the focus is on additional protection outside of focal landscapes in terms of hectare targets, it is assumed that the same prioritisation approach will be applied to protection efforts within focal landscapes.

Protecting native vegetation is considered a cornerstone of biodiversity conservation and has been the basis of conservation planning in Australia and internationally for more than 30 years (Dunlop & Brown 2008; DELWP 2017).

The Convention on Biological Diversity (CBD) has set as its biodiversity protection target 11 that '*By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes* Aichi Biodiversity Targets (cbd.int).

In Victoria, despite having met the 17% protection target overall across the State (CAPAD, 2020), there remains an estimated bioregional gap of 2.1 million ha of additional protection required to achieve the NRS standards of a CAR reserve system; with much of that dependent on additional protection on private land (DELWP, 2017).

The National Reserve System's (NRS) guidelines for a Comprehensive, Adequate and Representative (CAR) reserve system identify the protection of under-represented regional ecosystems as one of the key actions required to build the NRS (Commonwealth of Australia, 1999; NRMMC, 2005). Protecting the full range and diversity of regional ecosystems—particularly those not already represented in the reserve system—is also recommended as one of the strategies for enabling native species to adapt to a changing climate (Dunlop & Brown 2008; NRMMC 2009; Dunlop *et al*. 2012).

Goal 2.1. Increase protection of under-represented ecosystems by 25,000 ha outside of focal landscapes

Methods

We assessed the representation of ecosystems against the National Reserve System's criteria for a Comprehensive, Adequate and Representative (CAR) reserve system (NRMMC 2009). All data were based on VEAC's (2016) Statewide Assessment of Public Land in Victoria datasets.

For 'comprehensiveness', we assessed the number of IBRA (Interim Biogeographic Regionalisation for Australia) subregions (Thackway & Cresswell, 1995) which met the NRS standard that at least 10% of the total area of every bioregion/subregion is included in protected areas. Bioregional protection statistics were obtained from the most recent assessment done by the Collaborative Australian Protected Areas database (CAPAD, 2020) to evaluate current protection levels against NRS criteria and the more recent CBD target of at least 17% of terrestrial and inland water ecosystems protected.

For 'adequacy' we used VEAC's 2016 statewide dataset of EVC representation in the reserve system on public land (VEAC 2016, unpubl. data)) to identify under-represented EVCs against JANIS criteria (JANIS, 1997). Analyses were done at the site-scale and for cross-tenure patches of 2500+ ha. We

grouped under-represented EVCs into EVC Groups to determine which ecosystem types are most under-represented in the reserve system and should be a focus for additional protection on private land.

For 'representativeness', we assessed the proportion of EVCs present in every subregion which were represented at least once in protected areas on public or private land. Analyses were based on the NRS benchmark of having at least 80% of all bioregional ecosystems represented at least once in protected areas (NRMMC, 2009).

More detail is provided in Appendix 1.

Key findings

Comprehensiveness: assessment of bioregional representation in protected areas

Of Victoria's 29 subregions, 48% (14) do not meet the CBD target of 17% protection and 31% do not meet the NRS target of 10% protection (Figure 5, Table 4). As documented in the 2013 SCP (TFN, 2013), potential opportunities for increasing protection levels on public land are very limited for some of these subregions, and substantial additions on private land will be required to meet the Victorian Government's protection commitments in the Biodiversity 2037 Plan (DELWP, 2017: pp. 48-49). Subregions where increased private land protection is critical to achieving a CAR reserve system comprise:

- Dundas Tablelands
- Victorian Riverina
- Strzelecki Ranges
- Wimmera
- Victorian Volcanic Plain
- Warrnambool Plain
- Central Victorian Uplands
- Gippsland Plain.

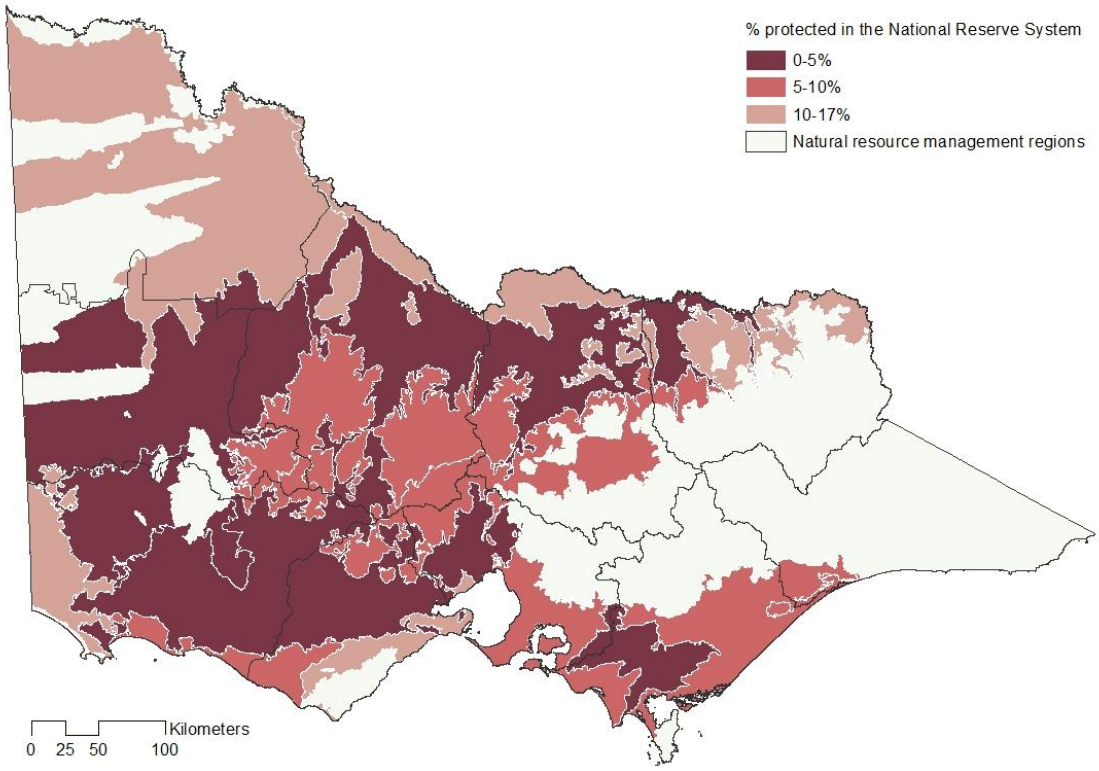

Figure 5. Percentage of land area included in protected areas in each IBRA subregion, in relation to the NRS target of at least 10% protected and the CBD target of at least 17% protected.

IBRA Region	IBRA Subregion Name	Area Protected (ha)	% Protected
Australian Alps	Snowy Mountains	98,531	50.62
	Victorian Alps	258,925	49.81
AUA Total		**357,456**	**50.03**
Furneaux	Flinders	-	0.00
	Wilsons Promontory	40,596	99.03
FUR Total		**40,596**	**99.03**
Murray Darling Depression	Lowan Mallee	946,541	66.67
	Murray Mallee	479,033	16.43
	Wimmera	55,353	2.75
MDD Total		**1,480,927**	**23.33**
Narracoorte Coastal Plain	Bridgewater	10,277	56.64
	Glenelg Plain	57,606	14.45
NCP Total		**67,883**	**16.29**
NSW South Western Slopes	Inland Slopes	62,046	10.95
NSS Total		**62,046**	**10.95**
Riverina	Murray Fans	60,383	13.84
	Murray Scroll Belt	82,387	71.15
	Robinvale Plains	40,756	63.30
	Victorian Riverina	61,619	3.26
RIV Total		**245,145**	**9.78**
South East Coastal Plain	Gippsland Plain	100,477	8.06
	Otway Plain	37,677	15.84
	Warrnambool Plain	16,188	6.12
SCP Total		**154,342**	**8.82**
South East Corner	East Gippsland Lowlands	130,785	24.48
	South East Coastal Ranges	276,665	34.96
SEC Total		**407,450**	**30.74**
South Eastern Highlands	Highlands-Northern Fall	319,253	22.55
	Highlands-Southern Fall	285,535	23.87
	Kybeyan-Gourock	24,873	35.49
	Monaro	14,477	19.27
	Otway Ranges	75,389	50.31
	Strzelecki Ranges	7,332	2.14
SEH Total		**726,859**	**22.37**
Southern Volcanic Plain	Victorian Volcanic Plain	50,874	2.16
SVP Total		**50,874**	**2.16**
Victorian Midlands	Central Victorian Uplands	80,578	6.62
	Dundas Tablelands	9,747	1.42
	Goldfields	128,029	9.65
	Greater Grampians	180,537	76.04
VIM Total		**398,892**	**11.50**
Total		**3,992,470**	**17.55**

Table 4. Bioregional and subregional protection status across public and private land based on 2020 national data (CAPAD 2020).

Adequacy: assessment of ecosystem representation in protected areas

Using the JANIS criteria for assessing adequacy (JANIS 1997; VEAC 2016), 64% of Victoria's 1976 subregional EVCs do not meet the reservation targets set for formal ecosystem protection. Collectively, the shortfall in those EVCs' reservation status equates to approximately 2.1 million ha (VEAC data, 2016; DELWP 2017).

In total, approximately 4,312,005 ha of under-represented EVCs occur across Victoria, of which 58% is on private land (Figure 6). When analysed only with regards to cross-tenure patches of 2500+ ha, there is approximately 1,422,965 ha of under-represented vegetation of which 41% is on private land (Figure 7). Many of these priority patches overlap with focal landscapes but additional areas for strategic protection include:

- Strzelecki Ranges
- northern margins of the Gippsland Plain subregion
- parts of the Central Victorian Uplands around Wombat Forest (Figure 7)

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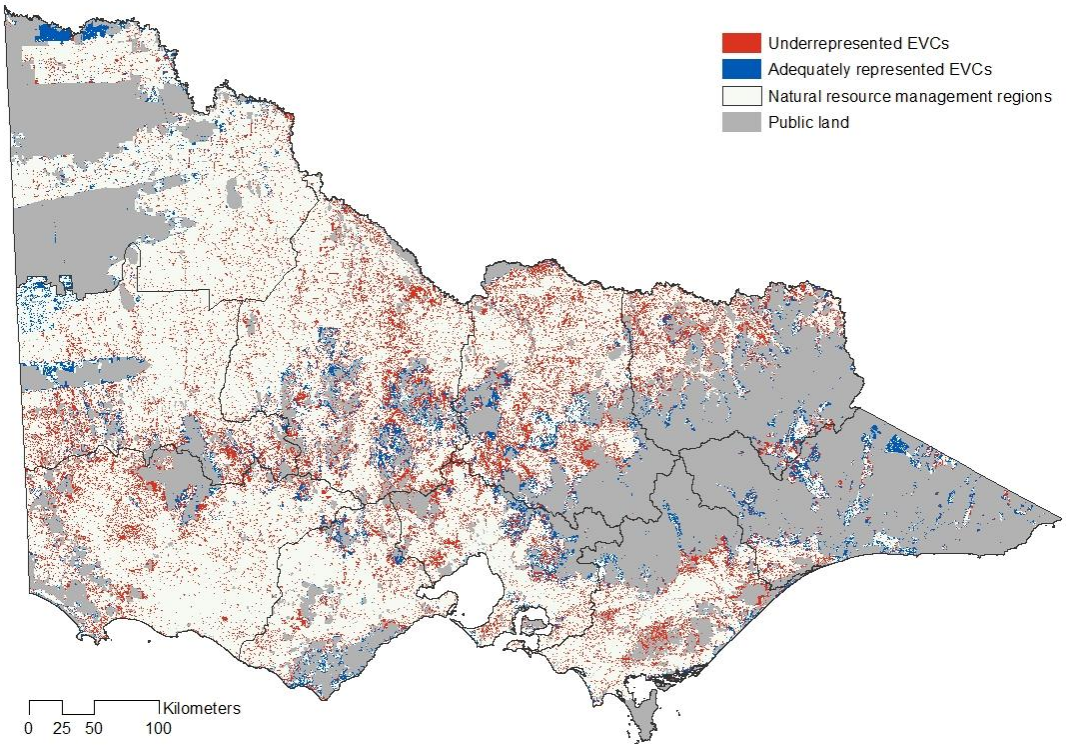

Figure 6. Distribution of under-represented and adequately represented EVCs on private land

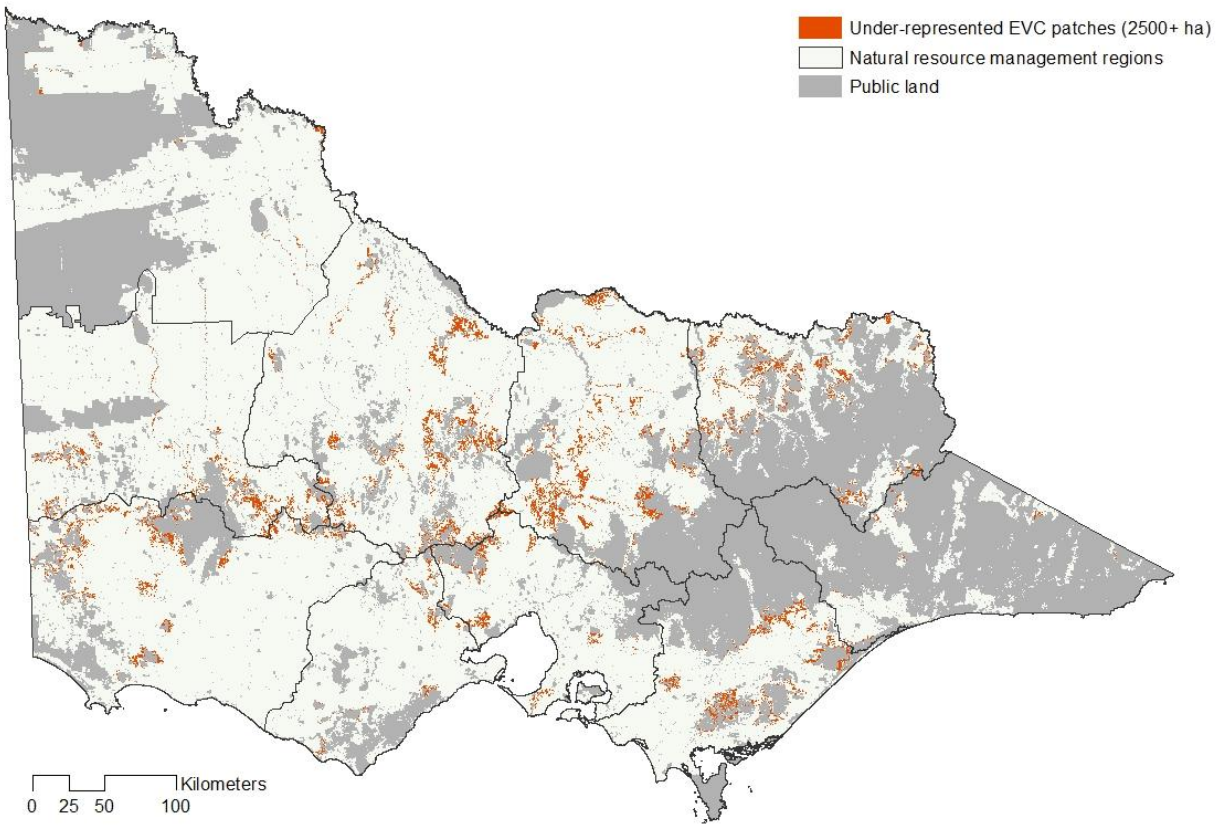

Figure 7. Private-land distribution of under-represented EVC patches > 2500+ ha

Under-represented ecosystems with the highest proportion of their extent on private land comprise:

- Plains Grasslands
- Lower Slopes Woodlands
- Plains Woodlands
- Herb-rich Woodlands
- Box Ironbark Forest
- Wetlands
- Riverine Grassy Woodlands (Table 5).

EVC group	Total extent (ha)	Private-land extent (ha)	% of total extent
Plains Grasslands and Chenopod Shrublands	185,924	161,691	87
Lower Slopes or Hills Woodlands	317,526	249,275	79
Plains Woodlands or Forests	784,999	536,620	68
Herb-rich Woodlands	151,641	99,808	66
Box Ironbark Forests or dry/lower fertility Woodlands	47,133	30,373	64
Wetlands	132,143	84,679	64
Riverine Grassy Woodlands or Forests	266,676	159,364	60
Dry Forests	734,462	375,562	51
Montane Grasslands, Shrublands or Woodlands	40,083	19,950	50
Riparian Scrubs or Swampy Scrubs and Woodlands	166,840	73,507	44
Lowland Forests	196,050	84,345	43
Heathy Woodlands	83,861	33,245	40
Mallee	278,219	87,680	32
Wet or Damp Forests	163,501	49,946	31
Coastal Scrubs Grasslands and Woodlands	8,734	2,661	30
Heathlands	37,597	6,322	17
Salt-tolerant and/or succulent Shrublands	34,959	5,285	15
Rainforests	36,812	3,103	8
Rocky Outcrop or Escarpment Scrubs	22,572	1,507	7
Sub-alpine Grasslands, Shrublands or Woodlands	13,041	681	5
Total	**1,886,043**	**1,321,811**	**70**

Table 5. Extent (ha) of under-represented EVCs by EVC group
EVC groups arranged in order from highest % on private land to lowest %.

Representativeness: assessment of bioregional ecosystem representation in protected areas

Twenty-nine per cent (579) of Victoria's 1976 subregional EVCs are not included in any protected areas either on private or public land. When assessed against the NRS criterion of 80% representation of all subregional EVCs in protected areas, 64% of Victoria's subregions do not meet that benchmark (Table 6). Dundas Tablelands and Goldfields subregions have more than 50% of their subregional EVCs unrepresented in protected areas and another five subregions have more than 40% of their EVC unrepresented in protected areas (Table 6). These seven subregions also fail to meet the CBD target of 17% land area protection and are high priority areas for additional protection.

Subegion	Total no. of EVCs	Total number of EVCs without private/public representation	% of EVCs without any representation
Goldfields	73	37	51
Dundas Tablelands	106	53	50
Victorian Volcanic Plain	133	65	49
Victorian Riverina	127	60	47
Warrnambool Plain	50	22	44
Northern Inland Slopes	68	29	43
Strzelecki Ranges	30	12	40
Central Victorian Uplands	93	36	39
Glenelg Plain	90	28	31
Otway Plain	52	16	31
Wimmera	141	41	29
Gippsland Plain	128	37	29
East Gippsland Lowlands	53	15	28
Highlands - Northern Fall	60	14	23
Highlands - Southern Fall	75	17	23
Murray Mallee	49	11	22
Otway Ranges	27	6	22
East Gippsland Uplands	52	11	21
Murray Fans	127	21	17
Greater Grampians	217	35	16
Bridgewater	15	2	13
Robinvale Plains	30	4	13
Monaro Tablelands	17	2	12
Highlands - Far East	17	1	6
Murray Scroll Belt	23	1	4
Victorian Alps/Snowy Mountains	51	2	4
Lowan Mallee	35	1	3
Wilsons Promontory	37	0	0
Total	**1,976**	**579**	

Table 6. Subregional ecosystem representation in protected areas (against NRS threshold of at least 80% representation of all EVCs present in every subregion in one or more protected areas)

Data arranged in order of least represented subregion to best represented subregion. The shaded subregions do not meet the threshold.

Indicators and targets

Statewide criteria, indicators and targets are described in Table 7. Based on the modelled extent of under-represented ecosystems in every region and the overall target of an additional 25,000 ha of under-represented EVCs protected outside of focal landscapes, regional targets for this goal are as in Table 8.

Criterion	Indicator	Target
Extent of under-represented ecosystems protected which contribute to the national reserve system	Extent of habitat protected within priority landscapes for ecosystem protection (>2500 ha)	15,000 ha
	Extent of under-represented protected at other specific locations	10,000 ha
	Proportion of sites protected which include under-represented EVCs	>25% increase, compared with 2021 baseline
Representativeness: at least 80% of all EVCs are represented in protected areas in each IBRA subregion	Number of additional EVCs included in protected areas in every subregion below NRS threshold	25% improvement in number of EVCs included at least once in protected areas, compared with 2021 baseline

Table 7. Statewide criteria, indicators and targets for under-represented ecosystems (Goal 2.1)

NRM region	Total area of under-represented EVCs on private land (ha)	Area of under-represented EVCs on private land outside of focal landscapes (ha)	Regional target (ha)
Corangamite	109,808	82,212	1,671
East Gippsland	51,933	44,040	895
Glenelg Hopkins	288,623	195,255	3,968
Goulburn Broken	359,275	144,483	2,936
Mallee	101,131	98,468	2,001
North Central	424,514	222,511	4,522
North East	198,441	72,136	1,466
Port Phillip & Westernport	141,856	73,600	1,496
West Gippsland	157,890	131,276	2,668
Wimmera	232,089	166,127	3,376
Total	**2,065,560**	**1,230,108**	**25,000**

Table 8. Regional protection targets for under-represented EVCs on private land by 2030.
Note that the targets set here are additional to any under-represented vegetation protected within focal landscapes.

Goal 2.2. Increase extent of climate change refuges protected by 5,000 ha outside of focal landscapes

Methods

We used a statewide dataset of EVC vulnerability to climate change prepared for all Victorian CMAs (Spatial Vision, 2014) to identify locations of resilient ecosystems (hereafter termed climate change refuges), based on Spatial Vision's high temperature change-2050 model. We used a minimum cross-tenure patch-size threshold 2500+ ha for these analyses, on the assumption that larger patches will be more effective as refuges. More detail is provided in Appendix 1.

Key findings

The total extent of climate change refuges identified from the methods above was estimated to be 7.2 million ha, of which 10% (742,000 ha) is on private land; particularly in North East, East Gippsland and Goulburn Broken regions (Figure 8, Table 10). Of this private land extent, 45% is located within focal landscapes.

The private land distribution of priority climate change refuge patches for protection is shown in Figure 8. Many of these areas overlap with those areas included within focal landscapes. Additional areas of note include:

- Private-land adjacent to public land in the South Eastern Highlands, East Gippsland Uplands and East Gippsland Lowlands subregions
- Strzelecki Ranges
- French Island
- Private land bordering Little Desert, Big Desert-Wyperfeld and Murray-Sunset National Parks

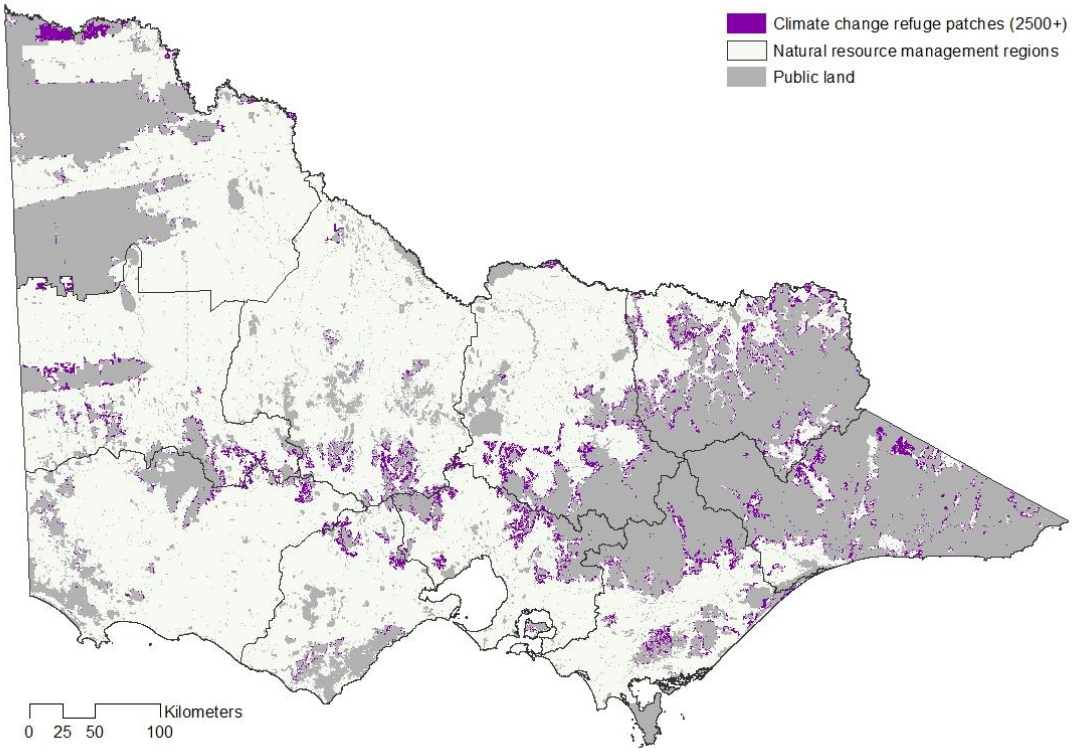

Figure 8. Private-land distribution of climate-change refuge patches (2500+ ha)

Indicators and targets

Statewide criteria, indicators and targets are described in Table 9. Based on the modelled extent of climate change refuges in every region and the overall target of an additional 5,000 ha of climate change refuges protected outside of focal landscapes, regional targets for this goal are as follows. (Table 10).

Criterion	Indicator	Target
Extent of protected climate change refuges	Extent of habitat protected within refuge patches	2,500 ha
	Extent of refuge habitat protected at other specific locations	2,500 ha
	Proportion of sites protected which include mapped climate change refuge habitat, outside of focal landscapes	>25% increase, compared with 2021 baseline

Table 9. Statewide criteria, indicators and targets for climate change refuges (Goal 2.2)

NRM region	Extent of climate change refuges > 2500 ha on private land (ha)	Extent of climate change refuges > 2500 ha outside of focal landscapes (ha)	Regional target (ha)
Corangamite	28,482	14,803	182
East Gippsland	105,573	77,376	951
Glenelg Hopkins	33,240	13,051	160
Goulburn Broken	95,740	42,169	519
Mallee	69,089	30,993	381
North Central	56,465	22,473	276
North East	133,831	71,686	881
Port Phillip & Westernport	69,973	31,784	391
West Gippsland	71,974	56,518	695
Wimmera	77,273	45,778	563
Total	**741,641**	**406,631**	**5,000**

Table 10. Regional targets for climate change refuge protection by 2030.
Note that the targets set here are additional to any climate change refuges protected within focal landscapes.

Objective 3. Increase protection of priority aquatic and coastal ecosystems

Rationale

Aquatic and coastal ecosystems play a pivotal ecological role in the natural environment in terms of biological productivity, biodiversity, hydrological processes, landscape connectivity, migratory movements of aquatic and terrestrial animal species, and provision of habitat refugia during dry periods (Soule' *et al.* 2004; Dunlop & Brown 2008; Bennett *et al.* 2009; Kingsford *et al*. 2016). For this reason, protection of significant aquatic systems forms a core element of Australia's Biodiversity Conservation Strategy (NRMMC, 2010) and is also recognised as a priority action for building the resilience of the national reserve system (NRMMC 2005, 2009; Dunlop & Brown 2008; Dunlop *et al.* 2012).

It is estimated that 37% of all wetlands in Victoria have been destroyed since European occupation and a further 30% have been degraded (NRE, 1997). This loss and degradation of wetlands is continuing annually as a consequence of the drying climate and trend towards increased cropping; with regional losses of as much as 40% over the past decade (Casanova & Casanova, 2016).

This objective articulates how TFN will increase protection of priority wetlands, riparian and coastal ecosystems. While the focus is on additional protection outside of focal landscapes in terms of hectare targets, it is assumed that the same prioritisation approach will be applied to protection efforts within focal landscapes.

Goal 3.1. Increase protection of priority wetlands by 5,000 ha outside of focal landscapes

Methods

We combined three separate data layers to create an integrated layer of significant wetlands. These layers were: Ramsar wetlands, Wetlands of National Importance (NIW) and under-represented wetland EVCs (data from VEAC 2016). We also identified a set of priority wetland patches based on Ramsar/NIW sites which were greater than 2,500 ha in total size and included some mapped extent on private land. More detail is provided in Appendix 1.

Key findings

Approximately 179,000 ha of significant wetland occur on private land, with a high proportion in the Glenelg Hopkins, North Central, Wimmera, Corangamite and Port Phillip & Westernport regions (Figure 9, Figure 10). This amount represents approximately 26% of the total extent of significant wetlands across all land tenures. Priority locations and wetland types to target for additional protection remain the same as identified in the 2013 SCP (p. 72). Priority wetland patches of 2,500 ha or larger include nine of Victoria's Ramsar wetlands and an additional 25 wetlands of national importance (Figure 11, Table 11).

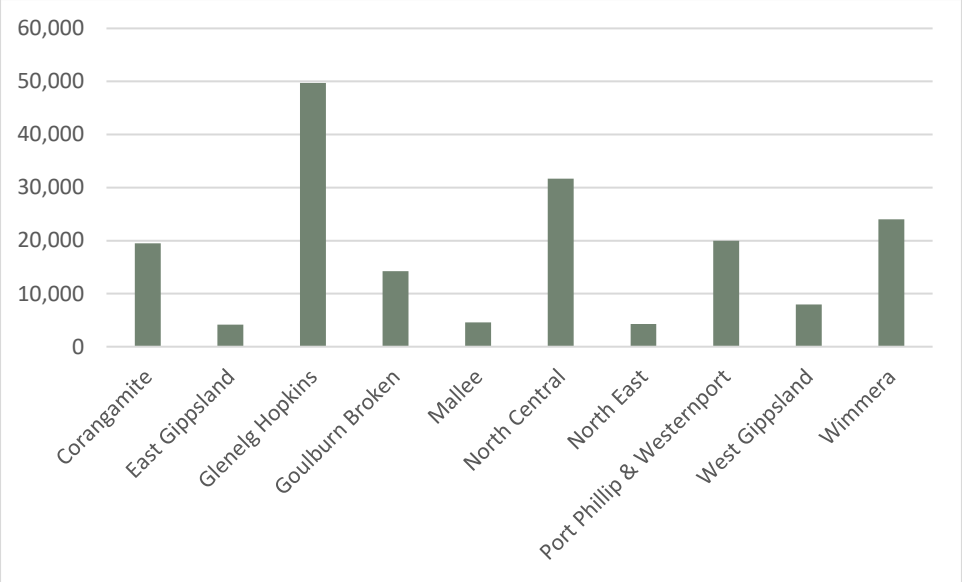

Figure 9. Extent (ha) of significant wetlands on private land in each TFN region

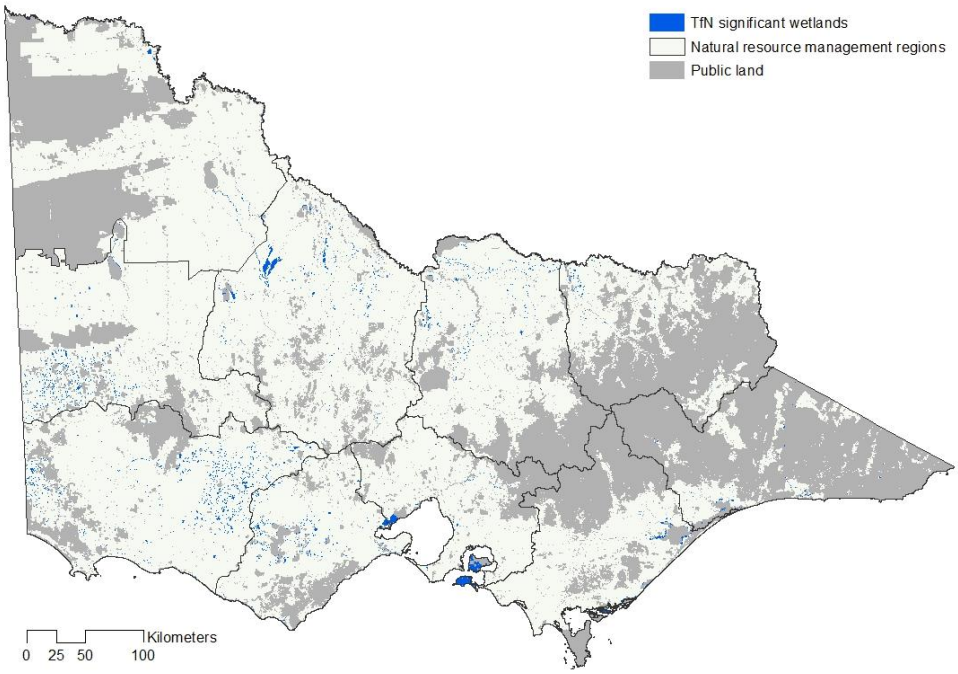

Figure 10. Occurrence of priority wetlands on private land

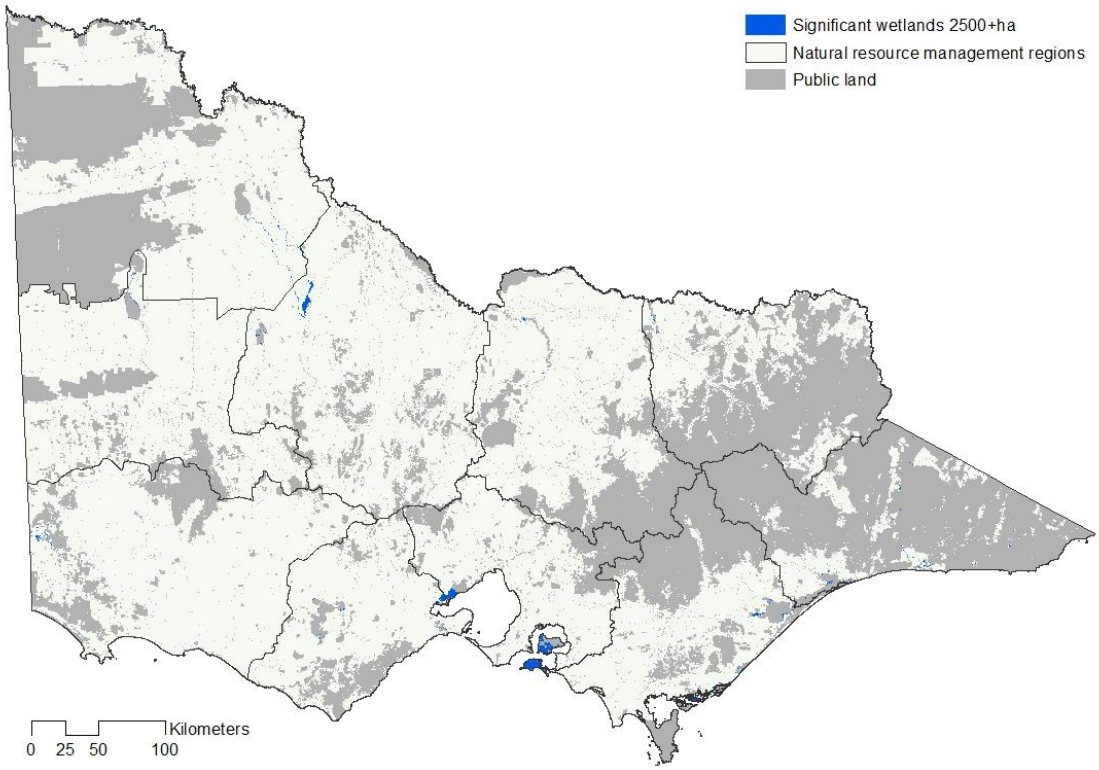

Figure 11. Private-land location of wetland patches > 2,500 ha cross-tenure

Indicators and targets

Statewide criteria, indicators and targets are described in Table 12. Based on the modelled extent of significant wetlands in every region and the overall target of an additional 5,000 ha of significant wetlands protected outside of focal landscapes, regional targets for this goal are as follows (Table 13).

Name	Area (ha)	Area on private land (ha)	Wetland Cateogry	TfN Region
Western Port	87,046	13,568	Ramsar, Nationally Important Wetland	Port Phillip & Westernport, West Gippsland
Bunguluke Wetlands, Tyrrell Creek & Lalbert Creek Floodplain	10,709	8,510	Nationally Important Wetland	Mallee, North Central
Port Phillip Bay (Western Shoreline) and Bellarine Peninsula	23,996	6,413	Ramsar, Nationally Important Wetland	Corangamite, Port Phillip & Westernport
Gippsland Lakes	70,344	4,052	Ramsar, Nationally Important Wetland	West Gippsland, East Gippsland
Mundi-Selkirk Wetlands	4,030	2,209	Nationally Important Wetland	Glenelg Hopkins
Corner Inlet	67,803	1,824	Ramsar, Nationally Important Wetland	West Gippsland
Lower Snowy River Wetlands System	49,346	1,575	Nationally Important Wetland	East Gippsland
Lake Albacutya	46,638	903	Ramsar, Nationally Important Wetland	Mallee, Wimmera
Lower Goulburn River Floodplain	3,627	746	Nationally Important Wetland	Goulburn Broken
Western District Lakes	33,258	584	Ramsar, Nationally Important Wetland	Glenelg Hopkins, Corangamite
Cundare Pool/Lake Martin	3,741	564	Nationally Important Wetland	Corangamite
Lake Buloke Wetlands	8,307	400	Nationally Important Wetland	North Central
Jack Smith Lake State Game Reserve	2,861	388	Nationally Important Wetland	West Gippsland
Lindsay Island	15,764	268	Nationally Important Wetland	Mallee
Ovens River	3,903	262	Nationally Important Wetland	North East
Lake Hume	12,184	209	Nationally Important Wetland	North East
Bemm, Goolengook, Arte and Errinundra Rivers	3,861	174	Nationally Important Wetland	East Gippsland
Thurra River	2,964	142	Nationally Important Wetland	East Gippsland
Wonnangatta River	3,698	139	Nationally Important Wetland	East Gippsland
Gunbower Forest	20,836	73	Ramsar, Nationally Important Wetland	North Central
Glenelg Estuary and Discovery Bay	22,678	71	Ramsar, Nationally Important Wetland	Glenelg Hopkins
Lake Tyrrell	17,486	56	Nationally Important Wetland	Mallee
Wallpolla Island	9,697	52	Nationally Important Wetland	Mallee
Kerang Wetlands	9,795	45	Ramsar, Nationally Important Wetland	North Central
Barmah Forest	29,361	41	Ramsar, Nationally Important Wetland	Goulburn Broken
Lake Dartmouth	5,926	27	Nationally Important Wetland	North East
Lerderderg River	5,192	24	Nationally Important Wetland	Port Phillip & Westernport
Mallacoota Inlet Wetlands	3,556	7	Nationally Important Wetland	East Gippsland
Kow Swamp	2,720	5	Nationally Important Wetland	North Central
Belsar Island	2,520	0	Nationally Important Wetland	Mallee
Benedore River	3,517	0	Nationally Important Wetland	East Gippsland
Total	**587,364**	**43,333**		

Table 11. Priority Ramsar/Nationally Important Wetland patches, ranked in order of extent on private land

Criterion	Indicator	Target
Extent of significant wetlands protected	Extent of significant wetlands protected (ha)	5,000 ha
	Proportion of all sites protected which include significant wetlands	>25% increase, compared with 2021 baseline

Table 12. Statewide criteria, indicators and targets for wetlands protection (Goal 3.1)

NRM region	Extent of significant wetlands on private land (ha)	Extent of significant wetlands on private land outside of focal landscapes(ha)	Regional target (ha)
Corangamite	19,145	18,688	615
East Gippsland	4,183	4,013	132
Glenelg Hopkins	49,608	47,746	1,572
Goulburn Broken	14,261	10,244	337
Mallee	4,678	4,606	152
North Central	31,718	22,176	730
North East	4,204	1,261	41
Port Phillip & Westernport	19,174	19,294	635
West Gippsland	7,638	3,547	117
Wimmera	24,022	20,307	669
Total	**178,633**	**151,883**	**5,000**

Table 13. Regional protection targets for significant wetlands on private land by 2030

Note that the targets set here are additional to any under-represented vegetation protected within focal landscapes.

Goal 3.2 Increase protection of priority waterways and floodplains by 2500 ha outside of focal landscapes

Methods

We used the same approach for this assessment as in the 2013 SCP. We applied a 60 m buffer to each side of all named waterways and assessed the extent of under-represented native vegetation on private land within that buffer. These areas were then considered as our priority waterways for additional protection under this objective. Complementing this approach, however, the restoration goals set under Objective 5 targeted cleared riparian land. More detail is provided in Appendix 1.

Key findings

Across Victoria, approximately 85,000 ha of significant riparian vegetation occurs on private land (Figure 12), or about 44% of the total extent. The largest extents of significant riparian vegetation occur in North Central, Goulburn Broken and Glenelg Hopkins regions (Figure 13), and these regions should be a focus for increased protection of these riparian ecosystems.

We did not repeat the analysis of cleared riparian vegetation on public and private land but note that the 2013 SCP found that 56% of private riparian land had lost its native vegetation. Protection and restoration of that cleared riparian land remains a high priority for targeted action and is included within the prioritisation process under restoration goals 5.1 and 5.2.

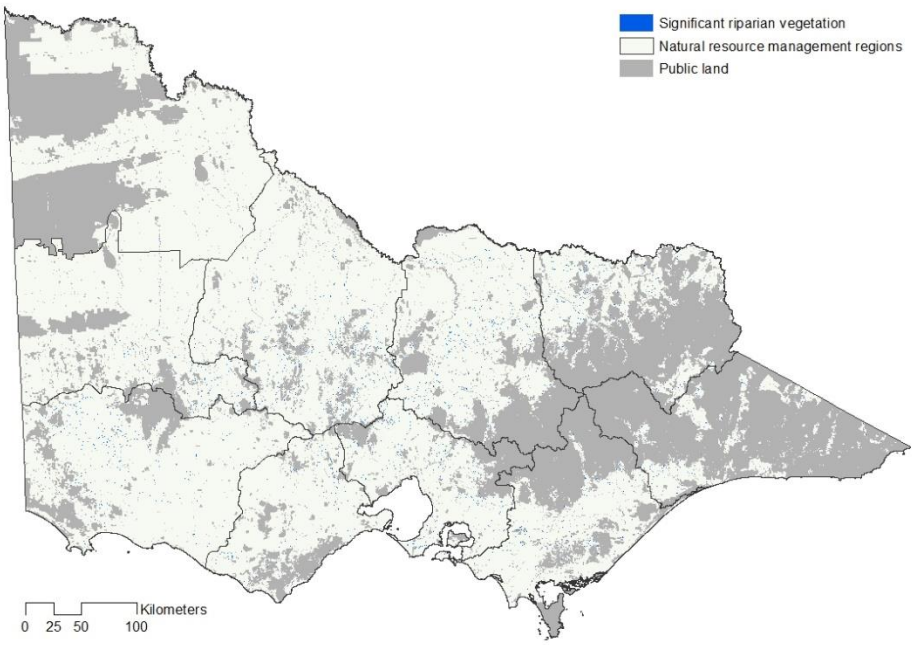

Figure 12. Distribution of significant riparian vegetation on private land

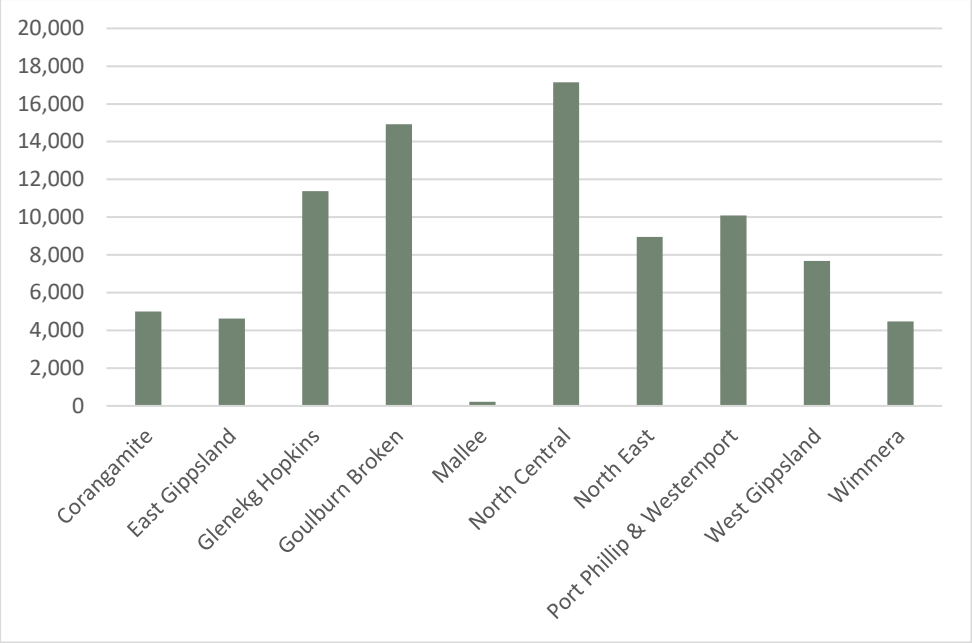

Figure 13. Extent (ha) of under-represented riparian vegetation on private land in each TFN region.

Indicators and targets

Statewide criteria, indicators and targets are described in Table 14. Based on the modelled extent of significant riparian habitat in every region and the overall target of an additional 2,500 ha of significant riparian and floodplain habitats protected outside of focal landscapes, regional targets for this goal are as follows (Table 15).

Criterion	Indicator	Target
Extent of significant riparian habitats protected	Extent of significant riparian habitats protected (ha)	2,500 ha
	Proportion of all sites protected which include significant riparian habitats	>25% increase, compared with 2021 baseline

Table 14. Statewide criteria, indicators and targets for protection of riparian and floodplain habitat (Goal 3.2)

NRM region	Extent of significant waterways on private land (ha)	Extent of significant waterways outside of focal landscapes (ha)	Target (ha) based on 2,500ha
Corangamite	5,003	4,082	200
East Gippsland	4,626	3,891	191
Glenelg Hopkins	11,376	6,786	333
Goulburn Broken	14,918	7,238	355
Mallee	223	200	10
North Central	17,149	9,108	447
North East	8,961	4,038	198
Port Phillip & Westernport	10,098	5,565	273
West Gippsland	7,688	7,032	345
Wimmera	4,483	3,013	148
Total	**84,525**	**50,954**	**2,500**

Table 15. Regional protection targets for riparian and floodplain habitat on private land by 2030

Note that the targets set here are additional to any under-represented vegetation protected within focal landscapes.

Goal 3.3 Increase protection of coastal habitat by 2500 ha outside of focal landscapes

Methods

We used the Victorian Government's Marine and Coastal Policy (2020) definition of coastal land as being land within 5 km of the high-tide mark of the coastline. This represents a major increase in the extent of land defined as 'coastal', compared with the definition applied in the 2013 Plan of 1 km, which as applied in an earlier coastal investigation (ECC, 2000). Within that 5 km coastal buffer, we analysed the relative extent of all native vegetation, under-represented vegetation and protected areas on private and public land.

Because of the likelihood that extensive areas of coastal land will be inundated through sea-level rise over the next 100 years (Carnell *et al*. 2019; VEAC 2020), we also analysed the extent of those habitats likely to be inundated on both land tenures by 2070 under an estimated 47 cm sea-level rise. We also calculated the extent of coastal land that might potentially be restored as native vegetation by 2100 through managed retreat caused by sea-level rise and additional management interventions, using modelled data from Deakin University's Blue Carbon Laboratory (Moritsch *et al*. 2021). More detail is provided in Appendix 1.

Key findings

Across Victoria, there is approximately 776,000 ha of coastal land within 5 km of the high-water mark of the coastline. Approximately 52% of this area is public land and approximately 48% is privately owned. Of the public land, 63% is in formal protected areas whereas less than 1% of the private land is formally protected.

Overall, approximately 23% of the private-land coastal area currently has native vegetation, most of which is assessed as adequately represented in protected areas (Fig. 14). Based on the distribution of this private-land vegetation along the coast, priority areas for aditional protection comprise (Fig. 15):

- Southwest coast
- Otways coast
- Surf Coast and Bellarine Peninsula
- Western coast of Port Phillip Bay
- Mornington Peninsula
- Westernport Bay and islands
- Bass Coast to Wilson's Promontory
- Corner Inlet nd Ninety Mile Beach
- Lakes Entrance to Lake Tyers
- Marlo

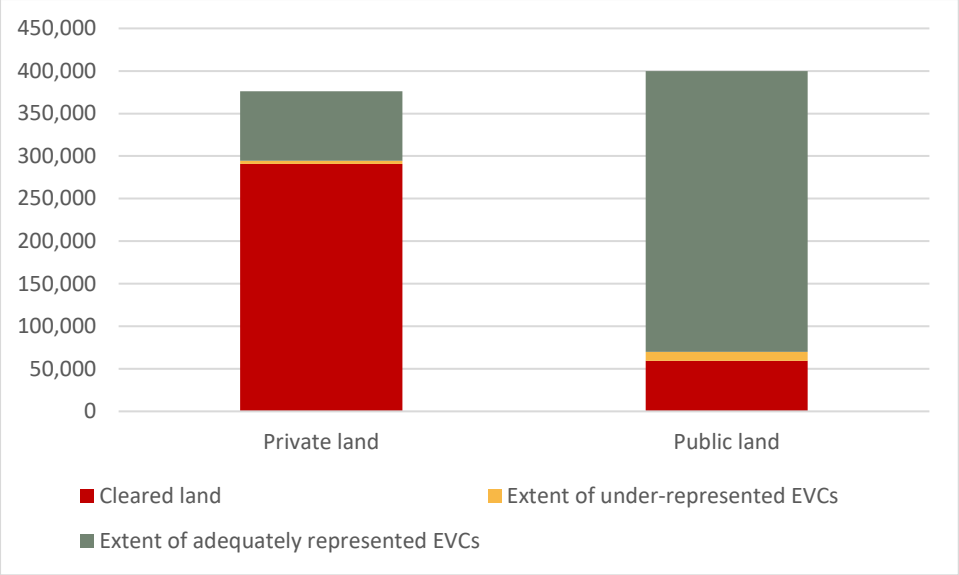

Figure 14. Extent (ha) of native vegetation and cleared land on private and public coastal land

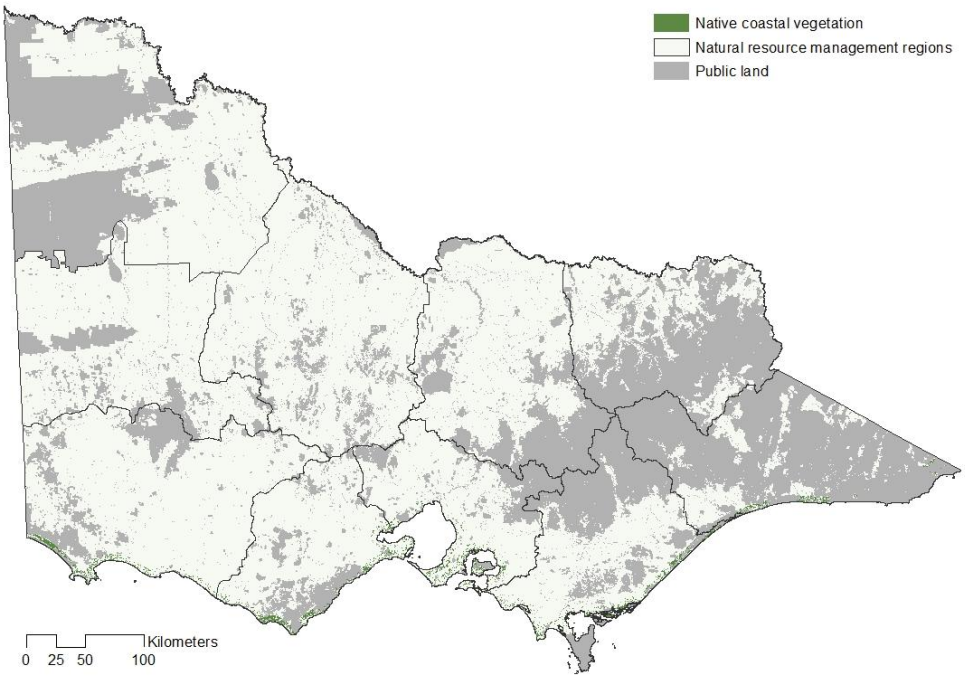

Figure 15. Distribution of native vegetation on private, coastal land (within 5 km of coastline).

The extent of private and public land at likely risk of inundation from sea-level rise is shown in Figure 16. Overall, 37% of the estimated 64,000 ha at risk of inundation is on private land while the remainder is on public land. In parallel, we calculated that approximately 126,000 ha of additional land could become saltmarsh and mangrove habitat by 2100 as a result of managed retreat from sea-level rise and levee removal (Moritsch *et al*. 2021). Approximately 46% of that potential restoration land across the State is located on private land (Figure 17).

West Gippsland, in particular Corner Inlet and part of the Gippsland Lakes, is clearly a statewide priority for strategic conservation in this regard, especially in the context of potential habitat expansion opportunities (Carnell *et al*. 2019; Moritsch *et al*. 2021).

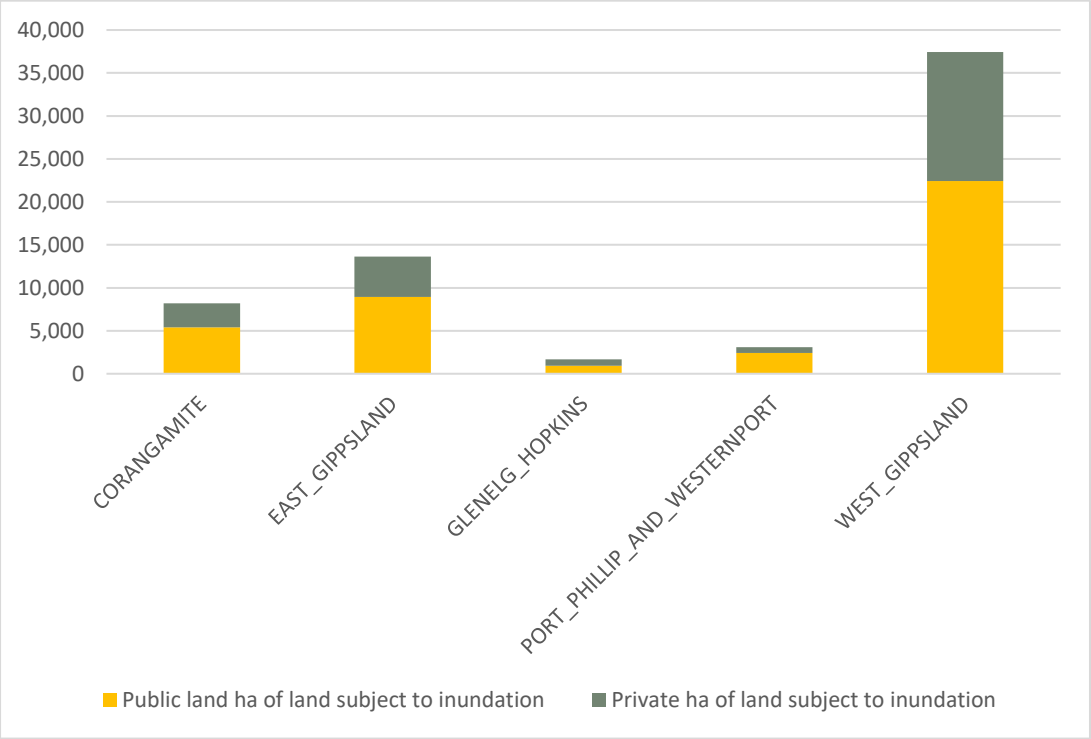

Figure 16. Extent (ha) of public land and private land at risk of inundation from sea-level rise by 2070

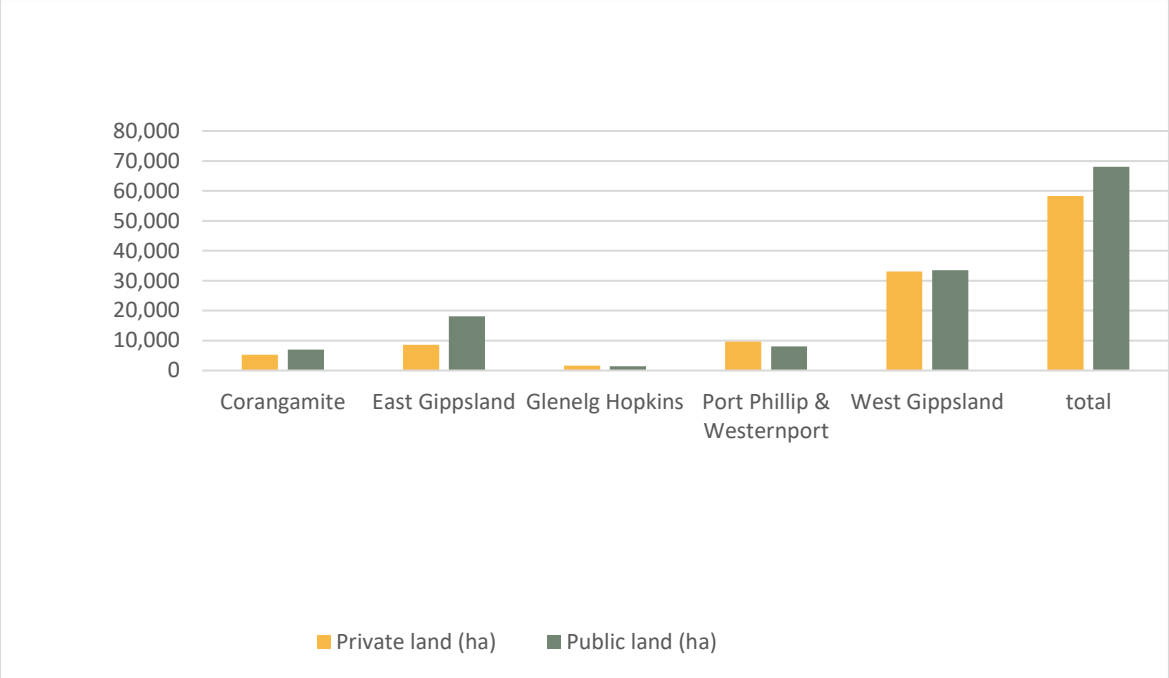

Figure 17. Extent (ha) of public and private coastal land with potential for habitat restoration by 2100

Indicators and targets

Statewide criteria, indicators and targets are described in Table 16. Regional targets were not developed for this goal as it was considered more useful to develop a statewide approach to deliver the proposed 2500 ha additional protection target.

Criterion	Indicator	Target
Extent of significant coastal habitats protected	Extent of significant coastal habitats protected (ha)	2,500 ha
	Proportion of all sites protected which include significant coastal habitats	>25% increase, compared with 2021 baseline

Table 16. Statewide criteria, indicators and targets for protection of coastal habitat (Goal 3.3)

Objective 4. Increase protection of habitat for priority species

Rationale

Protection of threatened species is a core element of the Victorian Government's 20-year Biodiversity Plan (DELWP, 2037). It is also central to the Australian Government's biodiversity conservation approach, (NRMMC, 2010), including the preparation of dedicated Threatened Species Strategies (DAWE, 2021).

Formal protected areas, in turn, are recognised as critical to the conservation of threatened species (Taylor *et al.* 2011). Conservation of threatened species thus forms a key part of National Reserve System (NRS) criteria for inclusion. Specifically, the NRS guidelines for Comprehensiveness, Adequacy and Representativeness include three elements relevant to the conservation of threatened species—protection of threatened species, protection of migratory shorebirds, and protection of places of environmental significance that are important for migratory or nomadic species, or critical for the lifecycle of key species.

The 2013 SCP highlighted the importance of private land for the conservation of highly threatened species of flora and fauna. The 2018 State of Environment report (CES, 2018) documented the decline of most fauna and flora and the need for additional action, as recognised by the Biodiversity 2037 Plan (DELWP, 2017).

This objective articulates how TFN will target protection of threatened flora and fauna species. While the focus is on additional protection outside of focal landscapes in terms of hectare targets, it is assumed that the same prioritisation approach will be applied to protection efforts within focal landscapes.

Goal 4.1. Increase protection of habitat for priority species by 5,000 ha outside of focal landscapes

Methods

Using data provided by DELWP's Arthur Rylah Institute for Environmental Research, we categorised nearly 600 vertebrates, some invertebrates and 3,600 vascular plants by the percentage of their modelled occurrence on private land, their modelled risk of habitat loss over the next 50 years and their conservation status (from DELWP data, 2020). This data were used to generate a set of rules which we applied to define priority species for conservation on private land. These were as follows:

- selection limited to rare or threatened species
- for critically endangered and endangered species, include all taxa with >40% of their modelled occurrence on private land
- for vulnerable species, include those taxa with > 50% of their modelled occurrence on private land and a >20% risk of their habitat being cleared over the next 50 years, and all taxa with >60% of their modelled occurrence on private land
- for rare or near threatened species, include those taxa with > 60% of their modelled occurrence on private land and a >20% risk of their habitat being cleared over the next 50 years, and all taxa with >70% of their modelled occurrence on private land.

We also analysed the modelled occurrence of non-threatened species on private land to identify an additional set of non-threatened species of potential conservation concern, comprising those species with >70% of their modelled occurrence on private land.

For a subset of threatened fauna and flora species listed in the 2013 Plan where habitat distribution models were not available for this review, we used earlier bioregional analyses of the private land/public land occurrence of those species to assess their relative priority for conservation action

on private land. The 2013 SCP also provides additional analyses of the regional, bioregional and ecological distribution of priority species, all of which remain relevant.

Priority locations for fauna and flora conservation on private land were identified using spatial layers provided by Arthur Rylah Institute which modelled the overall importance of private land for threatened vertebrates and threatened vascular plants at a scale of 250x250m across Victoria. We thresholded this analysis to include only the top 20% as being priority sites for conservation on private land and clipped the layers to current native vegetation extent. More details are provided in Appendix 1.

These analyses were completed prior to the recent re-assessment of threatened species in Victoria using the Common Assessment Method completed in 2021 and the revision of the list of threatened species under the *Flora and Fauna Guarantee Act.* For consistency across our approach, this plan therefore retains both the previous conservation status and updated status of the priority species.

Key findings

Fauna priorities

Using the modelled habitat distributions of nearly 600 mostly terrestrial vertebrate species, 56 threatened fauna species or species groups were identified as priorities for increased habitat protection on private land (Table 17). These include 13 critically endangered species and 23 endangered species (Table 18). From this list, we identified a short-list of 21 flagship species to target for additional protection on the basis of the existing or potential role of TFN in contributing to their survival (Table 19).

In contrast to the 2013 Plan, no fish and few invertebrates were identified as priorities for protection through this modelling process because of data limitations. It is recommended accordingly, based on the 2013 data, that the nine species of freshwater fish and the invertebrates identified in the 2013 SCP should remain as priorities for additional protection on private land.

An additional 64 non-threatened species of fauna (DELWP data 2020) have >70% of their modelled habitat on private land (Appendix 3) and include many species of potential conservation concern on private land based on documented regional declines. These mostly comprise species highly dependent on woodland, grassland and aquatic ecosystems. Such species should also be recognised as important for conservation in a private-land context as their relative abundance makes them critical to the healthy functioning of those ecosystems (Baker *et al*. 2018).

Similarly, many threatened and non-threatened fauna and flora species were significantly impacted by the 2019-20 bushfires through direct mortality and extensive habitat loss (DELWP, 2020). Where viable populations of these species persist on private land, those populations should also be priorities for protection and management to assist their survival.

Common name	Scientific name	2020 Victorian conservation status (DELWP Advisory list)	2021 FFG Act status	EPBC Act status	% modelled habitat on private-land
Plains-wanderer	*Pedionomus torquatus*	Critically endangered	Critically endangered	Critically endangered	0.97
Grassland Earless Dragon	*Tympanocryptis pinguicolla*	Critically endangered	Critically endangered	Endangered	0.90
Southern Bent-winged Bat	*Miniopterus orianae bassanii*	Critically endangered		Critically endangered	0.80
Sun-moths spp (including Golden and Pale)	*Synemon spp.*	Critically endangered	Critically endangered	Critically endangered	0.80
Giant Bullfrog	*Limnodynastes interioris*	Critically endangered	Endangered		0.80
Australian Painted Snipe	*Rostratula australis*	Critically endangered	Critically endangered	Endangered	0.78
Hooded Scaly-foot	*Pygopus schraderi*	Critically endangered	Critically endangered		0.76
Corangamite Water Skink	*Eulamprus tympanum marnieae*	Critically endangered	Endangered	Endangered	0.75
Helmeted Honeyeater	*Lichenostomus melanops cassidix*	Critically endangered	Critically endangered	Critically endangered	0.72
Regent Honeyeater	*Anthochaera phrygia*	Critically endangered	Critically endangered	Critically endangered	0.71
Booroolong Tree Frog	*Litoria booroolongensis*	Critically endangered	Critically endangered		0.67
Orange-bellied Parrot	*Neophema chrysogaster*	Critically endangered	Critically endangered	Critically endangered	0.54
Saltbush Striped Skink	*Ctenotus olympicus*	Critically endangered	Critically endangered		0.50
Striped Legless Lizard	*Delma impar*	Endangered	Endangered	Vulnerable	0.93
Burrowing Crays (Warragul, Narracan, Strzelecki, Dandenong, Mallacoota)	*Engaeus spp.*	Endangered	Endangered		0.90
Rugose Toadlet	*Uperoleia rugosa*	Endangered	Endangered		0.88
Grey-crowned Babbler	*Pomatostomus temporalis*	Endangered	Vulnerable		0.85
Australian Gull-billed Tern	*Gelochelidon macrotarsa*	Endangered	Endangered		0.81
Bush Stone-curlew	*Burhinus grallarius*	Endangered	Critically endangered		0.80
Superb Parrot	*Polytelis swainsonii*	Endangered	Endangered	Vulnerable	0.78
Growling Grass Frog	*Litoria raniformis*	Endangered	Vulnerable	Vulnerable	0.75
Squirrel Glider	*Petaurus norfolcensis*	Endangered	Vulnerable		0.74
Grey Falcon	*Falco hypoleucos*	Endangered	Vulnerable		0.67
Carpet Python	*Morelia spilota metcalfei*	Endangered	Endangered		0.65
Australian Little Bittern	*Ixobrychus dubius*	Endangered	Endangered		0.64
Plumed Egret	*Ardea intermedia plumifera*	Endangered	Critically endangered		0.63
Brown Toadlet	*Pseudophryne bibronii*	Endangered	Endangered		0.62
Barking Owl	*Ninox connivens*	Endangered	Critically endangered		0.57
King Quail	*Synoicus chinensis*	endangered	Endangered		0.55
Australasian Bittern	*Botaurus poiciloptilus*	Endangered	Critically endangered	Endangered	0.53
Red-tailed Black-Cockatoo (south-eastern subsp.)	*Calyptorhynchus banksii graptogyne*	Endangered	Endangered	Endangered	0.53
Swift Parrot	*Lathamus discolor*	Endangered	Critically endangered	Critically endangered	0.50
Lace Monitor	*Varanus varius*	Endangered	Endangered		0.47
Redthroat	*Pyrrholaemus brunneus*	Endangered	Endangered		0.43
Little Egret	*Egretta garzetta*	Endangered	Endangered		0.42
Blue-billed Duck	*Oxyura australis*	Endangered	Vulnerable		0.41
Brolga	*Antigone rubicunda*	Vulnerable	Endangered		0.86
Bearded Dragon	*Pogona barbata*	Vulnerable	Vulnerable		0.80
Black Falcon	*Falco subniger*	Vulnerable	Critically endangered		0.78
Tussock Skink	*Pseudemoia pagenstecheri*	Vulnerable	Endangered		0.75
Baillon's Crake	*Porzana pusilla*	Vulnerable			0.68
Glossy Grass Skink	*Pseudemoia rawlinsoni*	Vulnerable	Endangered		0.68
Lewin's Rail	*Lewinia pectoralis*	Vulnerable	Vulnerable		0.66
Painted Honeyeater	*Grantiella picta*	Vulnerable	Vulnerable	Vulnerable	0.66
Hardhead	*Aythya australis*	Vulnerable	Vulnerable		0.66
Inland Dotterel	*Charadrius australis*	Vulnerable	Vulnerable		0.64
Brush-tailed Phascogale	*Phascogale tapoatafa*	Vulnerable	Vulnerable		0.55
Fat-tailed Dunnart	*Sminthopsis crassicaudata*	Near Threatened			0.83
Australian Pratincole	*Stiltia isabella*	Near Threatened			0.77
Little Button-quail	*Turnix velox*	Near Threatened			0.73

Common name	Scientific name	2020 Victorian conservation status (DELWP Advisory list)	2021 FFG Act status	EPBC Act status	% modelled habitat on private-land
Diamond Firetail	*Stagonopleura guttata*	Near Threatened	Vulnerable		0.73
Woodland Blind Snake	*Anilios proximus*	Near Threatened			0.72
Latham's Snipe	*Gallinago hardwickii*	Near Threatened			0.71
Spotted Harrier	*Circus assimilis*	Near Threatened			0.69
Diamond Dove	*Geopelia cuneata*	Near Threatened	Vulnerable		0.63
Glossy Ibis	*Plegadis falcinellus*	Near Threatened			0.62

Table 17. Priority fauna species for increased protection on private land.
Species arranged by conservation status and then by % of modelled habitat on private land

	Critically endangered	Endangered	Vulnerable	Near threatened	Total
Mammals	1	1	1	1	4
Birds	5	15	7	7	34
Reptiles	4	3	3	1	11
Frogs	2	3			5
Invertebrates*	1	1			2
Fauna total	**13**	**23**	**11**	**9**	**56**

*Includes two groups of threatened invertebrates belonging to the same genus but with multiple threatened species

Table 18. Summary of priority fauna species for protection on private land based on taxonomic group and Victorian conservation status

Common name	Scientific name	Victorian conservation status	EPBCA status	% modelled habitat on private land
Plains-wanderer	*Pedionomus torquatus*	Critically endangered	Critically endangered	0.97
Southern Bent-wing Bat	*Miniopterus orianae bassanii*	Critically endangered	Critically endangered	0.80
Sun-moths spp	*Synemon spp.*	Critically endangered	Critically endangered	0.80
Australian Painted Snipe	*Rostratula australis*	Critically endangered	Endangered	0.78
Hooded Scaly-foot	*Pygopus schraderi*	Critically endangered	Endangered	0.76
Corangamite Water Skink	*Eulamprus tympanum marnieae*	Critically endangered	Endangered	0.75
Helmeted Honeyeater	*Lichenostomus melanops cassidix*	Critically endangered	Critically endangered	0.72
Regent Honeyeater	*Anthochaera phrygia*	Critically endangered	Critically endangered	0.71
Booroolong Tree Frog	*Litoria booroolongensis*	Critically endangered	Critically endangered	0.67
Orange-bellied Parrot	*Neophema chrysogaster*	Critically endangered	Critically endangered	0.54
Striped Legless Lizard	*Delma impar*	Endangered	Vulnerable	0.93
Burrowing Crays (Warragul, Narracan, Strzelecki, Dandenong, Mallacoota)	*Engaeus spp.*	Endangered		0.90
Grey-crowned Babbler	*Pomatostomus temporalis*	Endangered		0.85
Growling Grass Frog	*Litoria raniformis*	Endangered	Vulnerable	0.75
Squirrel Glider	*Petaurus norfolcensis*	Endangered		0.74
Brown Toadlet	*Pseudophryne bibronii*	Endangered		0.62
Red-tailed Black-Cockatoo (south-eastern subsp.)	*Calyptorhynchus banksii graptogyne*	Endangered	Endangered	0.53
Swift Parrot	*Lathamus discolor*	Endangered	Critically endangered	0.50
Lace Monitor	*Varanus varius*	Endangered		0.47
Fat-tailed Dunnart	*Sminthopsis crassicaudata*	Near Threatened		0.83
Brolga	*Antigone rubicunda*	Vulnerable		0.86

Table 19. Flagship fauna species for increased protection on private land.
Species arranged by conservation status and then by % of modelled habitat on private land

Priority areas for fauna conservation on private land are shown in Figure 18. While many of these overlap with the focal landscapes, notable additional areas comprise:

- Bridgewater and Glenelg Plain subregions
- Robinvale and Murray Scroll Belt subregions
- Raak Plain and Hattah
- Marlo district, within East Gippsland Lowlands
- Otway Ranges
- coastal habitat around Cape Liptrap, Waratah bay and Corner Inlet.

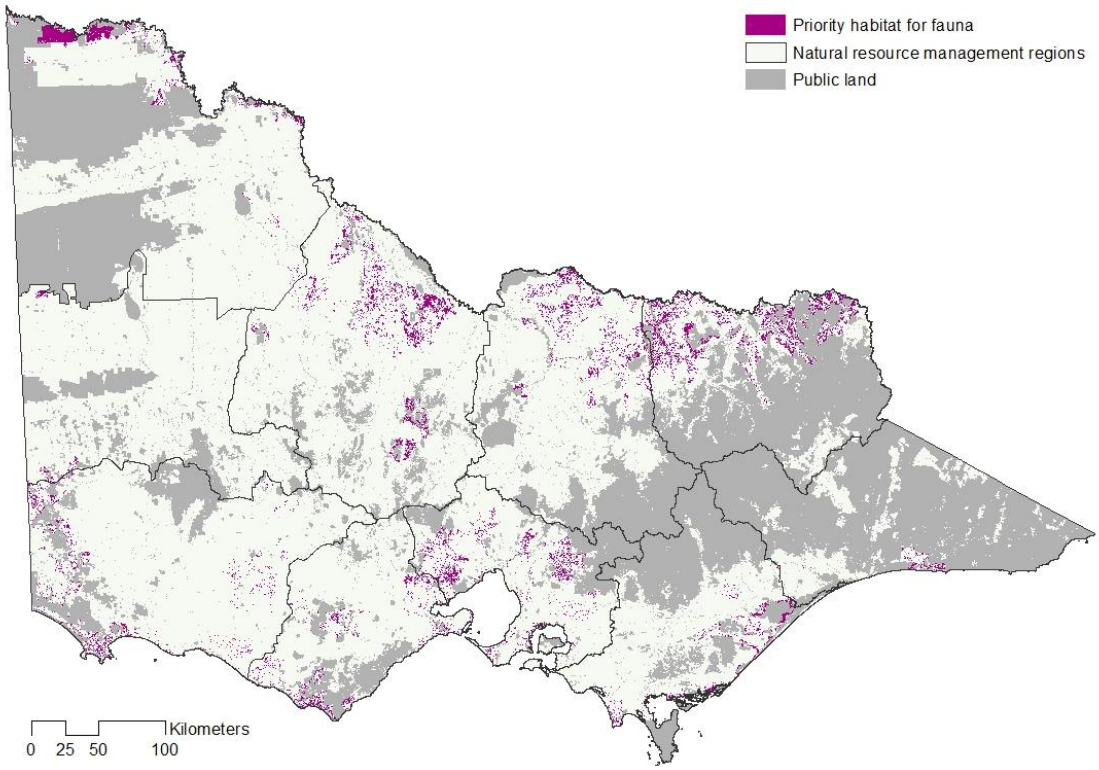

Figure 18. Distribution of priority fauna habitat on private land

Flora priorities

Of 1,369 rare or threatened plant taxa with modelled habitat distribution data available, 356 (26%) were identified as priorities for increased habitat protection on private land on the basis of the proportion of their modelled habitat on private land and the future risk of loss of that habitat. These 356 species include 181 endangered species and 72 nationally threatened species. The endangered priority species represent 67% of all endangered flora species in Victoria. Major genera within the priority flora list comprise *Caladenia* (32), *Eucalyptus* (27), *Acacia* (26), *Prasophyllum* (22), *Pterostylis* (17), *Swainsona* (12) and *Senecio* (10). The full list is provided in Appendix 4.

From this list, we identified a short-list of 21 flagship species/species groups to target for additional protection on the basis of their conservation status and the existing or potential role of TFN in contributing to their survival (Table 20).

Priority areas for conservation of threatened flora on private land are shown in Figure 19. While many of these overlap with the focal landscapes, notable additional areas include:

- Southwest coastal areas in the Bridgewater subregion
- East Gippsland Lowlands subregion
- Greater Melbourne foothills
- Greater Otway Ranges

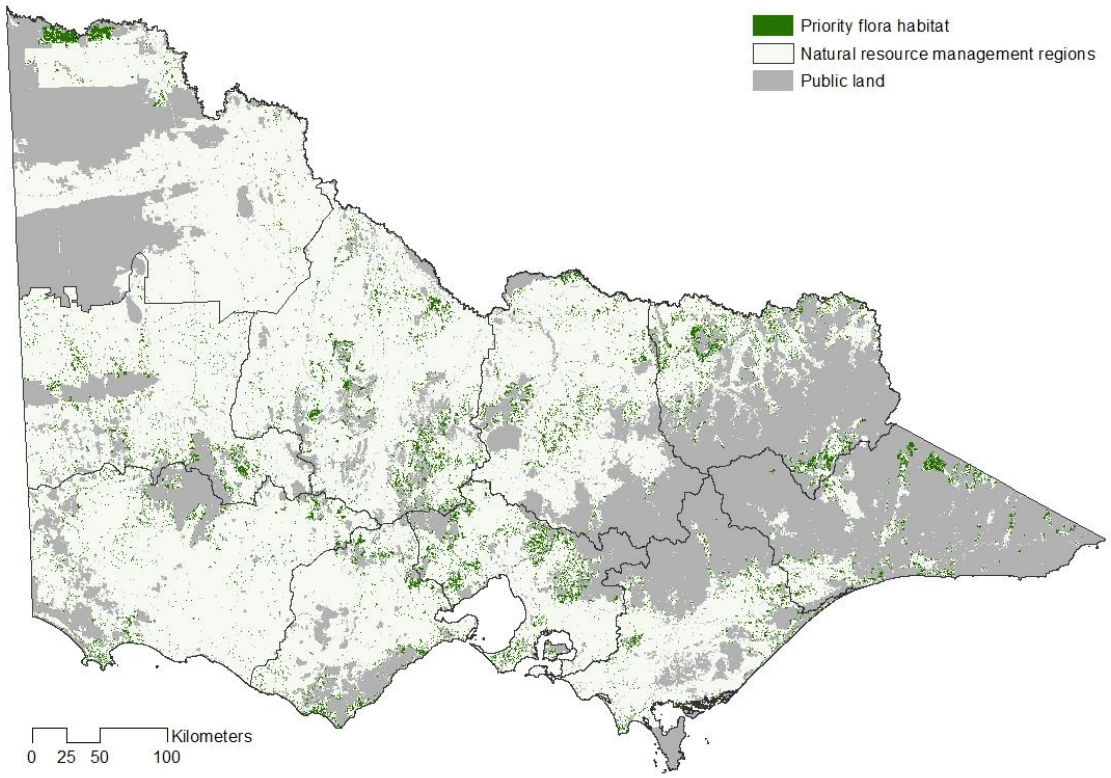

Figure 19. Distribution of priority flora habitat on private land

Common name	Scientific name	Victorian conservation status	EPBCA status	% modelled habitat on private land
Yarran	*Acacia omalophylla*	Endangered		0.97
Spider-orchid spp. (Western woodlands group of threatened spp.)	*Caladenia spp. (cruciformis, cretacea, xanthochila, fulva, lowanensis)*	Endangered		0.80
Swamp Sheoak	*Casuarina obesa*	Endangered		0.82
Dwarf Kerrawang	*Commersonia prostrata*	Endangered	Endangered	0.81
Small Scurf-pea	*Cullen parvum*	Endangered		0.97
Matted Flax-lily	*Dianella amoena*	Endangered	Endangered	0.91
Winged Peppercress	*Lepidium monoplocoides*	Endangered	Endangered	0.61
Spiny Rice-flower	*Pimelea spinescens subsp. spinescens*	Endangered	Critically Endangered	0.95
Lowly Greenhood	*Pterostylis despectans*	Endangered	Endangered	0.58
Gorae Leek-orchid	*Prasophyllum diversiflorum*	Endangered	Endangered	0.93
Hairy Darling-pea	*Swainsona greyana*	Endangered		0.41
Red Swainson-pea	*Swainsona plagiotropis*	Endangered	Vulnerable	0.95
Purple Diuris	*Diuris punctata*	Vulnerable		0.90
Cane Grass	*Eragrostis australasica*	Vulnerable		0.75
Narrow Goodenia	*Goodenia macbarronii*	Vulnerable		0.85
Euroa Guinea-flower	*Hibbertia humifusa subsp. erigens*	Vulnerable	Vulnerable	0.79
Chariot Wheels	*Maireana cheelii*	Vulnerable	Vulnerable	0.65
Ridged Water-milfoil	*Myriophyllum porcatum*	Vulnerable	Vulnerable	0.94
Velvet Daisy-bush	*Olearia pannosa subsp. cardiophylla*	Vulnerable		0.74
Hairy Tails	*Ptilotus erubescens*	Vulnerable		0.89
Swamp Everlasting	*Xerochrysum palustre*	Vulnerable	Vulnerable	0.66

Table 20. Flagship flora species for increased protection on private land.
Species arranged by conservation status and then by % of modelled habitat on private land

Indicators and targets

Statewide criteria, indicators and targets for priority flora and fauna species are described in Table 21. Regional protection targets were based only on the fauna-habitat models (Table 22).

Criterion	Indicator	Target
Extent of habitat protected for priority flora and fauna species	Extent of significant habitat protected (ha)	5,000 ha
	Proportion of all sites protected which include significant threatened species populations	>25% increase, compared with 2021 baseline
	Number of priority species populations protected, compared with 2021 baseline	>25% increase, compared with 2021 baseline

Table 21. Statewide criteria, indicators and targets for threatened species protection (Goal 4.1)

NRM region	Extent of priority fauna habitat on private land	Extent of priority fauna habitat outside of focal landscapes	Regional target (ha)
Corangamite	38,228	25,552	634
East Gippsland	7,364	7,039	175
Glenelg Hopkins	48,843	38,475	955
Goulburn Broken	59,428	18,065	448
Mallee	65,827	27,354	679
North Central	93,631	27,807	690
North East	110,547	19,743	490
Port Phillip & Westernport	54,503	18,061	448
West Gippsland	28,216	16,157	401
Wimmera	5,887	3,178	79
Total	**512,474**	**201,431**	**5,000**

Table 22. Regional protection targets for priority fauna habitat on private land by 2030

Note that the targets set here are additional to any under-represented vegetation protected within focal landscapes.

Objective 5. Enhance and protect landscape restoration and connectivity

Rationale

This objective addresses four key conservation planning principles in relation to landscape conservation and mitigating impacts of climate change:

- patches of native vegetation should be as large as possible for species diversity, population viability and ecosystem resilience (Bennett *et al.* 2009; Dunlop *et al.* 2012)
- landscape connectivity is critical to the movement of species and individuals at different spatial scales (e.g. local up to continental) and time scales (e.g. daily, seasonal, long-term) (Bennett 1999; Soule' *et al*. 2004; Bennett *et al*. 2009; Doerr *et al.* 2010);
- landscape connectivity is critical to maintaining genetic diversity and gene flow (Frankham *et al*. 2020), and
- landscape connectivity and increased habitat extent is critical to the conservation of biodiversity in human-dominated landscapes where reservation alone will not be sufficient or feasible to conserve biodiversity values and a whole-of-landscape approach is needed for effective conservation (NRMMC 2005; Donald & Evans 2006; Fischer et al. 2008).

The objective aligns with the United Nations Decade on Ecosystem Restoration 2021-2030.

This objective articulates how the Trust aims to help increase the resilience of ecosystems and species, in the context of climate change, based on this guidance. While the focus is on additional protection outside of focal landscapes in terms of hectare targets, it is assumed that the same prioritisation approach will be applied to protection efforts within focal landscapes.

Goal 5.1. Increase extent of habitat restored/revegetated under permanent agreements

Goal 5.2. Increase extent of land restored/revegetated under short-term agreements

Methods for Goals 5.1 and 5.2

Priority areas for restoration and increasing connectivity were identified using the DELWP benefit revegetation layer, developed as part of its set of Strategic Management Prospects (SMP) planning tools (DELWP 2021, 2022). This layer modelled the benefit of revegetation, relative to all actions across all locations, based on:

- estimates of benefit derived through expert elicitation,
- pre-1700 habitat suitability models, and
- spatial data on proximity to existing vegetation and riparian areas.

The resulting top 20% of values identified through this modelling as having benefits for revegetation were then considered to be priority areas for revegetation. More details are provided in Appendix 1.

Key findings

Priority landscapes for restoration and connectivity are shown in Figure 20.

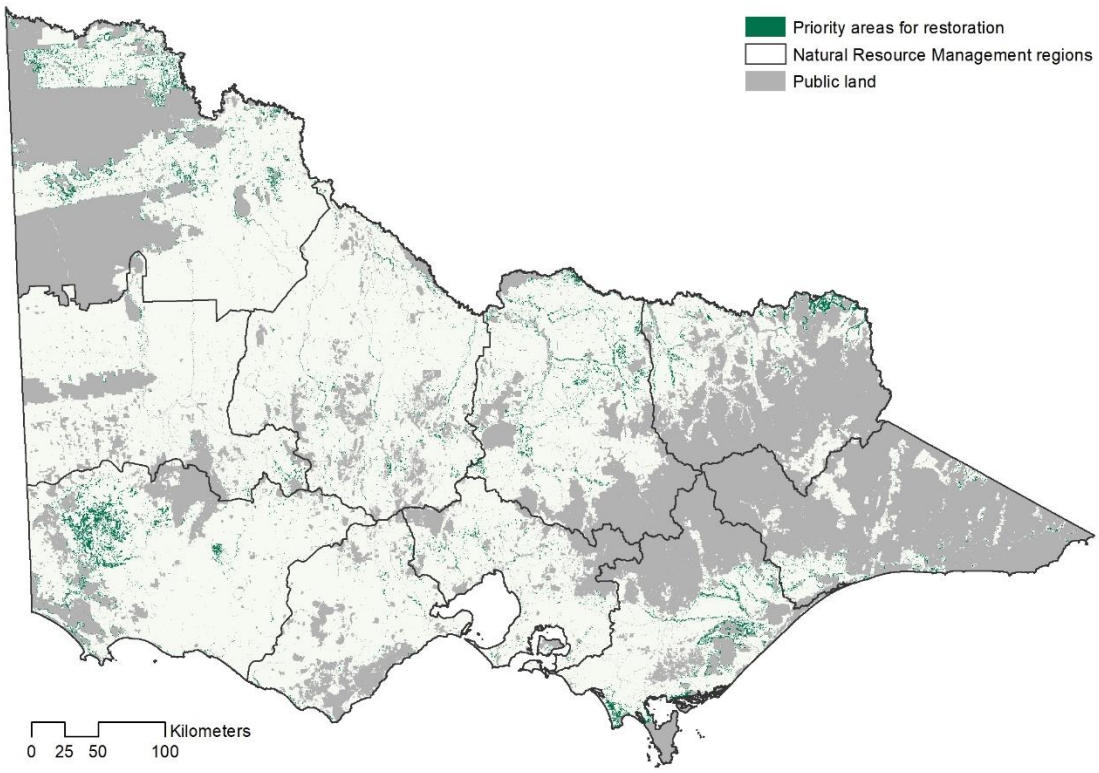

Figure 20. Priority areas for enhancing restoration and landscape connectivity on private land

Many of these areas overlap with focal landscapes. Additional areas of note include:

- major riparian corridors, for example the Campaspe, Wimmera, La Trobe and Thomson Rivers
- Murray Mallee subregion
- Gippsland Plains adjacent to the Gippsland Lakes, and
- Dundas Tablelands subregion.

Indicators and targets

Statewide criteria, indicators and targets are described in Table 23. Based on the modelled extent of priority habitat for restoration in every region and the overall target of an additional 5,000 ha of priority restoration habitat protected through permanent or short-term agreements, regional targets for these two goals are as follows (Table 24).

Criterion	Indicator	Target
Extent of land protected for improved restoration and connectivity	Extent of priority restoration habitat protected under permanent or short-term agreements	5,000 ha (permanent) 5,000 ha (short-term)
	Proportion of sites protected which include priority areas for restoration and revegetation	>25% increase, compared with 2021 baseline

Table 23. Statewide criteria, indicators and targets for enhancing habitat restoration and connectivity (Goals 5.1, 5.2)

NRM region	Extent on private land (ha)	Extent on private land outside of focal landscapes (ha)	Regional target (ha)
Corangamite	10,847	9,273	110
East Gippsland	17,737	16,748	198
Glenelg Hopkins	111,294	98,445	1,163
Goulburn Broken	68,154	42,979	508
Mallee	119,106	117,749	1,391
North Central	38,421	30,230	357
North East	47,636	25,333	299
Port Phillip & Westernport	15,718	11,706	138
West Gippsland	61,619	58,397	690
Wimmera	14,201	12,442	147
Total	**504,734**	**423,301**	**5,000**

Table 24. Regional protection targets for restoration and revegetation on private land by 2030

Note that the targets set here are additional to any under-represented vegetation protected within focal landscapes.

Goal 5.3 Support increased stewardship for farmland being managed for sustainable agriculture and biodiversity conservation across Victoria

Rationale

It is widely recognised that landscape-scale conservation in rural landscapes needs sympathetic management of farming land, as well as dedicated conservation actions to protect, manage and restore natural areas (Bennett & Mac Nally 2004; Fischer *et al*. 2008; Attwood *et al*. 2009). This goal has been included to reflect Trust for Nature's strategic plans to encourage and assist farmland conservation through positive stewardship and incentive programs.

Methods

Methods for this goal will be developed over time. As an initial indication of the scope of farmland which might meet criteria for farmland protection and stewardship programs, we identified rural properties > 100 ha in size which included at least 30% modelled native vegetation, based on modelled data.

Key findings

Over 6,000 properties were identified across Victoria which met these criteria, totalling more than one million ha of farmland. Notable regions for farmland conservation using these criteria comprise Wimmera, Goulburn Broken, North Central and Glenelg Hopkins.

Indicators and targets

Regional targets were not developed for this goal. Instead, the overall statewide target was set as being an increase of at least 25% in the proportion of protected properties which include covenants over parts of their farmland area compared with the proportion now (Table 25). As TFN progresses its farm covenanting program over time, more refined indicators and targets will be developed.

Criterion	Indicator	Target
Extent of sustainably managed farmland protected	Proportion of sites protected which include sustainably managed farmland	> 25% increase in proportion of properties with covenants on farming land, compared with baseline

Table 25. Statewide criteria, indicators and targets for protection of sustainably managed farmland (Goal 5.3)

Objective 6. Maintain and improve condition of ecosystems and species

Rationale

Habitat quality positively influences species richness, population size and breeding success for a range of wildlife (Gilmore 1985; Arnold 1988; Hadden & Westbrooke 1996). Habitat quality also represents a surrogate measure for the health of the internal and ecological processes affecting an ecosystem (Saunders *et al*. 1991; Bennett *et al*. 2009).

Improvement of vegetation condition is also well recognised as a key conservation action to improve and restore biodiversity values and ecosystem functioning (Martin & Green, 2002; Montague-Drake *et al*. 2009; Gibbons, 2010), particularly where remnant native vegetation is fragmented and generally in poor condition (Gibbons, 2010), as is the case on private land in Victoria (VEAC 2010; TFN 2013).

This objective articulates how TFN will manage its protected areas to maintain or improve the ecological condition of their ecosystems and species' populations. This stewardship of protected areas is increasingly important in the context of a rapidly changing climate (TFN, 2019) and the need to help ensure that common species remain as common as possible to continue contributing to ecological health (Baker *et al*. 2018).

Goal 6.1. Maintain and improve the ecological health of covenanted land

Goal 6.2. Maintain and improve the ecological health of TFN reserves

Methods for Goals 6.1 and 6.2

Assessments were done using TFN's current methods (2021) for assessing trends in habitat condition over time between repeat visits. In brief, these entail use of DELWP's rapid assessment method for vegetation condition and determination of the condition and trend of vegetation assets based on that assessment. More details are provided in Appendix 1.

Key findings

The most recent analysis of vegetation-condition trend during 2020-21 found that approximately 90% of the sampled vegetation units had maintained or improved in condition since the previous visit (Figure 21). Results also showed an increase in the proportion of sites that had declined as a result of the 2019-20 bushfires.

These findings demonstrate the applicability of this monitoring method for high-level assessment of trends in condition and the causes of detected changes. Further improvements to the monitoring program are proposed to be implemented over time, depending on resources.

Climate-change studies suggest that many Victorian ecosystems are at risk of decline or collapse (Spatial Vision 2014; Bergstrom *et al.* 2021). Other studies have also shown substantial declines or demographic impacts for many flora and fauna species from climate change (Selwood *et al*. 2015); for example from extended droughts (Mac Nally *et al*. 2009) and climate-change induced wildfires (Geary *et al*. 2021). Adapting to these pressures and providing the best opportunities possible for ecosystems and populations to persist will be a key aspect of the Trust's conservation program over the next decade (TFN, 2019).

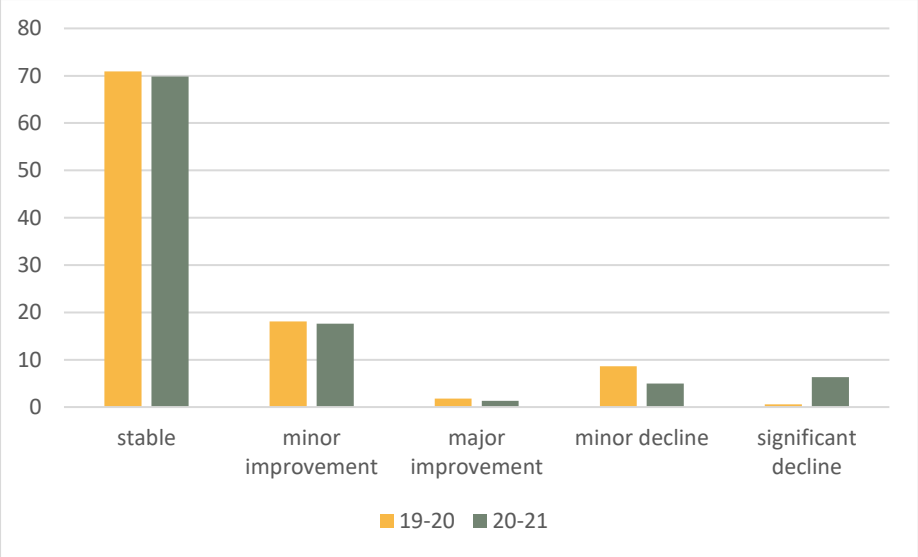

Figure 21. Habitat-condition trends for native vegetation units on covenants over the 2019-20 and 2020-21 assessment periods (n = 326 and 238 respectively).

Indicators and targets

Regional targets were not developed for this goal. The overall statewide targets have been set as follows (Table 26).

Criterion	Indicator	Target
Maintenance or improvement in habitat quality	Overall trend for habitat condition at covenanted sites and TFN reserves	> 90% stable or improving
Maintenance or improvement in species' populations	Overall trend for priority species' populations over time	> 90% stable or improving

Table 26. Statewide criteria, indicators and targets for maintenance or improvement in habitat condition of existing protected areas (Goals 6.1, 6.2)

Future directions

Protection targets

The *2021-2030 Statewide Conservation Plan* includes what are relatively ambitious protection targets over the next 10 years, aligned with the private land protection target of 200,000 ha by 2037 set out in the Victorian Government's 20-year Biodiversity Plan (DELWP, 2017). As evidenced in this updated plan, however, the actual extent of additional land needing to be protected and restored for nature conservation is a magnitude larger than what is proposed as the 10-year target of 100,000 ha of additional protection. Analyses show:

- a reservation gap of 2.1 million ha of additional habitat needing to be protected to meet NRS standards for a CAR reserve system, with much of that under-represented vegetation occurring on private land
- 742,000 ha of climate-refuge patches needing additional protection on private land
- more than one million ha of priority land identified for revegetation and restoration on private land, and
- more than 400 threatened flora and fauna species needing additional protection on private land, totalling approximately 500,000 ha just for priority fauna habitat.

Globally, there is a proposal by the IUCN to protect 30% of the world's land area and oceans by 2030 which will be considered by the signatories to the CBD later in 2021. The United Nations has also declared 2021-2030 as the Decade of Ecosystem Restoration. It is clear that there is an urgent need to scale up protection and restoration efforts on private land and that some of the priorities and targets set out here may need to be reviewed within the 10 years.

Incorporating climate change adaptation and mitigation approaches

While this updated plan has tried to include goals and priorities linked to climate change adaptation/mitigation actions, there is a significant amount of research and conservation action happening which will help inform our conservation work. Examples of this research include: risk and prioritisation frameworks for action (e.g. Liddell *et al*. 2020; Thomson *et al*. 2020; Bergstrom *et al.* 2021); assessments of terrestrial and aquatic refuges (e.g. Reside *et al.* 2019; Selwood *et al*. 2019; DELWP in progress); assessments of the potential for coastal habitat migration (e.g. Carnell *et al*. 2019; Moritch *et al*. 2021); genetic management of fragmented populations (e.g. Frankham *et al*. 2019), reintroduction of species to restore ecosystem health (e.g. Ritchie *et al.* 2012; Fleming *et al*. 2014) and bushfire response planning for biodiversity (DELWP 2020; Geary *et al.* 2021). TFN will continue to review new information, guidelines and resources which directly influence our conservation work, and refine our approaches as appropriate.

Setting priorities for natural interest and historical interest objectives

As noted in the 'Scope' section (section 2.2), this plan has not tried to establish priorities relating to TFN's statutory objectives to protect areas of natural interest or beauty, or areas of historical interest. However, the Trust has begun policy and planning work relevant to these objectives and it is recommended that strategic work should be done to establish priorities for both objectives.

Prioritising investment

This fundamental premise underpinning this updated plan has been the need to focus on how best to maintain the resilience and integrity of ecosystems, species and populations in the context of climate change, in line with the 'Adequacy' criterion of the national reserve system (NRMMC, 2009). Consequently, the plan has aimed, as a priority, to identify landscapes and large habitat patches which help deliver on all of the conservation objectives and are large enough to maintain the health and viability of ecosystems and species.

Within these mapped priority areas it is recommended that finer scale prioritisation for conservation investment occur, using DELWP's conservation planning tools and continuing to apply general principles of landscape conservation to maximise the impact of conservation and protection proposals. This finer-scale prioritisation approach will be incorporated into operational documents as part of the implementation of this plan.

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Appendix 1. Methods for developing and assessing conservation objectives and goals

Conservation objective 1: Increase protection of ecosystems and species at a landscape scale

Goal 1.1 Increase extent of privately protected areas in focal landscapes

This goal aimed to identify a series of focal landscapes across Victoria that provide the best opportunities for maintaining priority ecosystems and species on private land, in line with the 'Adequacy' criterion of the national reserve system's guidelines for establishing a Comprehensive, Adequate and Representative reserve system. This defined as: '*protection of at least the minimum area of ecologically functional ecosystems needed to provide the ecological viability and integrity of populations, species and ecological communities at an IBRA subregional scale in the NRS'* (NRMMC 2009).

In contrast to the first iteration of the Statewide Conservation Plan, where focal landscapes were identified on the basis of their strategic biodiversity values at a statewide scale, the approach this time was based on reserve selection theory (Margules & Pressey, 2000). In brief, we focussed on identifying private-land landscapes where additional permanent protection would have maximum conservation impact (Pressey & Taffs 2001). We integrated two datasets to help identify potential focal landscapes:

- a spatial layer which classified the importance of mapped native vegetation for additional protection on private land at a scale of 250 m x 250 m across Victoria, weighted by the proportional occurrence of Ecological Vegetation Classes (EVCs) on private land and their extent of depletion since 1750; and
- a spatial layer which modelled fauna-habitat importance at a scale of 250 m x 250 m across Victoria, fauna habitat, based on habitat distribution models for nearly 600 vertebrate species and weighted by their conservation status and proportional, private land occurrence.

The EVC data were converted to raster grids of 100 m resolution for computation efficiency. All rasters were processed to match same projection systems, extent, and resolution and were rescaled to 0 to 1.

The rationale for applying these two layers was that:

- the Ecological Vegetation Class (EVC) layer directly addressed gaps in the national reserve system from a private-land protected-area perspective and provides a strategic underpinning for where to target additional protection efforts; and
- the fauna layer, applied at scale, helps ensure that the 'Adequacy' component of the NRS criteria is addressed for species and populations which depend on private land.

The EVC spatial layer was developed from data provided by the Victorian Environmental Assessment Council (VEAC) as part of their Statewide Assessment of Public Land (VEAC, 2016). This dataset summarised the pre-1750 extent and current extent of all bioregional EVCs by land tenure and by their representation in the public-land reserve system. VEAC calculated representation against the

adequacy criterion of the NRS using the 1996 JANIS criteria (JANIS 1997), developed as part of the implementation of the 1992 National Forest Policy Statement (JANIS 1997. These criteria are:

- Criterion 1: representation of at least 15% of the pre-1750 extent of each ecosystem in protected areas
- Criterion 2: representation of at least 60% of the current extent of ecosystems classified as vulnerable in protected areas, and
- Criterion 3: representation of 100% of the current extent of rare and endangered ecosystems in protected areas.

Using a geographical information system (ArcGIS Desktop 10.3 and 10.8), the occurrence of all EVCs on private land that did not meet the Adequacy criterion were mapped by linking the VEAC EVC spreadsheet to the spatial layer 'Native Vegetation - Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status)' (NV2005_EVCBCS, DELWP).

The fauna-habitat importance layer was developed by researchers at the Arthur Rylah Institute for Environmental Research using Zonation analysis. They used habitat distribution models developed for nearly 600 vertebrate species as inputs and used Zonation to rank private land based on its 'complementary' conservation value to public land. The scheduling function in Zonation was used to mask public land (i.e. assumed to be protected from clearing or any other activities that would degrade modelled habitat value), and the private land was iteratively removed in a manner that minimized the marginal loss in net biodiversity values across the state. Higher ranking indicated areas that would best complement public land conservation values.

For the included species. VROT species were weighted 2 and non-VROTs 1. Zonation settings were Core Area zonation, warp factor (1000) and edge removal used (with 100000 random edge points). More detail from a comparable analysis is provided in Thomson *et al.* (2020).

These two data inputs were then used to identify potential focal landscapes. In collaboration with researchers from RMIT University we developed a relative priority index to classify the priority of each individual pixel, where values closer to 1 represented higher conservation priority pixel. The relative priority index was calculated using the formula

$$= \frac{Extant\ EVC\ proportion\ on\ private\ land}{EVC\ depletion\ level\ (\%\ of\ pre-1750\ extent\ remaining)} X\ Habitat\ Suitability\ Index$$

The resulting layer was then smoothed using a Gaussian Kernel. The smoothing results in larger patches and factors in structural connectivity between the patches. The determination of the smoothing window as part of this process is expected to be flexible and was tested with different values. It was decided that a window of 1 km and a standard deviation of 200 m provided a reasonable patch size and structure that identified high-value landscapes. Then, different thresholds were applied and tested (0.1 - 0.4) on the smoothed layer. It was determined that a threshold of 0.3 provided the best fit in terms of alignment with existing focal landscapes and subregional representation . Finally, the resulting raster layer was converted to polygons.

Potential landscapes were defined as cross-tenure polygons of 2500+ ha. This patch-size threshold met population viability criteria for many private-land priority species, based on theoretical meta-population data for a range of vertebrates (Verboom *et al*. 2001) and known habitat requirements

for some of the species (Lowe *et al*. 2002; Robinson & Howell, 2003). It also generated multiple priority patches in all under-represented IBRA subregions.

Based on dispersal threshold data for more than 70 Australian vertebrate species (Doerr *et al*. 2010), polygons within 2 km of one another were then aggregated into consolidated biodiversity priority zones (BPZs) (Figure i), on the basis that some dispersal of animals would occur between those patches. The final step was to aggregate multiple BPZs located within the same and/or adjacent bioregion and catchments into focal landscapes (Figure ii).

The criteria, indicators and data sources used to assess conservation goal 1.1 are shown in the table below.

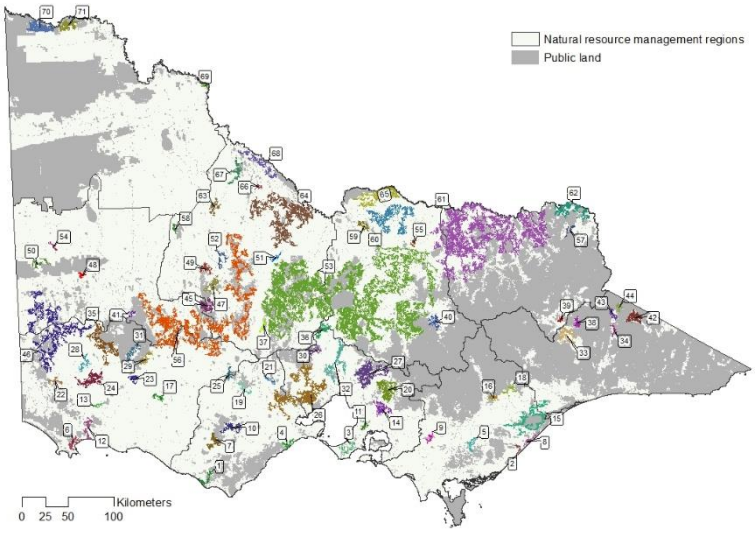

Figure i. Private-land distribution of the 71 biodiversity priority zones (BPZs).

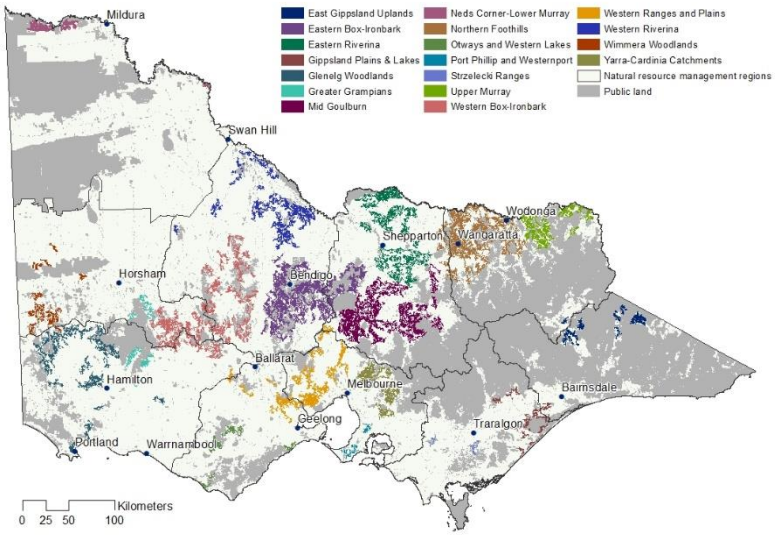

Figure ii. Location of focal landscapes on private land

Goal 1.2 Increase extent of privately protected areas in other priority landscapes

Detailed methods for identifying these other priority patches are set out under objectives 2 and 3. The criteria, indicators and data sources used to assess conservation goal 1.2 are shown in Table 1.

Criterion	Indicator	Data sources
1.1. Extent of privately protected areas in focal landscapes	Extent and proportion of land protected in cross-tenure patches of 2500+ ha using the focal landscape methods	Focal landscape polygons developed from: Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status) (NV2005_EVCBCS, DELWP),VEAC (2016) Statewide Assessment of Public Land dataset Habitat distribution models for >500 vertebrate species and associated Zonation analyses (ARI, DELWP)
1.2. Extent of privately protected areas in other priority landscapes	Extent and proportion of land protected in cross-tenure patches of 2500+ ha that meet criteria under objectives 2 or 3	Described under objectives 2 and 3

Criteria, indicators and data sources for conservation objective 1: Increase protection of ecosystems and species at a landscape scale

Objective 2. Increase protection of priority ecosystems

Goal 2.1. Increase protection of under-represented ecosystems by 25,000 ha outside of focal landscapes

Assessment criteria and indicators for this goal were based on the National Reserve System's (NRS) criteria for establishing a Comprehensive, Adequate and Representative (CAR) reserve system (NRMMC, 2009).

These three components of a CAR reserve system are defined as follows:

- Comprehensiveness: representation of the full range of ecosystems within an IBRA region in the NRS
- Adequacy: protection of at least the minimum area of ecologically functional ecosystems needed to provide the ecological viability and integrity of populations, species and ecological communities at an IBRA subregional scale in the NRS, and
- Representativeness: representation of the variability of regional ecosystems in a bioregion by including representation of more than one example of every regional ecosystem (Commonwealth of Australia 1999**;** NRMMC 2009; CfoC 2011). One recognised way of achieving this is to aim to represent each regional ecosystem within each of the IBRA subregions included within an IBRA bioregion (NRMMC, 2009).

For 'comprehensiveness', we assessed the number and proportion of IBRA (Interim Biogeographic Regionalisation for Australia) subregions (Thackway & Cresswell, 1995) which met the NRS standard that at least 10% of the total area of every bioregion/subregion is included in protected areas. Bioregional protection statistics were obtained from the most recent assessment done by the Collaborative Australian Protected Areas database (CAPAD, 2020) to evaluate current protection levels against NRS criteria and the more recent CBD biodiversity target 11 of at least 17% of terrestrial and inland water ecosystems protected (CBD, 2010).

For 'adequacy' we used VEAC's 2016 statewide dataset of EVC representation in the reserve system on public land (VEAC, 2016, unpub. data) to identify under-represented EVCs against JANIS criteria (JANIS, 1997). These criteria are outlined under Goal 1.1. The VEAC dataset calculated the level of representation of every EVC against the three combined JANIS criteria and then determined the shortfall in hectares needed to meet the JANIS thresholds. A minimum threshold of 1.0 ha extent was used for these EVC analyses. Analyses were done at the site-scale and for cross-tenure patches of 2500+ ha.

We grouped under-represented EVCs into EVC Groups to determine which ecosystem types are most under-represented in the reserve system and should be a focus for additional protection on private land. The threshold for this assessment was set as being at 60% (rounded up) modelled extent on private land.

For 'representativeness', we assessed the proportion of EVCs present in every subregion which were represented at least once in protected areas on public or private land. Analyses were based on the NRS benchmark of having at least 80% of all bioregional ecosystems represented at least once in protected areas (NRMMC 2009). We used the VEAC (2016) EVC dataset as the basis for these analyses, combining that data with a TFN dataset of EVC representation in private protected areas to enable cross-tenure analyses of EVC representativeness in each subregion.

Goal 2.2. Increase extent of climate change refuges protected by 5,000 ha outside of focal landscapes

We used a statewide dataset of EVC vulnerability to climate change prepared for all Victorian CMAs (Spatial Vision 2014) to identify locations of resilient ecosystems (hereafter termed climate change refuges), based on Spatial Vision's high temperature change (RCP 8.5)-2050 model (Figure iii). We clipped this layer to the following categories of the EVC extent layer:

- Highly likely native vegetation - woody
- Highly likely native vegetation - structurally modified
- Highly likely native vegetation - grassy
- Wetland habitat

We then categorised pixels with modelled very low-medium vulnerability (categories 1-15 out of 38) as being modelled climate change refuges. We used a minimum cross-tenure patch-size threshold of 2500+ ha for these analyses, on the assumption that larger patches will be more effective as refuges.

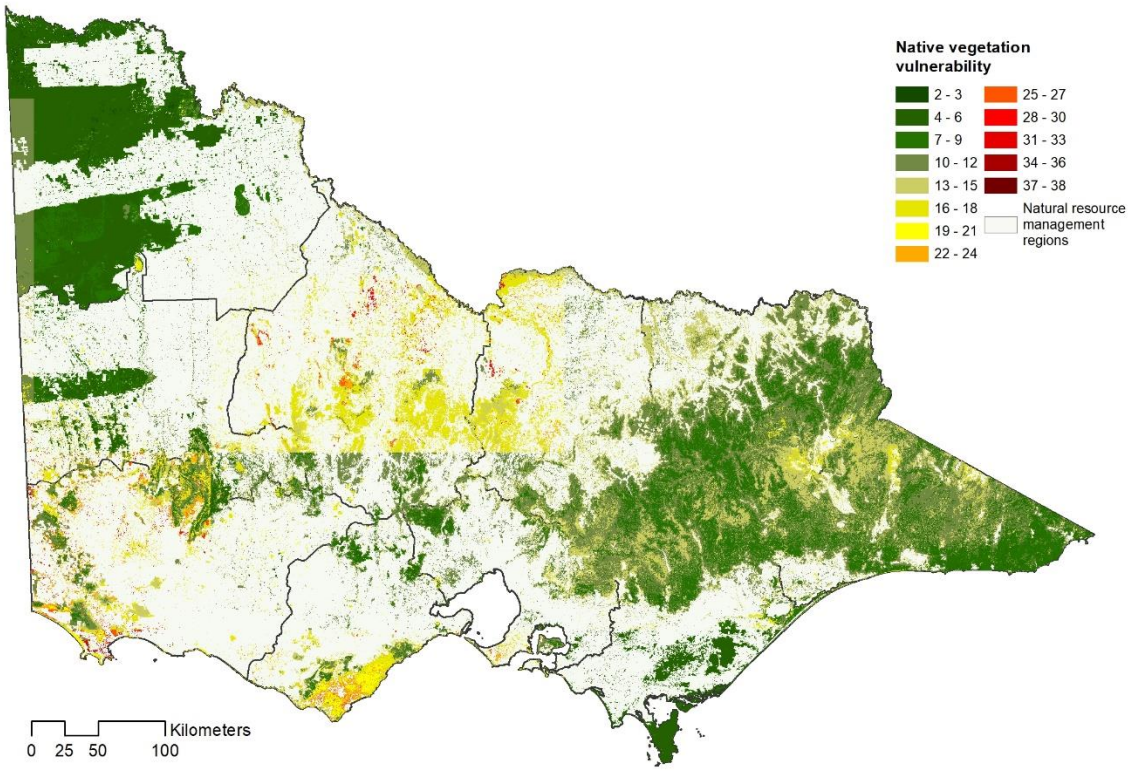

Figure iii. Spatial Vision (2014) map of modelled EVC vulnerability by 2050 under climate-change scenario RCP 8.5

The criteria, indicators and data sources used to assess conservation objective 2 are shown below.

Criterion	Indicator	Data sources
2.1. Extent of under-represented ecosystems in privately protected areas	Extent and proportion of privately protected areas that include under-represented IBRA bioregions subregions (Comprehensiveness)	CAPAD database (2020)
	Extent and proportion of privately protected areas that include under-represented EVCs (Adequacy)	TFN spatial layer derived from VEAC (2016) statewide EVC assessment and Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status) (NV2005_EVCBCS, DELWP)
	Extent and proportion of privately protected areas located in patches of under-represented vegetation (2500+ ha cross-tenure) (Goal 1.2, Adequacy)	TFN spatial layer derived from VEAC (2016) statewide EVC assessment and Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status) (NV2005_EVCBCS, DELWP)
	Number of currently unrepresented EVCs added to protected area system in each subregion below NRS threshold of 80% subregional EVC representation (Representativeness)	TFN spatial layer derived from VEAC (2016) statewide EVC assessment, Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status) (NV2005_EVCBCS, DELWP) and TFN protected areas (June 2020)
2.2 Extent of climate change refuges in privately protected areas	Extent and proportion of privately protected areas located in climate change refuge patches (2500+ ha cross-tenure) (Goal 1.2, Adequacy)	Spatial Vision (2014) EVC vulnerability layer

Criteria, indicators and data sources for conservation objective 2: Increase protection of priority ecosystems

Objective 3. Increase protection of priority aquatic and coastal ecosystems

Goal 3.1. Increase protection of priority wetlands by 5,000 ha outside of focal landscapes

We combined three separate data layers to create an integrated layer of significant wetlands. These layers were: Ramsar wetlands, Wetlands of National Importance (NIW) and under-represented wetland EVCs (data from VEAC 2016). We also identified a set of priority wetland patches based on Ramsar/NIW sites which were greater than 2500 ha in total size and included some mapped extent on private land. These were used to identify priority wetland patches under Goal 1.2.

Goal 3.2 Increase protection of priority waterways and floodplains by 2500 ha outside of focal landscapes

We used the same approach for this assessment as in the 2013 SCP (TFN 2013). Using the statewide watercourses layer (Watercourse Network 1:25,000 - Vicmap Hydro [HY_WATERCOURSE, DELWP]), a 60 m buffer was created on each side of every named waterway, on the basis that most publicly owned frontages along waterways are 60 m or less in width (TFN, 2013). This nominated buffer width therefore distinguished most publicly owned bordered waterways from private-land bordered waterways. We assessed the extent of under-represented native vegetation on private land within that buffer, using the updated spatial layer of under-represented EVCs from VEAC (2016) data. These areas were then considered as our priority waterways for additional protection under this objective.

Goal 3.3 Increase protection of coastal habitat by 2,500 ha outside of focal landscapes

We used the Victorian Government's Marine and Coastal Policy (2020) definition of coastal land as being land within 5 km of the high-tide mark of the coastline. Within that 5 km coastal buffer, we analysed the relative extent of all native vegetation, under-represented vegetation and protected areas on both private and public land.

We analysed the extent of coastal habitats likely to be inundated on both land tenures under an estimated 47 cm sea-level rise by 2070 (Victorian Coastal Inundation Sea Level Rise 2070 [SLR47CM_2070]). We also calculated the extent of coastal land that might potentially be restored as native vegetation by 2100 through managed retreat caused by sea-level rise and additional management interventions, using modelled data from Deakin University's Blue Carbon Laboratory (Moritsch *et al*. 2021).

The criteria, indicators and data sources used to assess conservation objective 3 are shown below.

Criterion	Indicator	Data sources
Extent of significant wetlands in privately protected areas	Extent and proportion of privately protected areas that include significant wetlands	Merged layer from: • Ramsar Wetland Areas in Victoria at 1:25 000 (RAMSAR25, DELWP) • Victorian Wetlands listed in - A Directory of Important Wetlands in Australia (WETLANDDIR, DELWP/DAWE)Under-represented wetland EVC layer (from VEAC 2016)
Extent of priority waterways and floodplains in privately protected areas	Extent and proportion of privately protected areas that include significant waterways and floodplains	Watercourse Network 1:25,000 - Vicmap Hydro (HY_WATERCOURSE, DELWP) TFN layer of under-represented native vegetation derived from VEAC (2016) statewide EVC assessment, Modelled 2005 Ecological Vegetation Classes (with Bioregional Conservation Status) (NV2005_EVCBCS, DELWP) TFN private-land layer, derived from The Victorian Land Use Information System 2016/17 dataset (LANDUSE_2016, DELWP)
Extent of coastal habitat in privately protected areas	Extent and proportion of privately protected areas that include priority coastal habitat Extent and proportion of privately protected areas that include coastal land identified as priority for restoration	Victorian Coastal Inundation Sea Level Rise 2070 (SLR47CM_2070) and Native Vegetation - Modelled Extent 2005 (NV2005_EXTENT, DELWP) Spatial layer from Moritsch *et al*. 2021

Criteria, indicators and data sources for conservation objective 3: Increase protection of priority aquatic and coastal ecosystems

Objective 4. Increase protection of habitat for priority species

Goal 4.1. Increase protection of habitat for priority species by 5000 ha outside of focal landscapes

Using data provided by DELWP's Arthur Rylah Institute for Environmental Research, we categorised nearly 600 vertebrates, some invertebrates and 3600 vascular plants by the percentage of their modelled occurrence on private land, their modelled risk of habitat loss over the next 50 years and their conservation status (from DELWP data, 2020). These data were used to generate a set of rules which we applied to define priority species for conservation on private land. These were as follows:

- selection limited to rare or threatened species
- for critically endangered and endangered species, include all taxa with >40% of their modelled occurrence on private land
- for vulnerable species, include those taxa with > 50% of their modelled occurrence on private land and a >20% risk of their habitat being cleared over the next 50 years, and all taxa with >60% of their modelled occurrence on private land
- for rare or near threatened species, include those taxa with > 60% of their modelled occurrence on private land and a >20% risk of their habitat being cleared over the next 50 years, and all taxa with >70% of their modelled occurrence on private land.

We also analysed the modelled occurrence of non-threatened species on private land to identify an additional set of non-threatened species of potential conservation concern, comprising those species with >70% of their modelled occurrence on private land.

For a subset of threatened fauna and flora species listed in the 2013 Plan where habitat distribution models were not available for this review, we used earlier bioregional analyses of the private land/public land occurrence of those species to assess their relative priority for conservation action on private land. The 2013 SCP also provides additional analyses of the regional, bioregional and ecological distribution of priority species, all of which remain relevant.

Modelled risk of habitat loss was calculated by ARI for each species for which they had habitat distribution models (HDMs) using their risk of land clearing layer. This layer calculated the projected future risk of vegetation clearing over the next 50 years, using historical clearing rates to predict future clearing (DELWP, 2021). We used an interrogative process to examine habitat loss under different thresholds of modelled risk (20%, 30%, 40%), compared with recent and current rates of loss evidenced by field staff. From this, we set the threshold at 20% risk of habitat loss over the next 50 years as the most realistic model and applied this threshold as part of the rule-set above.

Priority locations for fauna and flora conservation on private land were identified using spatial layers provided by Arthur Rylah Institute which modelled the overall importance of private land for threatened vertebrates and threatened vascular plants at a scale of 250x250m across Victoria. We thresholded this analysis to include only the top 20% as being priority sites for conservation on private land and clipped the layers to current native vegetation extent.

These analyses were completed prior to the recent re-assessment of threatened species in Victoria using the Common Asessment Method completed in 2021 and the revision of the list of threatened species under the *Flora and Fauna Guarantee Act.* For consistency across our approach, this plan update therefore retains both the previous conservation status and updated status of the priority species.

The criteria, indicators and data sources used to assess conservation objective 4 are shown below.

Criterion	Indicator	Data sources
Extent of habitat protected for priority flora and fauna	Extent of priority habitat protected	ARI spatial layers of modelled occurrence of threatened fauna and threatened flora on private land TFN mapping of protected land against threatened species' protection target
	Proportion of all sites protected which include significant threatened species populations	FFG Action Statements BRP landscape statistics HDM models for individual species
	Number of priority species populations protected, compared with 2021 baseline	FFG Action Statements BRP landscape statistics for threatened species HDM models for individual species

Criteria, indicators and data sources for conservation objective 4: Increase protection of habitat for priority species

Objective 5. Enhance and protect landscape restoration and connectivity

Goal 5.1. Increase extent of habitat restored/revegetated under permanent agreements

Goal 5.2. Increase extent of land restored/revegetated under short-term agreements

Priority areas for restoration and increasing connectivity were identified using the DELWP benefit revegetation layer, developed as part of its set of Strategic Management Prospects (SMP) planning tools (DELWP 2021, 2022). This layer modelled the benefit of revegetation, relative to all actions across all locations, based on:

- estimates of benefit derived through expert elicitation,
- pre-1700 habitat suitability models, and
- spatial data on proximity to existing vegetation and riparian areas.

The resulting top 20% of values identified through this modelling as having benefits for revegetation were then considered to be priority areas for revegetation. More detail on the methods used by DELWP to develop this model is available in their SMP revegetation layer fact sheet (DELWP 2022). (DELWP 2022).

The criteria, indicators and data sources used to assess conservation objective 5 are shown below.

Criterion	Indicator	Data sources
Extent of priority habitat protected for restoration	Extent of priority restoration habitat (top 20%) protected under permanent or short-term agreements	Strategic Management Prospectsv3 (2021) Revegetation Benefits
	Proportion of sites protected which include priority areas for restoration and revegetation	Strategic Management Prospectsv3 (2021) Revegetation_Benefits

Criteria, indicators and data sources for conservation objective 5: enhance and protect landscape restoration and connectivity

Objective 6. Maintain and improve condition of ecosystems and species

Goal 6.1. Maintain and improve the ecological health of covenanted land

Goal 6.2. Maintain and improve the ecological health of TFN reserves

Assessments are done using TFN's current methods for assessing trends in habitat condition over time between repeat visits (TFN, 2021). These entail use of DELWP's rapid assessment method for vegetation condition and determination of the condition and trend of vegetation assets based on that assessment.

Habitat condition assessments are done across each ecosystem asset using the Vegetation Quality Assessment (VQA) method developed by DSE/DELWP, which represents a simplified version of the Habitat Hectares Assessment method but still uses the same categories of habitat attributes. Only the site-condition components of the assessment form are used. Using the VQA total scores for a site, condition is assigned as follows.

Overall quality	VQA (site condition attributes only)
High	11-15
Medium	6-10
Low	0-5

Overall quality categories and their associated VQA numerical scores

Trend assessments are based primarily on repeat VQA assessments, supplemented by additional field observations, outlined in the table below. Trend assessments are also based partly on changes in condition score for designated habitat attributes considered to be Key Ecological Attributes (KEAs) for that ecosystem. These are derived from indicators identified in PV's ecosystem Models report (White 2010), along with staff knowledge of the site and local ecosystems.

Trend category	Definition
First visit	Represents the visit where baseline condition recorded so no trend assessment possible
Stable	None, or only minor change across all attributes (no change in overall condition nor any category change for any KEA)
Minor improvement	No overall change in category across all attributes but a positive category change for at least two KEAs
Significant improvement	A positive change in overall score ranking (i.e from low to medium or from medium to high)
Minor decline	No overall change in category across all attributes but a negative category change for at least two KEAs OR a negative category change for weediness of transformative weeds (White *et al* 2018)
Significant decline	A negative change in overall score ranking (i.e from Medium to Low or from High to Medium)
NA	For use when the comparative data did not allow for a confident assessment of changes in condition

Trend category definitions for primary monitoring of terrestrial ecosystems

Ecosystem group	Key Ecological Attributes, based on VQA attributes
Box-ironbark Forests	Large trees, recruitment, groundcover, logs, litter
Plains Woodlands	Large trees, recruitment, groundcover, weediness, logs, litter
Mixed Dry Forests	Large trees, recruitment, understorey, groundcover, weediness, logs, litter
Semi-arid Woodland	Large trees, recruitment, groundcover, weediness, logs, litter
Wet and Damp Forests	Large trees, recruitment, understorey, groundcover, weediness, logs, litter
Rainforests	Large trees, recruitment, understorey, groundcover, weediness, logs, litter
Grasslands	Groundcover, weediness, litter
Heathlands	Understorey, groundcover, recruitment, weediness
Mallee	Large trees, recruitment, groundcover, weediness, logs, litter
Alpine Vegetation	Large trees, canopy cover, recruitment, understorey, groundcover, weediness, logs, litter
Riparian Forest	Large trees, understorey, weediness, logs, litter
Riverine Forests and Woodlands	Large trees, recruitment, understorey, groundcover, weediness, logs, litter
Coastal Vegetation	Recruitment, understorey, groundcover, weediness, logs, litter

Key Ecological Attributes (KEAs) of major ecosystem groups

The criteria, indicators and data sources used to assess conservation objective 6 are shown below.

Criterion	Indicator	Data sources
Maintenance or improvement in habitat quality	Overall trend for habitat condition at covenanted sites and TFN reserves	TFN database
Maintenance or improvement in species' populations	Overall trend for priority species' populations over time	TFN database

Criteria, indicators and data sources for conservation objective 6: Maintain and improve condition of ecosystems and species

Appendix 2. Focal landscape descriptions

East Gippsland Uplands

Location	Located principally in middle and upper catchments of Tambo and Snowy Rivers between Omeo, Benambra and Bonang		
Total Area	46,717 ha	**Private-land area**	43,698 ha (94%)
Major geographic features	Middle and upper catchments of the Tambo and Snowy Rivers, encompassing upland tablelands around Omeo, Bonang and Wulgumerang		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	South East Corner, South Eastern Highlands		
Major IBRA subregions, ordered by % extent	South East Coastal Range, Monaro		
Total extent of native vegetation (NV)	39,384 ha	**Private-land NV extent**	36,617 ha (93%)
		Private-land extent of under-represented NV	7,016 ha (19%)
Major EVC groups ordered by % extent	Lower Slopes Woodlands (UR), Dry Forests, Montane Grasslands, Shrublands or Woodlands		
Nationally significant aquatic ecosystems	Snowy, Suggan Buggan and Berrima Rivers		
Flagship fauna species	Lace Monitor		
Flagship flora species	Matted Flax-lily		

- UR – under-represented in the national reserve system

Eastern Box-Ironbark

Location	North-central Victoria between Raywood, Daylesford, Bendigo, Seymour and Murchison		
Total Area	303,277 ha	**Private-land area**	264,414 ha (87%)
Major geographic features	Located predominantly along inland fall of the Great Dividing Range and associated foothills, encompassing middle catchments of Campaspe and Goulburn Rivers		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Victorian Midlands (UR), Riverina (UR)		
Major IBRA subregions, ordered by % extent	Goldfields (UR), Victorian Riverina (UR)		
Total extent of native vegetation (NV)	208,030 ha	**Private-land NV extent**	175,592 ha (84%)
		Private-land extent of under-represented NV	98,255 ha (56%)
Major EVC groups ordered by % extent	Box-ironbark Forests (UR), Dry Forests, Plains Woodlands (UR)		
Nationally significant aquatic ecosystems	na		
Flagship fauna species	Regent Honeyeater, Grey-crowned Babbler, Squirrel Glider, Brown Toadlet, Swift Parrot, Lace Monitor		
Flagship flora species	Velvet Daisy-bush		

- UR – under-represented in the national reserve system

Eastern Riverina

Location	Northern Victoria between Barmah, Shepparton, Euroa, Benalla and Yarrawonga.		
Total Area	169,352 ha	**Private-land area**	155,840 ha (92%)
Major geographic features	Barmah Forest and associated floodplain; Goulburn River; Broken Creek system; Lower Broken River; Honeysuckle Creek/Seven Creeks floodplains and middle catchments; Koonda Hills, an outlier of Northern Inland Slopes subregion.		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Riverina (UR), NSW South Western Slopes (UR)		
Major IBRA subregions, ordered by % extent	Victorian Riverina (UR), Murray Fans (UR), Northern Inland Slopes (UR)		
Total extent of native vegetation (NV)	84,371 ha	**Private-land NV extent**	74,742 ha (89%)
		Private-land extent of under-represented NV	72,023 ha (96%)
Major EVC groups ordered by % extent	Plains Woodlands (UR), Riverine Grassy Woodlands (UR), Box-ironbark Forests (UR), Dry Forests		
Nationally significant aquatic ecosystems	Murray River, Barmah Forest, Lower Goulburn River floodplain, Broken Creek, Lower Broken River, Muckatah Depression; EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Squirrel Glider, Australian Painted Snipe, Brolga, Swift Parrot, Grey-crowned Babbler, Lace Monitor		
Flagship flora species	Yarran Wattle, Small Scurf-pea, Euroa Guinea-flower, Ridged Water-milfoil, Hairy Tails		

- UR – under-represented in the national reserve system

Gippsland Plains and Lakes

Location	Western Gippsland between Yarram, Rosedale, Glenmaggie and Bairnsdale		
Total Area	49,930 ha	**Private-land area**	41,279 ha (83%)
Major geographic features	Ninety Mile Beach, Lake Wellington and associated catchment, La Trobe River, Perry River, Thompson River, Avon River and associated floodplains.		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	South East Coastal Plain (UR), South Eastern Highlands		
Major IBRA subregions, ordered by % extent	Gippsland Plain (UR), Highlands – Southern Fall		
Total extent of native vegetation (NV)	36,702 ha	**Private-land NV extent**	29107 ha (79%)
		Private-land extent of under-represented NV	23,947 ha (82%)
Major EVC groups ordered by % extent	Lowland Forest, Riparian Scrubs/Swampy Scrubs (UR), Wetlands (UR), Herb-rich Woodlands (UR), Plains Woodlands (UR)		
Nationally significant aquatic ecosystems	Gippsland Lakes; EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Growling Grass Frog, Lace Monitor		
Flagship flora species	Dwarf Kerrawang, Matted Flax-lily, Purple Diuris, Swamp Everlasting		

- UR – under-represented in the national reserve system

Glenelg Woodlands

Location	Located within Glenelg Hopkins catchment from southwestern edge of the Grampians to South Australian border; along coast to Tyrrendarra and inland to Woorndoo and Hamilton		
Total Area	143,198 ha	**Private-land area**	131,234 ha (92%)
Major geographic features	Glenelg River and associated floodplains, the coastline, Budj Bim World Heritage Area and other parts of the Victorian Volcanic Plains		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Victorian Midlands (UR)		
Major IBRA subregions, ordered by % extent	Dundas Tablelands (UR)		
Total extent of native vegetation (NV)	77,810 ha	**Private-land NV extent**	67,918 ha (87%)
		Private-land extent of under-represented NV	66,733 ha (98%)
Major EVC groups ordered by % extent	Plains Woodlands (UR), herb-rich Woodlands (UR), Riverine Grassy Woodlands (UR)		
Nationally significant aquatic ecosystems	Glenelg Estuary and Discovery Bay, Lindsay-Werikoo Wetlands, Mundi-Selkirk Wetlands, Woorndoo-Hopkins Wetlands; EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Southern Bent-winged Bat, Orange-bellied Parrot, Striped legless-lizard, Growling Grass Frog, Red-tailed Black-Cockatoo, Lace Monitor, Fat-tailed Dunnart, Brolga		
Flagship flora species	Gorae Leek-orchid, Swamp Everlasting		

- UR – under-represented in the national reserve system

Greater Grampians

Location	Encompasses the Greater Grampians ranges, and surrounding plains to the north and south		
Total Area	36,741 ha	**Private-land area**	32980 ha (90%)
Major geographic features	Greater Grampians ranges and adjacent plains		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Victorian Midlands (UR), Murray Darling Depression, Southern Volcanic Plain (UR)		
Major IBRA subregions, ordered by % extent	Greater Grampians, Wimmera (UR), Dundas Tablelands (UR), Victorian Volcanic Plain (UR)		
Total extent of native vegetation (NV)	25,562 ha	**Private-land NV extent**	22,196 ha (87%)
		Private-land extent of under-represented NV	15,826 ha (71%)
Major EVC groups ordered by % extent	Plains Woodlands (UR), Lower Slopes Woodlands (UR)		
Nationally significant aquatic ecosystems	na		
Flagship fauna species	Squirrel Glider, Swift Parrot		
Flagship flora species	Western woodlands spider-orchid species		

- UR – under-represented in the national reserve system

Mid Goulburn

Location	Northeastern Victoria within Goulburn Broken in the foothills of the Great Dividing Range between Seymour, Nagambie, Euroa, Benalla, Mansfield, Alexandra		
Total Area	257,285 ha	**Private-land area**	237,044 ha (92%)
Major geographic features	Located predominantly along inland fall of the Great Dividing Range and associated foothills, encompassing middle and upper catchments of Goulburn and Broken Rivers		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Victorian Midlands (UR), Riverina (UR)		
Major IBRA subregions, ordered by % extent	Central Victorian Uplands (UR), Victorian Riverina (UR)		
Total extent of native vegetation (NV)	145,316 ha	**Private-land NV extent**	130,687 ha (90%)
		Private-land extent of under-represented NV	117,799 ha (90%)
Major EVC groups ordered by % extent	Dry Forests, Lower Slopes Woodlands, Plains Woodlands		
Nationally significant aquatic ecosystems	na		
Flagship fauna species	Golden Sun Moth, Striped Legless Lizard, Squirrel Glider, Brown Toadlet		
Flagship flora species	Matted Flax-lily, Narrow Goodenia, Euroa Guinea-flower		

- UR – under-represented in the national reserve system

Neds Corner-Lower Murray

Location	Located in north-west Victoria along the lower Murray floodplain. Primarily located west of Mildura and centred on Trust for Nature's Neds Corner Station but also includes an area near Boundary Bend		
Total Area	41280 ha	**Private-land area**	39,967 ha (97%)
Major geographic features	Murray River floodplain, majority of the Murray Scroll Belt, Lindsay Island, Mulcra Island, Walpolla Island and dunes associated with the Murray Mallee. The only part of Victoria recognised as part of Australia's rangelands.		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Riverina (UR)		
Major IBRA subregions, ordered by % extent	Murray Scroll Belt		
Total extent of native vegetation (NV)	40,040 ha	**Private-land NV extent**	38,787 ha (97%)
		Private-land extent of under-represented NV	2,663 ha (7%)
Major EVC groups ordered by % extent	Chenopod Shrublands, Riverine Grassy Woodlands (UR)		
Nationally significant aquatic ecosystems	Murray River, Lindsay Island, Walpolla Island, Lake Wallawalla		
Flagship fauna species	Plains-wanderer, Hooded Scaly-foot, Lace Monitor, Fat-tailed Dunnart		
Flagship flora species	Hairy Darling-pea, Cane-grass		

- UR – under-represented in the national reserve system

Northern Foothills

Location	Northeast Victoria from about Swanpool to Bundalong, Rutherglen and Wodonga		
Total Area	245,770 ha	**Private-land area**	211843 ha (86%)
Major geographic features	Warby Range, Lurg Killawarra Forest, Lower Ovens River and floodplain, Chiltern-Mt Pilot area, Murray River floodplain		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Riverina (UR), NSW South Western Slopes (UR), Victorian Midlands (UR)		
Major IBRA subregions, ordered by % extent	Victorian Riverina (UR), Northern Inland Slopes (UR), Central Victorian Uplands (UR)		
Total extent of native vegetation (NV)	126,711 ha	**Private-land NV extent**	101,150 ha (80%)
		Private-land extent of under-represented NV	90,048 ha (89%)
Major EVC groups ordered by % extent	Dry Forests, Plains Woodlands (UR), Riverine Grassy Woodlands (UR)		
Nationally significant aquatic ecosystems	Murray River, Ovens River, Black Swamp, EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Golden Sun Moth, Australian Painted Snipe, Regent Honeyeater, Striped Legless Lizard, Grey-crowned Babbler, Squirrel Glider, Brown Toadlet, Swift Parrot, Lace Monitor, Brolga		
Flagship flora species	Yarran, Purple Diuris, Narrow Goodenia		

- UR – under-represented in the national reserve system

Otways and Western Lakes

Location	Centred on the Otway Ranges, Anglesea Heathlands and associated coastline west of Geelong, extending inland to include Lake Corangamite and nearby associated private land		
Total Area	30,033 ha	**Private-land area**	27,084 ha (90%)
Major geographic features	Major geographic elements comprise the Otway Ranges, Anglesea Heathlands, the coastline and south-draining waterways and estuaries; and Corangamite Lakes, Stony Rises and other associated habitats		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Southern Volcanic Plain (UR), South East Coastal Plain (UR)		
Major IBRA subregions, ordered by % extent	Victorian Volcanic Plain (UR), Otway Plain (UR), Warrnambool Plain (UR)		
Total extent of native vegetation (NV)	17,370 ha	**Private-land NV extent**	15,148 ha (87%)
		Private-land extent of under-represented NV	13,584 ha (90%)
Major EVC groups ordered by % extent	Plains Woodlands (UR), Lowland Forests		
Nationally significant aquatic ecosystems	Western District Lakes, Aire River and wetlands, Princetown Wetlands; EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Corangamite Water-skink, Growling Grass Frog, Fat-tailed Dunnart, Brolga		
Flagship flora species	Velvet Daisy-bush		

- UR – under-represented in the national reserve system

Port Phillip and Westernport

Location	Encompasses the Mornington Peninsula and western shoreline of Western Port		
Total Area	11,187 ha	**Private-land area**	9,719 ha (87%)
Major geographic features	Mornington Peninsula lowlands and hills, major drainage lines, Tootgarook Swamp, Westernport coastline		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	South East Coastal Plain (UR)		
Major IBRA subregions, ordered by % extent	Gippsland Plain (UR)		
Total extent of native vegetation (NV)	5,713 ha	**Private-land NV extent**	4,746 ha (83%)
		Private-land extent of under-represented NV	3,992 ha (84%)
Major EVC groups ordered by % extent	Dry Forests, Lower Slopes Woodlands (UR), Heathy Woodlands, Riparian Scrubs/Swampy Scrubs (UR), Lowland Forests		
Nationally significant aquatic ecosystems	Western Port; EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Orange-bellied Parrot, Growling Grass Frog, Swift Parrot		
Flagship flora species	Purple Diuris, Swamp Everlasting		

- UR – under-represented in the national reserve system

Strzelecki Ranges

Location	Two distinct areas centred respectively on Mt Worth State Park and Traralgon South to Callignee		
Total Area	8013	**Private-land area**	6561 ha (82%)
Major geographic features	Strzelecki Ranges and associated foothills, middle and upper catchments of the Albert River, Agnes River, La Trobe River and other waterways draining to the coast and into Corner Inlet		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	South Eastern Highlands, South East Coastal Plain (UR)		
Major IBRA subregions, ordered by % extent	Strzelecki Ranges (UR), Gippsland Plain (UR)		
Total extent of native vegetation (NV)	6207 ha	**Private-land NV extent**	5,037 ha (81%)
		Private-land extent of under-represented NV	5,037 ha (100%)
Major EVC groups ordered by % extent	Wet or Damp Forests, Lowland Forests		
Nationally significant aquatic ecosystems	Na		
Flagship fauna species	Narracan Burrowing Crayfish, Strzelecki Burrowing Crayfish, Lace Monitor		
Flagship flora species	Na		

- UR – under-represented in the national reserve system

Upper Murray

Location	Northeast Victoria between Wodonga, Tallangatta, Corryong and Walwa		
Total Area	86,895 ha	**Private-land area**	78,645 ha (91%)
Major geographic features	Valleys and floodplains of the Mitta Mitta and upper Murray Rivers; Burrowa-Pine Mountain and northern foothills of the Great Dividing Range		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	NSW South Western Slopes (UR)		
Major IBRA subregions, ordered by % extent	Northern Inland Slopes (UR)		
Total extent of native vegetation (NV)	52,046 ha	**Private-land NV extent**	46,055 ha (88%)
		Private-land extent of under-represented NV	39,666 ha (86%)
Major EVC groups ordered by % extent	Dry Forests		
Nationally significant aquatic ecosystems	Murray River, Lake Hume, Mitta Mitta River		
Flagship fauna species	Booroolong Tree Frog, Lace Monitor		
Flagship flora species	Na		

- UR – under-represented in the national reserve system

Western Box-Ironbark

Location	Central-western Victoria between Maryborough, Wedderburn, St Arnaud, Stawell and Pomonal		
Total Area	249,518 ha	**Private-land area**	220,946 ha (89%)
Major geographic features	Western extension of the Great Diividing Range, mostly on the northern fall, and outlying ranges; middle and upper catchments of the Wimmera, Avoca and Loddon Rivers		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Victorian Midlands (UR)		
Major IBRA subregions, ordered by % extent	Goldfields (UR), Central Victorian Uplands (UR)		
Total extent of native vegetation (NV)	169,168 ha	**Private-land NV extent**	144,366 ha (85%)
		Private-land extent of under-represented NV	100,613 ha (70%)
Major EVC groups ordered by % extent	Lower Slopes Woodlands (UR), Box Ironbark Forests (UR)		
Nationally significant aquatic ecosystems	Na		
Flagship fauna species	Brown Toadlet, Swift Parrot, Lace Monitor		
Flagship flora species	Western woodlands spider-orchid species, Lowly Greenhood		

- UR – under-represented in the national reserve system

Western Ranges and Plains

Location	From southwest of Ballarat to Geelong and to ranges and catchments northwest and west of Melbourne to Great Dividing Range		
Total Area	131,057 ha	**Private-land area**	116,341 ha (89%)
Major geographic features	Foothills and plains on the southern fall of the Great Dividing Range, encompassing catchments of the Moorabool, Little, Werribee, Plenty and Maribyrnong Rivers; volcanic plains between Geelong and Melbourne; You Yang ranges		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Southern Volcanic Plain (UR), Victorian Midlands (UR)		
Major IBRA subregions, ordered by % extent	Victorian Volcanic Plain (UR), Central Victorian Uplands (UR)		
Total extent of native vegetation (NV)	76,394 ha	**Private-land NV extent**	66,439 ha (87%)
		Private-land extent of under-represented NV	56,762 ha (85%)
Major EVC groups ordered by % extent	Dry Forests, Plains Grasslands (UR), Plains Woodlands (UR)		
Nationally significant aquatic ecosystems	Port Phillip Bay (Western Shoreline), Lerderderg River;		
Flagship fauna species	Golden Sun Moth, Growling Grass Frog, Fat-tailed Dunnart		
Flagship flora species	Small Scurf-pea, Matted Flax-lily, Spiny Rice-flower, Velvet Daisy-bush, Hairy Tails		

- UR – under-represented in the national reserve system

Western Riverina

Location	Centred on the Patho Plains, Murray floodplain, lower Avoca and lower Loddon floodplains between Echuca, Serpentine, Donald and Swan Hill.		
Total Area	155,212 ha	**Private-land area**	139,944 ha (90%)
Major geographic features	Murray River and floodplain, lower Avoca and Loddon Rivers and floodplains; outlier hills of Northern Inland Slopes subregion and old dune systems		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Riverina (UR)		
Major IBRA subregions, ordered by % extent	Victorian Riverina (UR), Murray Fans (UR)		
Total extent of native vegetation (NV)	85,793 ha	**Private-land NV extent**	75,545 ha (88%)
		Private-land extent of under-represented NV	75,215 ha (99%)
Major EVC groups ordered by % extent	Plains Grasslands and Chenopod Shrublands (UR), Riverine Grassy Woodlands (UR), Wetlands (UR)		
Nationally significant aquatic ecosystems	Murray River and floodplain, Kerang Wetlands, Kow Swamp, Lake Buloke Wetlands, Lake Lalbert, Bunguluke Wetlands, Tyrrell Creek & Lalbert Creek Floodplain; EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Plains-wanderer, Pale Sun Moth, Australian Painted Snipe, Hooded Scaly-foot, Striped Legless Lizard, Grey-crowned Babbler, Lace Monitor, Fat-tailed Dunnart, Brolga		
Flagship flora species	Spiny Rice-flower, Red Swainson-pea, Cane Grass, Chariot Wheels, Ridged Water-milfoil, Hairy Tails		

Wimmera Woodlands

Location	Located primarily in Wimmera CMA region from west of Horsham to the SA border and from Dergholm to north of the Little Desert		
Total Area	54,487 ha	**Private-land area**	50,162 ha (92%)
Major geographic features	Mostly located within the Murray Darling Depression. Includes Natimuk-Douglas saline wetland system; sand dune systems south of Little Desert; and Little Desert and surrounds		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	Murray Darling Depression		
Major IBRA subregions, ordered by % extent	Wimmera (UR), Lowan Mallee		
Total extent of native vegetation (NV)	33,286 ha	**Private-land NV extent**	29,271 ha (88%)
		Private-land extent of under-represented NV	21,202 ha (72%)
Major EVC groups ordered by % extent	Plains Woodlands (UR), Mallee, Heathy Woodlands, Wetlands (UR)		
Nationally significant aquatic ecosystems	Wetlands associated with Natimuk-Douglas saline wetland system EPBC listed Seasonally Herbaceous Wetland community		
Flagship fauna species	Pale Sun Moth, Golden Sun Moth, Red-tailed Black-Cockatoo, Lace Monitor, Fat-tailed Dunnart, Brolga		
Flagship flora species	Western woodlands spider-orchid spp, Swamp Sheoak, Winged Peppercress, Spiny Rice-flower, Cane Grass, Hairy Tails		

- UR – under-represented in the national reserve system

Yarra-Cardinia Catchments

Location	From northeast of Melbourne near Whittlesea east to Gembrook and Bunyip		
Total Area	79,327 ha	**Private-land area**	65,266 ha (82%)
Major geographic features	The Great Dividing Range; and the upper and middle catchments of the Yarra River, Bunyip River and Cardinia Creek.		
Major IBRA bioregions (> 10% of extent of focal Landscape), ordered by % extent	South Eastern Highlands		
Major IBRA subregions, ordered by % extent	Highlands – Southern Fall		
Total extent of native vegetation (NV)	52,081 ha	**Private-land NV extent**	41,614 ha (80%)
		Private-land extent of under-represented NV	25,072 ha (60%)
Major EVC groups ordered by % extent	Dry Forests, Lowland Forests, Riparian Scrubs/Swampy Scrubs		
Nationally significant aquatic ecosystems	Yarra River		
Flagship fauna species	Helmeted Honeyeater, Dandenong Burrowing Crayfish, Lace Monitor		
Flagship flora species	Na		

- UR – under-represented in the national reserve system

Appendix 3. Non-threatened fauna species with > 70% modelled habitat on private land

Common name	Scientific name	% modelled habitat on private land
Scaly-breasted Lorikeet	*Trichoglossus chlorolepidotus*	0.89
Spotted Marsh Frog SCR	*Limnodynastes tasmaniensis SCR*	0.89
Grass skink FORM (P.pag/cry)	*Pseudemoia form cryodoma/pagenstecheri*	0.87
Brown Songlark	*Cincloramphus cruralis*	0.85
Plumed Whistling-Duck	*Dendrocygna eytoni*	0.84
Black-shouldered Kite	*Elanus axillaris*	0.84
Stubble Quail	*Coturnix pectoralis*	0.83
Horsfield's Bushlark	*Mirafra javanica*	0.83
Banded Lapwing	*Vanellus tricolor*	0.81
Double-barred Finch	*Taeniopygia bichenovii*	0.81
Little Whip Snake	*Parasuta flagellum*	0.81
Olive Legless Lizard	*Delma inornata*	0.81
Bar-shouldered Dove	*Geopelia humeralis*	0.81
Spotted Marsh Frog NCR	*Limnodynastes tasmaniensis NCR*	0.80
Straw-necked Ibis	*Threskiornis spinicollis*	0.80
Eastern Cattle Egret	*Bubulcus coromandus*	0.80
Curl Snake	*Suta suta*	0.80
White-necked Heron	*Ardea pacifica*	0.80
Australian Magpie	*Gymnorhina tibicen*	0.79
Crested Pigeon	*Ocyphaps lophotes*	0.79
Dwyer's Snake	*Parasuta dwyeri*	0.79
Long-billed Corella	*Cacatua tenuirostris*	0.79
Pobblebonk Frog	*Limnodynastes dumerilii dumerilii*	0.78
White-faced Heron	*Egretta novaehollandiae*	0.78
Eastern Sign-bearing Froglet	*Crinia parinsignifera*	0.78
Spotted Marsh Frog (race unknown)	*Limnodynastes tasmaniensis*	0.78
Fairy Martin	*Petrochelidon ariel*	0.78
Tessellated Gecko	*Diplodactylus tessellatus*	0.77
Black-tailed Native-hen	*Tribonyx ventralis*	0.77
Australian Wood Duck	*Chenonetta jubata*	0.77
Brown Quail	*Synoicus ypsilophorus*	0.76
Blue-winged Parrot	*Neophema chrysostoma*	0.76
Oriental Dollarbird	*Eurystomus orientalis*	0.76
Noisy Miner	*Manorina melanocephala*	0.76
Yellow-billed Spoonbill	*Platalea flavipes*	0.75
Masked Lapwing	*Vanellus miles*	0.75
Grey Teal	*Anas gracilis*	0.75
Southern Rainbow Skink	*Carlia tetradactyla*	0.74
Australian White Ibis	*Threskiornis molucca*	0.74

Barking Marsh Frog	*Limnodynastes fletcheri*	0.74
Sloane's Froglet	*Crinia sloanei*	0.74
Swamp Harrier	*Circus approximans*	0.73
Magpie-lark	*Grallina cyanoleuca*	0.73
Dusky Moorhen	*Gallinula tenebrosa*	0.73
Pacific Black Duck	*Anas superciliosa*	0.72
Barn Owl	*Tyto alba*	0.72
Cockatiel	*Nymphicus hollandicus*	0.72
Hoary-headed Grebe	*Poliocephalus poliocephalus*	0.72
Red-rumped Parrot	*Psephotus haematonotus*	0.72
Black Honeyeater	*Sugomel nigrum*	0.72
Nankeen Kestrel	*Falco cenchroides*	0.72
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	0.72
Little Corella	*Cacatua sanguinea*	0.72
Black Swan	*Cygnus atratus*	0.71
White-plumed Honeyeater	*Ptilotula penicillata*	0.71
Eastern Rosella	*Platycercus eximius*	0.71
Australian Pipit	*Anthus australis*	0.71
Rufous Songlark	*Cincloramphus mathewsi*	0.71
Zebra Finch	*Taeniopygia guttata*	0.71
Brown Falcon	*Falco berigora*	0.71
Black-fronted Dotterel	*Elseyornis melanops*	0.70
Australasian Swamphen	*Porphyrio melanotus*	0.70
White-fronted Chat	*Epthianura albifrons*	0.70
Gray's Blind Snake	*Anilios nigrescens*	0.70

Appendix 4. Priority flora species for increased protection on private land

Species arranged by conservation status and then by % of modelled habitat on private land

Common name	Scientific name	2020 Victorian conservation status (DELWP Advisory list)	2021 FFG Act status	EPBC Act status	% modelled habitat on private-land
Basalt Sun-orchid	*Thelymitra gregaria*	Endangered	Critically endangered		0.99
Clumping Leek-orchid	*Prasophyllum sp. aff. occidentale E*	Endangered	Critically endangered		0.99
Grassland Sun-orchid	*Thelymitra basaltica*	Endangered	Critically endangered		0.99
White Sunray	*Leucochrysum albicans subsp. tricolor*	Endangered	Endangered	Endangered	0.98
Button Wrinklewort	*Rutidosis leptorhynchoides*	Endangered	Endangered	Endangered	0.98
Derrinallum Billy-buttons	*Craspedia sp. 2*	Endangered	Endangered		0.98
Basalt Flax-lily	*Dianella sp. aff. revoluta (Minjah)*	Endangered			0.98
Riverina Leek-orchid	*Prasophyllum aff. occidentale D*	Endangered	Critically endangered		0.98
Bellarine Yellow-gum	*Eucalyptus leucoxylon subsp. bellarinensis*	Endangered	Critically endangered		0.98
Annual Buttons	*Leptorhynchos orientalis*	Endangered	Endangered		0.98
Pretty Leek-orchid	*Prasophyllum anticum*	Endangered	Critically endangered		0.98
Turnip Copperburr	*Sclerolaena napiformis*	Endangered	Critically endangered	Endangered	0.97
Yarran Wattle	*Acacia omalophylla*	Endangered	Critically endangered		0.97
Clumping Golden Moths	*Diuris gregaria*	Endangered	Critically endangered		0.97
Winter Apple	*Eremophila debilis*	Endangered	Critically endangered		0.97
Large-headed Fireweed	*Senecio macrocarpus*	Endangered	Listed	Vulnerable	0.97
Petite Leek-orchid	*Prasophyllum aff. petilum (Murchison)*	Endangered	Critically endangered		0.97
Basalt Podolepis	*Podolepis linearifolia*	Endangered	Endangered		0.97
Small Scurf-pea	*Cullen parvum*	Endangered	Endangered		0.97
Plump Swamp Wallaby-grass	*Amphibromus pithogastrus*	Endangered	Critically endangered		0.97
Swamp Leek-orchid	*Prasophyllum hygrophilum*	Endangered	Critically endangered		0.97
Fragrant Leek-orchid	*Prasophyllum suaveolens*	Endangered	Critically endangered	Endangered	0.96
Broad-leaf Mallee-box	*Eucalyptus sp. aff. odorata (Tarranginnie)*	Endangered			0.96
Quambatook Mallee-box	*Eucalyptus aff. porosa (Quambatook)*	Endangered			0.96
Slender Darling-pea	*Swainsona murrayana*	Endangered	Endangered	Vulnerable	0.96
Wedge Diuris	*Diuris dendrobioides*	Endangered	Critically endangered		0.96
Small Golden Moths	*Diuris basaltica*	Endangered	Critically endangered	Endangered	0.96
Mt Jeffcott Mallee-box	*Eucalyptus filiformis*	Endangered			0.95
Lima Stringybark	*Eucalyptus alligatrix subsp. limaensis*	Endangered	Critically endangered	Endangered	0.95
Spiny Rice-flower	*Pimelea spinescens subsp. spinescens*	Endangered	Critically endangered	Critically Endangered	0.95
Downy Swainson-pea	*Swainsona swainsonioides*	Endangered	Endangered		0.95
Lace Leek-orchid	*Prasophyllum aff. diversiflorum (North-east)*	Endangered			0.95
Glandular Phebalium	*Phebalium glandulosum subsp. macrocalyx*	Endangered	Critically endangered		0.95
Delicate Leek-orchid	*Prasophyllum aff. petilum (Wangaratta)*	Endangered	Critically endangered		0.95
Red Swainson-pea	*Swainsona plagiotropis*	Endangered	Endangered	Vulnerable	0.95
Wimmera Rice-flower	*Pimelea spinescens subsp. pubiflora*	Endangered	Critically endangered	Critically Endangered	0.95
Basalt Leek-orchid	*Prasophyllum viretrum*	Endangered	Critically endangered		0.95
Filmy Maidenhair	*Adiantum diaphanum*	Endangered	Critically endangered		0.94

Common name	Scientific name	2020 Victorian conservation status (DELWP Advisory list)	2021 FFG Act status	EPBC Act status	% modelled habitat on private-land
Gorae Leek-orchid	*Prasophyllum diversiflorum*	Endangered	Critically endangered	Endangered	0.93
Northern Golden Moths	*Diuris protena*	Endangered	Critically endangered		0.93
Mountain Swainson-pea	*Swainsona recta*	Endangered	Critically endangered	Endangered	0.93
Erect Peppercress	*Lepidium pseudopapillosum*	Endangered	Critically endangered	Vulnerable	0.93
Jumping-jack Wattle	*Acacia enterocarpa*	Endangered	Endangered	Endangered	0.92
Wind-blown Tussock-grass	*Poa physoclina*	Endangered	Endangered		0.92
Sunshine Diuris	*Diuris fragrantissima*	Endangered	Critically endangered	Endangered	0.92
Violet Swainson-pea	*Swainsona adenophylla*	Endangered	Critically endangered		0.92
Blotched Diuris	*Diuris sp. aff. dendrobioides (Bairnsdale)*	Endangered	Critically endangered		0.91
Matted Flax-lily	*Dianella amoena*	Endangered	Critically endangered	Endangered	0.91
Black Gum	*Eucalyptus aggregata*	Endangered	Vulnerable	Vulnerable	0.91
Spiny Peppercress	*Lepidium aschersonii*	Endangered	Endangered	Vulnerable	0.9
Southern Shepherd's Purse	*Ballantinia antipoda*	Endangered	Critically endangered	Endangered	0.89
Dense Greenhood	*Pterostylis sp. aff. bicolor (Woorndoo)*	Endangered			0.89
Oval Wedge-fern	*Lindsaea trichomanoides*	Endangered	Critically endangered		0.89
Grassland Bindweed	*Convolvulus graminetinus*	Endangered	Endangered		0.89
Orange Darling-pea	*Swainsona stipularis*	Endangered	Critically Endangered		0.89
Yawning Leek-orchid	*Prasophyllum chasmogamum*	Endangered	Critically Endangered		0.88
Gaping Leek-orchid	*Prasophyllum correctum*	Endangered	Critically Endangered	Endangered	0.88
Stiff Groundsel	*Senecio behrianus*	Endangered	Critically Endangered	Endangered	0.88
Werribee Blue-box	*Eucalyptus baueriana subsp. thalassina*	Endangered	Endangered		0.88
Tough Scurf-pea	*Cullen tenax*	Endangered	Endangered		0.88
Leprechaun Greenhood	*Pterostylis conferta*	Endangered	Critically Endangered		0.88
Mount Martha Bundy	*Eucalyptus carolaniae*	Endangered	Critically Endangered		0.88
Slender Water-milfoil	*Myriophyllum gracile var. lineare*	Endangered	Endangered		0.88
Frankston Spider-orchid	*Caladenia robinsonii*	Endangered	Critically Endangered	Endangered	0.88
Red-cross Spider-orchid	*Caladenia cruciformis*	Endangered	Endangered		0.87
Brilliant Sun-orchid	*Thelymitra mackibbinii*	Endangered	Critically Endangered	Vulnerable	0.87
Variable Sida (grey-leaf form)	*Sida aff. corrugata (grey-leaf Boort form)*	Endangered			0.86
Jericho Wire-grass	*Aristida jerichoensis var. subspinulifera*	Endangered	Critically Endangered		0.86
Needle Wattle	*Acacia havilandiorum*	Endangered	Critically Endangered		0.86
Kilsyth South Spider-orchid	*Caladenia sp. aff. venusta (Kilsyth South)*	Endangered	Critically Endangered	Critically Endangered	0.85
Cactus Bossiaea	*Bossiaea walkeri*	Endangered	Endangered		0.85
Grey Billy-buttons	*Craspedia canens*	Endangered	Critically Endangered		0.85
White-budded Red-gum	*Eucalyptus blakelyi var. irrorata*	Endangered			0.84
Late Helmet-orchid	*Corybas sp. aff. diemenicus (Coastal)*	Endangered	Critically Endangered		0.84
Satin Mallee	*Eucalyptus sp. aff. dumosa (Nhill)*	Endangered			0.83
Swamp Sheoak	*Casuarina obesa*	Endangered	Critically Endangered		0.82
Elfin Leek-orchid	*Prasophyllum aff. fitzgeraldii B*	Endangered	Critically Endangered		0.82
Venus-hair Fern	*Adiantum capillus-veneris*	Endangered	Listed		0.82
Sutton Grange Greenhood	*Pterostylis agrestis*	Endangered	Critically Endangered		0.81
Dwarf Kerrawang	*Commersonia prostrata*	Endangered	Endangered	Endangered	0.81
Pomonal Leek-orchid	*Prasophyllum subbisectum*	Endangered	Critically Endangered	Endangered	0.81
Northern Sandalwood	*Santalum lanceolatum*	Endangered	Critically Endangered		0.8
Yellow Watercrown Grass	*Paspalidium flavidum*	Endangered			0.8
Stuart Mill Spider-orchid	*Caladenia cretacea*	Endangered	Endangered		0.8

Common name	Scientific name	2020 Victorian conservation status (DELWP Advisory list)	2021 FFG Act status	EPBC Act status	% modelled habitat on private-land
Buloke	*Allocasuarina luehmannii*	Endangered	Vulnerable		0.79
Tawny Spider-orchid	*Caladenia fulva*	Endangered	Endangered	Endangered	0.78
Yellow-lip Spider-orchid	*Caladenia xanthochila*	Endangered	Endangered	Endangered	0.78
Tan Leek-orchid	*Prasophyllum erythrocommum*	Endangered	Critically Endangered		0.77
Eastern Spider-orchid	*Caladenia orientalis*	Endangered	Endangered	Endangered	0.77
Coolibah Grass	*Panicum queenslandicum var. queenslandicum*	Endangered	Critically Endangered		0.77
Brittle Greenhood	*Pterostylis truncata*	Endangered	Critically Endangered		0.77
Woodland Leek-orchid	*Prasophyllum sp. aff. validum A*	Endangered			0.76
Buxton Gum	*Eucalyptus crenulata*	Endangered	Endangered	Endangered	0.76
Wimmera Bottlebrush	*Callistemon wimmerensis*	Endangered	Endangered	Critically Endangered	0.76
Swamp Shield-fern	*Cyclosorus interruptus*	Endangered	Critically Endangered		0.76
Basalt Peppercress	*Lepidium hyssopifolium s.s.*	Endangered	Endangered	Endangered	0.75
Wimmera Spider-orchid	*Caladenia lowanensis*	Endangered	Critically Endangered	Endangered	0.75
Silurian Striped Greenhood	*Pterostylis sp. aff. striata (Silurian)*	Endangered			0.75
Little Pink Spider-orchid	*Caladenia rosella*	Endangered	Critically Endangered	Endangered	0.75
Dense Leek-orchid	*Prasophyllum spicatum*	Endangered	Critically Endangered	Vulnerable	0.75
Smooth Darling-pea	*Swainsona galegifolia*	Endangered	Critically Endangered		0.74
Lime Fern	*Pneumatopteris pennigera*	Endangered	Endangered		0.73
Robust Greenhood	*Pterostylis valida*	Endangered	Endangered	Critically Endangered	0.73
Large-flower Crane's-bill	*Geranium sp. 1*	Endangered	Critically Endangered		0.73
Deane's wattle	*Acacia deanei subsp. deanei*	Endangered	Endangered		0.72
Swamp Fern	*Thelypteris confluens*	Endangered	Critically Endangered		0.72
Bell-flower Hyacinth-orchid	*Dipodium campanulatum*	Endangered	Endangered	Endangered	0.72
Slender Bitter-cress	*Cardamine tenuifolia (large-flower form)*	Endangered			0.71
Crimson Spider-orchid	*Caladenia concolor*	Endangered	Endangered	Vulnerable	0.71
Purple Wire-grass	*Aristida personata*	Endangered	Critically Endangered		0.71
Small Sickle Greenhood	*Pterostylis lustra*	Endangered	Endangered		0.71
Mellblom's Spider-orchid	*Caladenia hastata*	Endangered	Critically Endangered	Endangered	0.69
Long-tail Greenhood	*Pterostylis woollsii*	Endangered	Critically Endangered		0.69
Charming Spider-orchid	*Caladenia amoena*	Endangered	Critically Endangered	Endangered	0.68
Bendigo Spider-orchid	*Caladenia sp. aff. fragrantissima (Central Victoria)*	Endangered	Critically Endangered		0.68
Candy Spider-orchid	*Caladenia versicolor*	Endangered	Endangered	Vulnerable	0.66
Open Summer-grass	*Digitaria diffusa*	Endangered	Endangered		0.65
Forked Spyridium	*Spyridium furculentum*	Endangered	Critically Endangered	Endangered	0.65
Woolly Ragwort	*Senecio garlandii*	Endangered	Critically Endangered		0.65
Hoary Scurf-pea	*Cullen cinereum*	Endangered	Endangered		0.64
Limestone Spider-orchid	*Caladenia calcicola*	Endangered	Critically Endangered	Vulnerable	0.64
Avenue Cassinia	*Cassinia tegulata*	Endangered	Critically Endangered	Critically Endangered	0.64
Fryers Range Scentbark	*Eucalyptus conferta*	Endangered	Endangered		0.64
Pale Plover-daisy	*Leiocarpa leptolepis*	Endangered	Endangered		0.62
Dwarf Spider-orchid	*Caladenia pumila*	Endangered	Critically Endangered	Critically Endangered	0.62
Mueller Daisy	*Brachyscome muelleroides*	Endangered	Endangered	Vulnerable	0.61
Wilga	*Geijera parviflora*	Endangered	Critically Endangered		0.61
Winged Peppercress	*Lepidium monoplocoides*	Endangered	Endangered	Endangered	0.61
Wiry Ground-berry	*Acrotriche depressa*	Endangered	Critically Endangered		0.6

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Pink-lip Leek-orchid	*Prasophyllum sp. aff. fitzgeraldii A*	Endangered	Critically Endangered		0.6
Hairy-leaf Triggerplant	*Stylidium armeria subsp. pilosifolium*	Endangered	Critically Endangered		0.59
Winter Sun-orchid	*Thelymitra hiemalis*	Endangered	Critically Endangered		0.59
Lowly Greenhood	*Pterostylis despectans*	Endangered	Endangered	Endangered	0.58
Metallic Sun-orchid	*Thelymitra epipactoides*	Endangered	Endangered	Endangered	0.58
Mount Pilot Spider-orchid	*Caladenia pilotensis*	Endangered	Critically Endangered		0.58
Large-fruit Yellow-gum	*Eucalyptus leucoxylon subsp. megalocarpa*	Endangered	Critically Endangered		0.58
Western Leek-orchid	*Prasophyllum sp. aff. occidentale C*	Endangered	Endangered		0.58
Southern Pipewort	*Eriocaulon australasicum*	Endangered	Endangered	Endangered	0.57
Trim Leek-orchid	*Prasophyllum aff. pyriforme (Inglewood)*	Endangered			0.56
Silurian Leek-orchid	*Prasophyllum pyriforme s.s.*	Endangered			0.56
Bushy Hedgehog-grass	*Echinopogon caespitosus var. caespitosus*	Endangered	Endangered		0.56
White Star-bush	*Asterolasia asteriscophora subsp. albiflora*	Endangered	Critically Endangered		0.55
Dwarf Swainson-pea	*Swainsona phacoides*	Endangered	Endangered		0.55
McIvor Spider-orchid	*Caladenia audasii*	Endangered	Critically Endangered	Endangered	0.55
Maroon Leek-orchid	*Prasophyllum frenchii*	Endangered	Endangered	Endangered	0.55
Coast Dandelion	*Taraxacum cygnorum*	Endangered	Critically Endangered	Vulnerable	0.54
Glistening Sun-orchid	*Thelymitra lucida*	Endangered	Endangered		0.54
Colourful Spider-orchid	*Caladenia colorata*	Endangered	Critically Endangered	Endangered	0.54
Torpedo Arrowgrass	*Triglochin trichophora*	Endangered	Critically Endangered		0.54
Lake Omeo Poa	*Poa sp. (Lake Omeo)*	Endangered			0.54
Small Quillwort	*Isoetes pusilla*	Endangered	Endangered		0.53
Basalt Rustyhood	*Pterostylis basaltica*	Endangered	Critically Endangered	Endangered	0.53
Deddick Blue-box	*Eucalyptus baueriana subsp. deddickensis*	Endangered	Critically Endangered		0.53
Limestone Ridge Spider-orchid	*Caladenia bicalliata subsp. bicalliata*	Endangered	Endangered		0.53
Buff Hazelwood	*Symplocos thwaitesii*	Endangered	Critically Endangered		0.52
Blunt Club-sedge	*Schoenoplectus dissachanthus*	Endangered	Critically Endangered		0.52
Silver Cassia	*Senna form taxon 'artemisioides'*	Endangered	Critically Endangered		0.52
Leafy Greenhood	*Pterostylis cucullata subsp. cucullata*	Endangered	Endangered		0.52
Granite Rustyhood	*Pterostylis sp. aff. boormanii (Beechworth)*	Endangered	Critically Endangered		0.51
Red Mallee	*Eucalyptus calycogona subsp. calycogona*	Endangered			0.51
Yellow Microcybe	*Microcybe pauciflora subsp. pauciflora*	Endangered	Critically Endangered		0.5
Grey Scurf-pea	*Cullen discolor*	Endangered	Endangered		0.5
Narrow-leaf Emu-bush	*Eremophila sturtii*	Endangered	Critically Endangered		0.5
Slender Sunray	*Rhodanthe stricta*	Endangered	Endangered		0.49
Scented Spider-orchid	*Caladenia fragrantissima*	Endangered	Critically Endangered		0.49
Maiden's Wattle	*Acacia maidenii*	Endangered	Critically Endangered		0.47
Silky Glycine	*Glycine canescens*	Endangered	Critically Endangered		0.46
Small-leaf Wax-flower	*Philotheca difformis subsp. difformis*	Endangered	Endangered		0.45
Grey Wrinklewort	*Rutidosis helichrysoides subsp. helichrysoides*	Endangered	Critically Endangered		0.44
Small Pop Saltbush	*Atriplex spongiosa*	Endangered	Critically Endangered		0.44
Yellow Hyacinth-orchid	*Dipodium hamiltonianum*	Endangered	Endangered		0.44

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Small Podolepis	*Podolepis muelleri*	Endangered	Critically Endangered		0.44
Robust Spider-orchid	*Caladenia valida*	Endangered	Critically Endangered		0.43
Dwarf Lantern-flower	*Abutilon fraseri subsp. fraseri*	Endangered	Endangered		0.43
Long Tails	*Ptilotus polystachyus*	Endangered	Endangered		0.43
Lagoon Sneezeweed	*Centipeda crateriformis subsp. crateriformis*	Endangered			0.42
Lanky Buttons	*Leptorhynchos elongatus*	Endangered	Endangered		0.42
Spiny-fruit Saltbush	*Atriplex spinibractea*	Endangered	Endangered		0.42
Woolly Plover-daisy	*Leiocarpa tomentosa*	Endangered	Endangered		0.42
Hairy Darling-pea	*Swainsona greyana*	Endangered	Critically Endangered		0.41
Purple Swainson-pea	*Swainsona purpurea*	Endangered	Endangered		0.41
Soft Sunray	*Leucochrysum molle*	Vulnerable	Endangered		0.99
Spreading Water-mat	*Althenia patentifolia*	Vulnerable	Endangered		0.96
Plump Windmill Grass	*Chloris ventricosa*	Vulnerable	Endangered		0.96
Straw Wallaby-grass	*Rytidosperma richardsonii*	Vulnerable	Endangered		0.96
Curly Sedge	*Carex tasmanica*	Vulnerable	Endangered		0.96
Swamp Star	*Hypoxis exilis*	Vulnerable	Endangered		0.95
Casterton Wattle	*Acacia exudans*	Vulnerable	Critically Endangered		0.94
Ridged Water-milfoil	*Myriophyllum porcatum*	Vulnerable	Critically Endangered	Vulnerable	0.94
Adamson's Blown-grass	*Lachnagrostis adamsonii*	Vulnerable	Endangered	Endangered	0.94
Fireweed Groundsel (Euroa variant)	*Senecio linearifolius var. graniticola*	Vulnerable	Critically Endangered		0.94
Yellow-tongue Daisy	*Brachyscome chrysoglossa*	Vulnerable	Endangered		0.94
Long-awn Spear-grass	*Austrostipa tenuifolia*	Vulnerable	Endangered		0.93
Salt-lake Tussock-grass	*Poa sallacustris*	Vulnerable	Critically Endangered	Vulnerable	0.93
Scaly Mantle	*Eriochlamys squamata*	Vulnerable	Endangered		0.93
Umbrella Grass	*Digitaria divaricatissima var. divaricatissima*	Vulnerable	Endangered		0.92
Lax Marsh-flower	*Ornduffia umbricola var. umbricola*	Vulnerable	Endangered		0.91
Pepper Grass	*Panicum laevinode*	Vulnerable	Vulnerable		0.91
Long Eryngium	*Eryngium paludosum*	Vulnerable	Endangered		0.91
Purple Diuris	*Diuris punctata*	Vulnerable	Endangered		0.9
Melbourne Yellow-gum	*Eucalyptus leucoxylon subsp. connata*	Vulnerable	Endangered		0.89
Western Silver Wattle	*Acacia decora*	Vulnerable	Endangered		0.89
Pale Swamp Everlasting	*Coronidium gunnianum*	Vulnerable	Critically Endangered		0.89
Dense Bent-grass	*Deyeuxia imbricata*	Vulnerable			0.89
Hairy Tails	*Ptilotus erubescens*	Vulnerable	Critically Endangered		0.89
Golden Cowslips	*Diuris behrii*	Vulnerable	Endangered		0.89
Western Purple Diuris	*Diuris daltonii*	Vulnerable	Critically Endangered		0.88
Woodland Box	*Eucalyptus silvestris*	Vulnerable	Critically Endangered		0.88
Inland Pomaderris	*Pomaderris paniculosa subsp. paniculosa*	Vulnerable	Endangered		0.88
Silky Swainson-pea	*Swainsona sericea*	Vulnerable	Endangered		0.87
Wavy Swamp Wallaby-grass	*Amphibromus sinuatus*	Vulnerable	Endangered		0.87
Spoon-leaf Mud-mat	*Glossostigma diandrum*	Vulnerable	Endangered		0.87
Seymour Wattle	*Acacia verniciflua (1-nerved variant)*	Vulnerable			0.86
Plains Yam-daisy	*Microseris scapigera s.s.*	Vulnerable	Critically Endangered		0.86
Hairy-pod Wattle	*Acacia glandulicarpa*	Vulnerable	Endangered	Vulnerable	0.86
Striped Water-milfoil	*Myriophyllum striatum*	Vulnerable	Endangered		0.86
Trim Flat-sedge	*Cyperus concinnus*	Vulnerable	Critically Endangered		0.85
Western Bitter-cress	*Cardamine lineariloba*	Vulnerable	Endangered		0.85
Narrow Goodenia	*Goodenia macbarronii*	Vulnerable	Endangered		0.85
Bacchus Marsh Wattle	*Acacia rostriformis*	Vulnerable	Vulnerable		0.85
Trailing Hop-bush	*Dodonaea procumbens*	Vulnerable		Vulnerable	0.84
Blackseed Glasswort	*Tecticornia pergranulata subsp. divaricata*	Vulnerable			0.83

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Small Milkwort	*Comesperma polygaloides*	Vulnerable	Critically Endangered		0.83
Late-flower Flax-lily	*Dianella tarda*	Vulnerable	Critically Endangered		0.83
Silky Umbrella-grass	*Digitaria ammophila*	Vulnerable	Endangered		0.83
Cottony Cassinia	*Cassinia ozothamnoides*	Vulnerable	Endangered		0.83
Arapiles Peppermint-box	*Eucalyptus hawkeri*	Vulnerable	Endangered		0.82
Woolly Waterlily	*Philydrum lanuginosum*	Vulnerable	Endangered		0.82
Dergholm Trachymene	*Trachymene composita var. robertsonii*	Vulnerable	Endangered		0.81
Clover Glycine	*Glycine latrobeana*	Vulnerable	Vulnerable	Vulnerable	0.8
Veined Spider-orchid	*Caladenia reticulata s.s.*	Vulnerable	Endangered		0.8
Riverine Flax-lily	*Dianella porracea*	Vulnerable	Critically Endangered		0.8
Euroa Guinea-flower	*Hibbertia humifusa subsp. erigens*	Vulnerable	Critically Endangered	Vulnerable	0.79
Western Rat-tail Grass	*Sporobolus creber*	Vulnerable			0.78
Swamp Buttercup	*Ranunculus undosus*	Vulnerable	Endangered		0.78
Ausfeld's Wattle	*Acacia ausfeldii*	Vulnerable	Endangered		0.77
Midlands Spider-orchid	*Caladenia sp. aff. concolor (Midlands)*	Vulnerable			0.76
Buloke Mistletoe	*Amyema linophylla subsp. orientalis*	Vulnerable	Critically Endangered		0.76
Dwarf Coast Poa	*Poa halmaturina*	Vulnerable	Endangered		0.76
Button Immortelle	*Leptorhynchos waitzia*	Vulnerable	Endangered		0.75
Cane Grass	*Eragrostis australasica*	Vulnerable	Critically Endangered		0.75
Yarran	*Acacia melvillei*	Vulnerable	Critically Endangered		0.75
Swamp Fireweed	*Senecio psilocarpus*	Vulnerable		Vulnerable	0.74
Velvet Daisy-bush	*Olearia pannosa subsp. cardiophylla*	Vulnerable	Endangered		0.74
Common Fringe-sedge	*Fimbristylis dichotoma*	Vulnerable	Endangered		0.74
Warby Range Swamp-gum	*Eucalyptus cadens*	Vulnerable	Endangered	Vulnerable	0.73
Castlemaine Spider-orchid	*Caladenia clavescens*	Vulnerable	Critically Endangered		0.73
Wine-lipped Spider-orchid	*Caladenia oenochila*	Vulnerable	Critically Endangered		0.73
Dookie Daisy	*Brachyscome gracilis subsp. gracilis*	Vulnerable	Endangered		0.73
Pin Sida	*Sida fibulifera*	Vulnerable	Endangered		0.72
Short Water-starwort	*Callitriche brachycarpa*	Vulnerable	Endangered		0.72
Coast Helmet-orchid	*Corybas despectans*	Vulnerable	Endangered		0.72
Bealiba Ironbark	*Eucalyptus tricarpa subsp. decora*	Vulnerable	Endangered		0.72
Three-nerve Wattle	*Acacia trineura*	Vulnerable	Critically Endangered		0.72
Ben Major Grevillea	*Grevillea floripendula*	Vulnerable	Critically Endangered	Vulnerable	0.71
Elegant Spider-orchid	*Caladenia formosa*	Vulnerable	Critically Endangered	Vulnerable	0.71
Wavy Marshwort	*Nymphoides crenata*	Vulnerable	Endangered		0.71
Twiggy Sida	*Sida intricata*	Vulnerable	Endangered		0.71
Delicate Crane's-bill	*Geranium sp. 6*	Vulnerable	Endangered		0.71
Bow-lip Spider-orchid	*Caladenia toxochila*	Vulnerable	Critically Endangered		0.71
Gum-barked Bundy	*Eucalyptus goniocalyx subsp. laxa*	Vulnerable	Endangered		0.7
Riverina Fireweed	*Senecio longicollaris*	Vulnerable	Endangered		0.7
Striate Spike-sedge	*Eleocharis obicis*	Vulnerable		Vulnerable	0.7
Wedderburn Wattle	*Acacia euthycarpa subsp. oblanceolata*	Vulnerable	Endangered		0.7
Downs Nutgrass	*Cyperus bifax*	Vulnerable	Critically Endangered		0.69
Six-point Arrowgrass	*Triglochin hexagona*	Vulnerable	Endangered		0.68
Swamp Diuris	*Diuris palustris*	Vulnerable	Endangered		0.68
Omeo Stork's-bill	*Pelargonium sp. 1*	Vulnerable		Endangered	0.68
Hooded Mosquito-orchid	*Acianthus collinus*	Vulnerable	Critically Endangered		0.68
Viscid Daisy-bush	*Olearia viscosa*	Vulnerable	Critically Endangered		0.68
Beechworth Silver Stringybark	*Eucalyptus aff. cinerea (Beechworth)*	Vulnerable	Endangered		0.68
Bristly Love-grass	*Eragrostis setifolia*	Vulnerable	Endangered		0.68
Umbrella Wattle	*Acacia oswaldii*	Vulnerable	Critically Endangered		0.67
Lake Omeo Tussock-grass	*Poa orba*	Vulnerable	Critically Endangered		0.67

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Glistening Dock	*Rumex crystallinus s.s.*	Vulnerable	Endangered		0.66
Enfield Grevillea	*Grevillea bedggoodiana*	Vulnerable	Endangered	Vulnerable	0.65
Purple Love-grass	*Eragrostis lacunaria*	Vulnerable	Endangered		0.65
Forest Bitter-cress	*Cardamine papillata*	Vulnerable	Endangered		0.65
Dwarf Myall	*Acacia ancistrophylla var. lissophylla*	Vulnerable	Endangered		0.64
Swamp Greenhood	*Pterostylis tenuissima*	Vulnerable		Vulnerable	0.63
Silver Tea-tree	*Leptospermum multicaule*	Vulnerable	Endangered		0.63
Nealie	*Acacia loderi*	Vulnerable	Critically Endangered		0.63
Blotched Sun-orchid	*Thelymitra benthamiana*	Vulnerable	Endangered		0.63
Riverina Daisy	*Brachyscome sp. aff. readeri*	Vulnerable			0.62
Prickly Raspwort	*Haloragis myriocarpa*	Vulnerable	Endangered		0.61
Pink Gum	*Eucalyptus fasciculosa*	Vulnerable	Endangered		0.61
Rigid Spider-orchid	*Caladenia tensa*	Vulnerable		Endangered	0.6
Dainty Phebalium	*Phebalium festivum*	Vulnerable	Endangered		0.6
Tufted Curly Sedge	*Carex aff. bichenoviana (Volcanic Lakes)*	Rare			0.95
Heath Spear-grass	*Austrostipa exilis*	Rare	Vulnerable		0.95
Southern Swainson-pea	*Swainsona behriana*	Rare	Endangered		0.95
Slender Water-ribbons	*Cycnogeton dubium*	Rare	Endangered		0.94
Winged Water-starwort	*Callitriche umbonata*	Rare	Endangered		0.93
Drooping Mistletoe	*Amyema pendula subsp. longifolia*	Rare			0.92
Fragrant Saltbush	*Rhagodia parabolica*	Rare	Vulnerable		0.92
Purple Blown-grass	*Lachnagrostis punicea subsp. punicea*	Rare			0.91
Brackish Plains Buttercup	*Ranunculus diminutus*	Rare	Endangered		0.9
Pale-flower Crane's-bill	*Geranium sp. 3*	Rare	Endangered		0.9
Fine-hairy Spear-grass	*Austrostipa puberula*	Rare	Endangered		0.88
Yakka Grass	*Sporobolus caroli*	Rare	Endangered		0.88
Salt Blown-grass	*Lachnagrostis robusta*	Rare	Endangered		0.87
Kamarooka Mallee	*Eucalyptus froggattii*	Rare	Critically Endangered		0.87
Rough-grain Love-grass	*Eragrostis trachycarpa*	Rare	Endangered		0.86
Blue Mallee	*Eucalyptus polybractea*	Rare	Endangered		0.85
Bent-leaf Wattle	*Acacia flexifolia*	Rare	Endangered		0.85
Annual Fireweed	*Senecio glomeratus subsp. longifructus*	Rare	Vulnerable		0.85
Small Monkey-flower	*Elacholoma prostrata*	Rare	Endangered		0.83
Purple Blown-grass	*Lachnagrostis punicea subsp. filifolia*	Rare	Endangered		0.83
Western Golden-tip	*Goodia medicaginea*	Rare	Endangered		0.83
Cup Wattle	*Acacia cupularis*	Rare	Critically Endangered		0.82
Yarra Gum	*Eucalyptus yarraensis*	Rare	Critically Endangered		0.82
Brown Beetle-grass	*Leptochloa fusca subsp. fusca*	Rare	Endangered		0.8
Broom Bitter-pea	*Daviesia genistifolia s.s.*	Rare	Endangered		0.8
Swamp Flax-lily	*Dianella callicarpa*	Rare	Endangered		0.8
Rock Wattle	*Acacia rupicola*	Rare	Endangered		0.79
Dark Wire-grass	*Aristida calycina var. calycina*	Rare			0.79
Branching Groundsel	*Senecio cunninghamii var. cunninghamii*	Rare	Endangered		0.79
Cane Spear-grass	*Austrostipa breviglumis*	Rare	Endangered		0.79
Small-flower Wallaby-grass	*Rytidosperma monticola*	Rare	Endangered		0.79
Spiked Sour-bush	*Choretrum spicatum subsp. continentale*	Rare	Critically Endangered		0.79
Smooth Minuria	*Minuria integerrima*	Rare	Vulnerable		0.78
Snowy Mint-bush	*Prostanthera nivea var. nivea*	Rare	Vulnerable		0.78
Woodland Plume-orchid	*Pterostylis sp. aff. plumosa (Woodland)*	Rare			0.78

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Sand Rush	*Juncus psammophilus*	Rare	Endangered		0.78
Emerald-lip Greenhood	*Pterostylis smaragdyna*	Rare	Endangered		0.77
Small-leaf Goodenia	*Goodenia benthamiana*	Rare	Endangered		0.77
Wimmera Woodruff	*Asperula wimmerana*	Rare	Endangered		0.76
Waterbush	*Myoporum montanum*	Rare	Endangered		0.76
Dwarf Brooklime	*Gratiola pumilo*	Rare	Endangered		0.76
Riverina Bitter-cress	*Cardamine moirensis*	Rare	Endangered		0.76
Spurred Helmet-orchid	*Corybas aconitiflorus*	Rare	Endangered		0.76
Rising Star Guinea-flower	*Hibbertia humifusa subsp. humifusa*	Rare			0.75
Neat Spear-grass	*Austrostipa mundula*	Rare	Endangered		0.75
Lacey River Buttercup	*Ranunculus amplus*	Rare	Critically Endangered		0.75
Veiled Fringe-sedge	*Fimbristylis velata*	Rare	Endangered		0.75
Deane's Wattle	*Acacia deanei subsp. paucijuga*	Rare	Vulnerable		0.75
Spiny Lignum	*Duma horrida subsp. horrida*	Rare	Critically Endangered		0.74
Dandenong Wattle	*Acacia stictophylla*	Rare	Endangered		0.74
Forked Rice-flower	*Pimelea hewardiana*	Rare	Endangered		0.74
Short-bristle Wallaby-grass	*Rytidosperma setaceum var. brevisetum*	Rare			0.73
Bog Gum	*Eucalyptus kitsoniana*	Rare	Critically Endangered		0.73
Showy Lobelia	*Lobelia beaugleholei*	Rare	Vulnerable		0.72
Veined Spear-grass	*Austrostipa rudis subsp. australis*	Rare	Endangered		0.72
Netted brake	*Pteris comans*	Rare	Endangered		0.72
Rough Wattle	*Acacia aspera subsp. parviceps*	Rare	Endangered		0.71
Fireweed Groundsel (Grampians variant)	*Senecio linearifolius var. gariwerdensis*	Rare	Endangered		0.71
Rosemary Grevillea	*Grevillea rosmarinifolia subsp. rosmarinifolia*	Rare			0.71
Coast Saltwort	*Salsola tragus subsp. pontica*	Rare	Endangered		0.71
Fringed Sun-orchid	*Thelymitra luteocilium*	Rare	Vulnerable		0.7
Thorny Bitter-pea	*Daviesia pectinata*	Rare	Critically Endangered		0.7
Coccid Emu-bush	*Eremophila gibbifolia*	Rare	Vulnerable		0.7
Spur-wing Wattle	*Acacia triptera*	Rare	Vulnerable		0.69
Yellow Burr-daisy	*Calotis lappulacea*	Rare	Vulnerable		0.69
Small-leaf Bush-pea	*Pultenaea foliolosa*	Rare	Endangered		0.69
Sand Fireweed	*Senecio hispidissimus*	Rare	Endangered		0.69
Small-flower Mud-mat	*Glossostigma cleistanthum*	Rare	Endangered		0.69

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