Environmental values

This section reports on the environmental values that are specifically listed in para. (a)(i) of the definition of ‘RFA’ in the RFA Act: old growth, wilderness, endangered species, national estate values and World Heritage values. Biodiversity values and wetland values have also been included under the ‘environmental values’ heading.

This section includes the following Australian Montréal Process indicators:

* Indicator 1.1a – Area of forest by forest type and tenure
* Indicator 1.1b – Area of forest by growth stage
* Indicator 1.1c – Area of forest in protected area categories
* Indicator 1.1d – Fragmentation of forest cover
* Indicator 1.2a – Forest-dwelling species for which ecological information is available
* Indicator 1.2b – The status of forest-dwelling species at risk of not maintaining viable breeding population, as determined by legislation or scientific assessment
* Indicator 1.2c – Representative species from a range of habitats monitored at scales relevant to regional forest management
* Indicator 1.3a – Forest associated species at risk from isolation and the loss of genetic variation, and conservation efforts for those species
* Indicator 1.3b – Native forest and plantations of indigenous timber species which have genetic resource conservation mechanisms in place
* Indicator 4.1a – Area of forest land managed primarily for protective functions
* Indicator 4.1b – Management of the risk of soil erosion in forests
* Indicator 4.1c – Management of the risks to soil physical properties in forests
* Indicator 4.1d –Management of the risks to water quantity from forests
* Indicator 4.1e –- Management of the risks to water quality in forests
* Indicator 6.4b – Registered places of non-Indigenous cultural value in forests that are formally managed to protect those values

Information is drawn from the original documentation produced as part of the CRA process and subsequent reports. These include the Australian State of the Forests Report (ASOFR) and the Victorian State of the Forests Report (VSOFR), State of the Environment reports, statutory independent five-yearly reviews of Victorian RFAs required under the RFAs, and other relevant data.

**Old-growth values**

Old-growth forests are prized for their ecological, spiritual and aesthetic significance and relative rarity across the globe. Many countries protect old-growth forests through legislative instruments. Similarly, forest certification schemes such as the Forest Stewardship Council (FSC) require old-growth forests be recognised as of high conservation value and protected accordingly. Despite the broad recognition of the value of old-growth forests, finding a commonly agreed definition for these forests is challenging. The 98-item list of different formal definitions of old-growth forest from around the world, prepared by the Food and Agriculture Organization of the United Nations (FAO), illustrates this well (FAO 2002).

Victorian work led by Peter Woodgate in the 1990s significantly contributed to the development of the national old growth definition (the ‘JANIS’ definition): ‘Old-growth forest is ecologically mature forest where the effects of disturbance are now negligible’ (Joint ANZECC/MCFFA NFPS Implementation Sub-committee [JANIS] 1997).

Woodgate’s work enabled Victoria to define old-growth forest in a regionally specific manner, and this definition and associated mapping endures in Victorian forest management to this day. The definition is as follows:

*Old-growth forest is forest which contains significant amounts of its oldest growth stage in the upper stratum – usually senescing trees – and has been subjected to any disturbance, the effect of which is now negligible.*

(Woodgate et al 1994, p. v)

VicForests relies on the definitions and datasets generated under the Woodgate system and managed by the Department of Environment, Land, Water and Planning (DELWP) to define old growth so it can adequately protect areas of high conservation value. In this way it applies a single definition for its mapping process. The definition is defined in the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014 (an incorporated document to the Code of Practice for Timber Production 2014), as follows:

Forest *which contains significant amounts of its oldest growth stage ‐ usually senescent trees ‐ in the upper stratum and has been subject to any disturbance, the effect of which is now negligible. For a stand to qualify as old‐growth, the regrowth growth stage, if present, must be sparse (less than* per cent *of the total crown cover of the stand). Negligibly disturbed forest is that in which disturbance is known to have occurred, but the disturbance is unlikely to have altered the structure (growth stage and crown cover) or the usual species composition which characterises a given vegetation class; or, if the alteration did occur in the past, it is no longer measurable.* (Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014, p.15)

**Indicator 1.1b: Area of forest type by growth stage**

This indicator measures the change in area of forest by growth stage to reflect how ecological processes and species associated with those processes change as forests grow. The age and size of trees is important in maintaining forest biodiversity.

The term ‘old growth’ is commonly used as a growth-stage description, similar to the term ‘senescent’, which is used in the official growth-stage datasets. However, where old-growth forests are classified based on their disturbance history, senescent forests are not. In this way the datasets are maintained separately.

Growth-stage information was generated as part of the Statewide Forest Resource Inventory (SFRI) which was initiated in 1993 and completed in 2004 (Table 4); however, there have been no official updates to this data since then. Furthermore, Victoria has experienced a number of severe fires since 2007, which have had significant impact on many or most of the area figures presented in Table 4. The SFRI dataset informs the derivation of many other datasets and still plays a valuable role in the state’s forest policy and planning processes.

Table 4: Growth-stage information from SFRI 2007

| RFA | Growth stage | Area  ha |
| --- | --- | --- |
| CENTRAL HIGHLANDS | Early Mature | 28,000 |
|  | Late Mature | 18,000 |
|  | Mature | 167,000 |
|  | Non-regrowth < 22 m | 4,000 |
|  | Non-regrowth < 28 m | 24,000 |
|  | Regenerating | 34,000 |
|  | Regrowth | 66,000 |
|  | Senescent | 5,000 |
|  | Undefined | 16,000 |
|  | Uneven aged | 52,000 |
| EAST GIPPSLAND | Early Mature | 6,000 |
|  | Late Mature | 72,000 |
|  | Mature | 282,000 |
|  | Regenerating | 49,000 |
|  | Regrowth | 48,000 |
|  | Senescent | 8,000 |
|  | Undefined | 20,000 |
|  | Uneven aged | 167,000 | | |
| GIPPSLAND | Early Mature | 9,000 | | |
|  | Late Mature | 232,000 | | |
|  | Mature | 709,000 | | |
|  | Non-regrowth < 28 m | 1,000 | | |
|  | Regenerating | 56,000 | | |
|  | Regrowth | 37,000 | | |
|  | Senescent | 28,000 | | |
|  | Undefined | 60,000 | | |
|  | Uneven aged | 216,000 | | |
| NORTH EAST | Early Mature | 16,000 | | |
|  | Late Mature | 126,000 | | |
|  | Mature | 873,000 | |
|  | Non-regrowth < 28 m | 5,000 | |
|  | Regenerating | 48,000 | |
|  | Regrowth | 27,000 | |
|  | Senescent | 17,000 | |
|  | Undefined | 80,000 | |
|  | Uneven aged | 139,000 | |
| WEST | Late Mature | 13,000 | |
|  | Mature | 76,000 | |
|  | Regenerating | 2,000 | |
|  | Regrowth | 5,000 | |
|  | Senescent | 2,000 | |
|  | Undefined | 13,000 | |
|  | Uneven aged | 19,000 | |

Source: DELWP SFRI dataset 2007

*Old-growth assessment*

The CRA, undertaken between 1996 and 1999, involved detailed assessments of old-growth forests across the RFA regions, using growth stage, disturbance and species as the primary assessment metrics (Woodgate et al. 1994). Along with other environmental values, old-growth forests were one of the criteria for designing the CAR reserve system under the Victorian RFAs.

At the commencement of the RFAs, an old-growth spatial data layer (OG100) was created according to the Woodgate et al. (1994) definition. This dataset was created between 1999 and 2003 as part of the SFRI process and mapped for all forested public land in Victoria.

More recently, modelled old growth (MOG) was produced in 2018 using ecological vegetation class (EVC) and disturbance history (harvesting and fire). This dataset is not reliable at scales less than 1:100,000 and limited field verification has been undertaken. Moreover, the modelling process used to create MOG is a subtractive process only and does not inform recruitment of new old-growth areas.

The major bushfires in 2003, 2007, 2009 and 2018 caused a significant reduction in the extent of old-growth forest in Victoria. When the MOG layer was produced for 2009, the overall old-growth extent had almost halved. By comparison, harvesting accounts for less than 1 per cent of the removal of old-growth forest since 2003.

The most recent update to the MOG was produced for this report and represents a baseline year of 2018. The MOG[[1]](#footnote-1) spatial layer is based on the MOG2009, with reduced extent based on disturbances from fire and timber harvesting up to July 2018. The trajectory of change between these datasets is illustrated in Figure 1.

Figure 1: Old-growth areas per RFA across time

*Area change in old-growth assessment*

Of the 840,000 hectares of old-growth forest identified as part of the CRA process in the Victorian RFA regions, a total of 401,000 hectares (35 per cent) was protected under formal reservation, and 143,000 hectares (17 per cent) in the informal reserve.

After the five RFAs came into effect, an additional 10,000 hectares of old growth was identified through the 2003 mapping, with 48 per cent protected in formal reserves and 27 per cent protected informally (Special Protection Zone (SPZ) and code exclusions). In 2018, 49 per cent of old-growth forest was protected in formal reserves and 26 per cent is protected informally, based on the 2018 modelled extent of old growth (see Table 5).

Table 5: Area and protected status of old growth, 2003–2018

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| RFA region | Not protected | Informal | Formal | Total old growth | Total protected | per cent protected |
|  | (ha) | (ha) | (ha) | (ha) | (ha) |  |
| 2018 | | | | | | |
| Central Highlands | 1,806 | 3,664 | 3,762 | 9,232 | 7,426 | 80% |
| East Gippsland | 20,072 | 15,822 | 52,550 | 88,444 | 68,372 | 77% |
| Gippsland | 19,492 | 24,723 | 28,932 | 73,146 | 53,655 | 73% |
| North East | 44,081 | 34,915 | 48,790 | 127,786 | 83,705 | 66% |
| West | 14,033 | 27,734 | 65,523 | 107,290 | 93,257 | 87% |
| **Total 2018** | **99,485** | **106,857** | **199,557** | **405,899** | **306,414** | **75%** |
| 2008 | | | | | | |
| Central Highlands | 4,250 | 4,613 | 8,031 | 16,894 | 12,643 | 75% |
| East Gippsland | 26,984 | 19,762 | 42,005 | 88,751 | 61,766 | 70% |
| Gippsland | 19,194 | 25,086 | 29,353 | 73,632 | 54,438 | 74% |
| North East | 41,943 | 34,629 | 51,360 | 127,931 | 85,988 | 67% |
| West | 13,515 | 39,441 | 77,813 | 130,769 | 117,254 | 90% |
| **Total 2008** | **105,886** | **123,530** | **208,562** | **437,977** | **332,091** | **76%** |
| 2003 | | | | | | |
| Central Highlands | 2,956 | 8,376 | 15,763 | 27,094 | 24,138 | 89% |
| East Gippsland | 64,199 | 37,458 | 122,768 | 224,424 | 160,226 | 71% |
| Gippsland | 51,505 | 68,542 | 89,017 | 209,064 | 157,559 | 75% |
| North East | 84,808 | 77,101 | 98,218 | 260,128 | 175,320 | 67% |
| West | 16,428 | 35,092 | 78,971 | 130,492 | 114,064 | 87% |
| **Total 2003** | **219,896** | **226,569** | **404,737** | **851,202** | **631,307** | **74%** |
| CRA Assessmenta | | | | | | |
| Central Highlands | 4,105 | 7,769 | 14,077 | 25,951 | 21,846 | 84% |
| East Gippsland | 209,475 | 3,375 | 122,150 | 225,000 | 125,525 | 56% |
| Gippsland | 69,248 | 50,248 | 88,765 | 208,261 | 139,013 | 67% |
| North East | 111,934 | 48,454 | 99,077 | 259,465 | 147,531 | 57% |
| West | 12,846 | 33,398 | 76,998 | 123,242 | 110,396 | 90% |
| **Total CRA** | **407,608** | **143,244** | **291,067** | **841,919** | **544,311** | **65%** |

a Data taken from CRA documents.

Source: DELWP Old-growth layer derived from OG100 and updated based on knowledge of EVC and disturbance history. CAR layers represent a union between FMZ100 and PLM25 for each year presented. Old-growth data for 2003 derived from OG100. 2009 derived from MOG2009, and 2018 represents MOG2018 against the CAR 2018

An update to old growth in the West RFA was modelled in 2019 to a 2018 baseline year extent, which is the reason for the significant changes between 2009 and 2018. It should be noted that old growth in many of the West RFA EVCs do not hold the same characteristics as tall, wet forests of the east, except for the tall forests of the Otways. Victoria’s western EVCs often do not conform to the ‘Jacobsian’ forest types: the forest types that reflect the growth stages described by Jacobs (1955). Most importantly, field verification is required to confidently determine that the disturbance thresholds that were applied to the modelling to remove old growth did indeed remove the structural attributes of those areas causing a disturbance impact that was no longer ‘negligible’. Similarly, sprouter forest[[2]](#footnote-2) in Gippsland may recover to its old-growth status following fire more readily than obligate seeder forest in the ash-dominated forests of the Central Highlands.

Table 6 describes the quantum of change in the modelled old-growth extent on account of disturbance, of which the vast majority is aligned with forest fires. The impact of harvesting is comparatively minor.

In 2019, DELWP initiated the development of an old-growth ground validation methodology. It is intended that the method will increase confidence when applied to current and future old-growth mapping products. In addition, VicForests will verify mapped old growth through field surveys and, when observed in the field, they will exclude and protect old growth, as well as other high conservation values from timber production (VicForests 2019). In effect, this provides for informal protection of all old growth in State forest.

Table 6: The impacted area of modelled old-growth forest by harvesting and fire

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Harvesting  (ha) | Fire  (ha) | Total  (ha) |
| 2006 | 0 | 1,257 | 1,257 |
| 2007 | 20 | 217,847 | 217,867 |
| 2008 | 6 | 12,935 | 12,941 |
| 2009 | 0 | 17,567 | 17,567 |
| 2010 | 0 | 0 | 0 |
| 2011 | 215\* | 0 | 215 |
| 2012 | 0 | 0 | 140 |
| 2013 | 1 | 108,724 | 109,015 |
| 2014 | 4 | 27,197 | 27,302 |
| 2015 | 2 | 4,623 | 4,903 |
| **Total** | **7** | **390,150** | **395,815** |

Source: Data from DELWP’s corporate library - FIREHISTORY and LASTLOG100 layers

\*While the table suggests 215 hectares of area classified as ‘old growth’ was thinned, this has not been verified on the ground and may be an artefact of the data modelling.

*Old-growth area by ecological vegetation class and protected area class*

The JANIS criteria recognise that old growth is part of an ecological succession. It is not static and therefore cannot be maintained indefinitely through the reservation of existing examples of that age class. However, where old growth is depleted, the criteria recognise its value to the extent that examples of rare or threatened old-growth EVCs are protected, albeit in a flexible manner. Indeed, the criteria states that old growth should be reserved based on an appropriate mosaic of age-classes that encourage the regeneration of emergent old growth for the future.

For the application of JANIS, therefore, an understanding of old-growth EVC and protected area status is required. This information is documented in the Appendices under 1.

**Wilderness values**

The NFPS/JANIS criteria defines wilderness as:

Land that, together with its plant and animal communities, is in a state that has not been substantially modified by, and is remote from, the influences of European settlement …[[3]](#footnote-3)

Delineated wilderness was determined for the CRA by a desktop analysis of datasets relating to landscape factors (remoteness, naturalness, size, etc.) that relate to the NFPS/JANIS wilderness definition. Delineated wilderness was the layer used to determine the JANIS reservation targets (90 per cent, or more if practicable) for wilderness in the development of the five Victorian RFAs.

**National Parks Act 1975**

The *National Parks Act 1975* (Vic) provides for the establishment, amendment and protection of wilderness areas within Victoria. It does this through creating wilderness parks or wilderness zones within national parks and subsequently adding to or reducing the extent of these areas. Wilderness parks are large areas with landforms and native plant and animal communities relatively unaltered or unaffected by the influence of the European settlement of Australia. The Act excludes development, commercial activity, use of motorised transport and hunting from wilderness parks and wilderness zones. It ensures that they are managed in a way that enhances their status as wilderness.

Once an area is determined as a wilderness park, or where new areas are added to an existing wilderness park, a management plan must be developed which is consistent with the management provisions in the Act. Parks Victoria manages wilderness parks for conservation and self-reliant recreation. There are three wilderness parks in Victoria established by this Act: Avon Wilderness Park and Wabba Wilderness Park, which are forested and located within the Victorian RFA regions, and Big Desert Wilderness Park, which contains some areas of Mallee woodland forest but is not in an RFA region.

In the 2013 amendment, the Act listed 19 wilderness zones in Victoria. There are 12 wilderness zones located within the Victorian RFA regions.

**Wilderness extent and protection in Victorian RFA regions**

An assessment of wilderness values was undertaken in 1996 as part of the CRA process in the regional context of the forests of eastern Victoria. This included Central Highlands, East Gippsland, Gippsland and North East RFA regions. In the eastern Victorian forests region, 95 per cent of the total area delineated in 1996 as significant for high wilderness quality was protected in the reserve system. There were 18 wilderness areas identified in the forests of eastern Victoria as a result of this assessment (see Table 7).

The resulting report, *Comprehensive regional assessment: wilderness of the eastern Victorian forests* (Commonwealth & Victorian Regional Forest Agreement Steering Committee 1996), analysed wilderness quality across the four CRA regions using data from the National Wilderness Inventory (NWI) (Lesslie & Maslen 1995) and other sources. The NWI methodology measured the variation in wilderness quality across the landscape, producing a database of ‘wilderness quality’. This was achieved by using indicators that represented the two essential attributes of wilderness: remoteness and naturalness. The indicators were:

* **Remoteness from Settlement** – remoteness from places of permanent occupation
* **Remoteness from Access** – remoteness from established access routes
* **Apparent Naturalness** – the degree to which the landscape is free from the presence of permanent structures associated with modern technological society
* **Biophysical Naturalness** –the degree to which the natural environment is free from biophysical disturbance caused by the influence of modern technological society.

Wilderness areas are most commonly defined as being areas of high wilderness quality (12 and above) occupying at least 8,000 hectares. Boundaries were delineated around areas that satisfied these criteria. Wherever possible, the boundaries which were adopted followed catchment divides or other topographic features. Where such features did not prove suitable, boundaries were drawn that reflected the influence of nearby features affecting wilderness quality, such as roads.

The distance-related indicators (settlement, access and apparent naturalness) were Australian Surveying and Land Information Group (AUSLIG) digital mapping data updates with additional information in the detailed study areas (Gippsland CRA Report 1999). The disturbance information that provides the base data for the biophysical naturalness indicator was of variable quality and lineage across the RFAs.

Table 8 compares the high-value wilderness areas defined by the CRA, with the current tenure and status.

Table 7: Summary of protection of areas of high wilderness quality within the eastern Victorian forests (1996 – 1999 CRA)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RFA | Area | Size  (Ha) | Reserved  (Ha) | Proportion reserved |
| East Gippsland | Buchan | 12,580 | 12,580 | 100 per cent |
|  | Cape Howe | 7,120 | 7,120 | 100 per cent |
|  | Coopracambra | 28,050 | 25,460 | 91 per cent |
|  | Petrel | 10,960 | 10,960 | 100 per cent |
|  | Sand Patch | 28,540 | 17,150 | 60 per cent |
|  | Snowy | 54,560 | 54,560 | 100 per cent |
|  | Tamboon | 5,000 | 5,000 | 100 per cent |
|  | Tingaringy | 25,250 | 25,060 | 99 per cent |
|  | Upper-Brodribb | 5,310 | 4,850 | 91 per cent |
| *Total East Gippsland* | | *177,370* | *162,740* | *92 per cent* |
| Gippsland | Avon | 39,650 | 39,650 | 100 per cent |
|  | Indi Addition to Pilot and Davies Plain | 24,300 | 24,300 | 100 per cent |
|  | Mt Darling/Snowy Bluff | 40,400 | 40,400 | 100 per cent |
|  | Wilsons Promontory | 33,228 | 33,228 | 100 per cent |
| *Total Gippsland* |  | *137,578* | *137,578* | *100 per cent* |
| Gippsland/North East | Macalister | 33,300 | 33,300 | 100 per cent |
|  | Razor/Viking | 15,700 | 15,700 | 100 per cent |
| *Total Gippsland/North East* | | *49,000* | *49,000* | *100 per cent* |
| North East | Dartmouth | 26,950 | 20,370 | 76 per cent |
|  | Wabba | 19,700 | 19,700 | 100 per cent |
|  | Yarrarabulla Creek | 13,000 | 13,000 | 100 per cent |
| *Total North East* | | *59,650* | *53,070* | *89 per cent* |
| **Total all RFA regions** | | **423,598** | **402,388** | **95 per cent** |

Source: Data derived from the CRAs accessed via the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) website (VicRFASC (1996))

Table 8: Comparison of protection of areas of high wilderness quality within the eastern Victorian forests (1996 – 1999 CRA) with wilderness zones and parks

|  |  |  |
| --- | --- | --- |
| RFA | CRA area | Current statusa |
| East Gippsland | Buchan | Buchan Headwaters WZ |
|  | Cape Howe | Cape Howe WZ |
|  | Coopracambra | Genoa WZ, Coopracambra NP |
|  | Petrel | Croajingolong NP |
|  | Sand Patch | Part protected Sand Patch WZ, Croajingolong NP |
|  | Snowy | Snowy River WZ and Bowen WZ |
|  | Tamboon | Croajingolong NP |
|  | Tingaringy | Tingaringy WZ, Alpine NP |
|  | Upper-Brodribb | Errinundra NP |
| Gippsland | Avon | Avon WP |
|  | Indi Addition to Pilot and Davies Plain | Indi WZ, Alpine NP |
|  | Mt Darling/Snowy Bluff | Mt Darling/Snowy Bluff WZ, Alpine NP |
|  | Wilsons Promontory | Wilsons Promontory WZ, Wilsons Promontory NP |
| Gippsland/North East | Macalister | Alpine NP |
|  | Razor/Viking | Razor Viking WZ |
| North East | Dartmouth | Partly protected by Alpine NP |
|  | Wabba | Wabba WP |
|  | Yarrarabulla Creek | Protected as PRK Forest Management Zone in State forest |

a NP: national park; WZ: wilderness zone; PRK: park

Source: Data derived from the CRAs accessed via the ABARES website (VicRFASC (1996)) and PLM25 (DELWP)

Table 9 summarises the area of wilderness in the Victorian RFA regions over five-year intervals. Note that there have been no significant changes in area over the period of the RFAs, with minor area changes attributable to accuracy of spatial data, rather than additions or excisions from the wilderness itself. There is a difference between protected areas of high wilderness quality, as detailed in Table 7, and area of wilderness, as in Table 8, as Table 8 shows only the wilderness zones and parks established by the *National Parks Act 1975* (Vic). One hundred per cent of wilderness zones and parks are reserved. Figure 2 shows the location of the wilderness areas, as established by the Act, in the Victorian RFA regions.

Table 9: Wilderness zones and parks in Victorian RFA regions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Area (hectares) | | | | |
| RFA region | Total area of RFA region | At 30 June 2001 | At 30 June 2006 | At 30 June 2011 | At 30 June 2016 |
| Central Highlands | 1,132,000 | 0 | 0 | 0 | 0 |
| East Gippsland | 1,213,000 | 130,264 | 130,264 | 130,264 | 130,264 |
| Gippsland | 2,655,000 | 121,563 | 121,563 | 121,563 | 121,563 |
| North East | 2,317,000 | 35,026 | 35,026 | 35,026 | 35,026 |
| West | 5,770,000 | 0 | 0 | 0 | 0 |
| **All RFA regions** | **13,087,000** | **286,853** | **286,853** | **286,853** | **286,853** |

Source: DELWP corporate data library WILDERNESS100 layer.

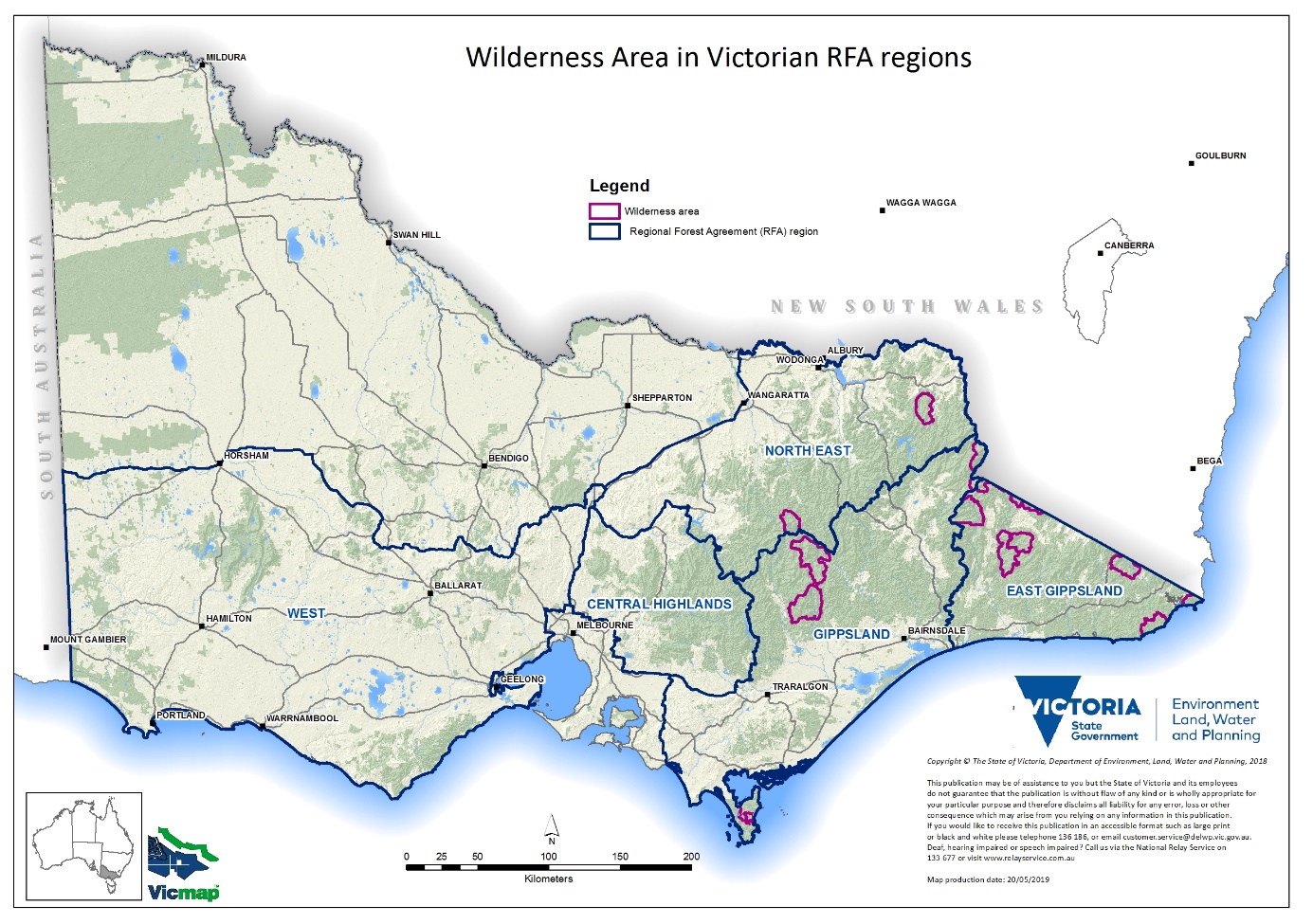


Figure 2: Wilderness areas in Victorian RFA regions

*Other wilderness definitions*

The extent of formally reserved delineated wilderness, formally reserved identified wilderness, and the International Union for Conservation of Nature (IUCN) protected areas wilderness category are each determined through mechanisms using differing definitions of wilderness. The IUCN Wilderness Area is derived from the Collaborative Australian Protected Area Database (CAPAD)[[4]](#footnote-4) of the Australian Government Department of the Environment and Energy (DoEE), so may include wilderness outside formal reserves but otherwise protected through mechanisms recorded in CAPAD, such as informal reserves. Declared wilderness is a subset of identified wilderness.

*International Union for Conservation of Nature wilderness*

The IUCN defines wilderness as:

Protected areas [that] are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

(IUCN 2019a)

The IUCN protected areas category ‘1b Wilderness Area’ is reported through CAPAD. There are two IUCN Wilderness Areas within the Victorian RFA regions: Avon Wilderness Park and Wabba Wilderness Park.

**Endangered species values**

According to the *National forest policy statement*, endangered species are:

species in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are species whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that the species are deemed to be in danger of extinction. Also included are species that are possibly already extinct but have definitely been seen in the wild in the past fifty years and have not been subject to recent thorough searching.

(Commonwealth of Australia 1995, p. i [Glossary])

The states and the Commonwealth have a number of strategies and key pieces of environmental legislation to protect environmental values including threatened species and communities. These extend to species that are endangered and processes that are a threat to their viability. It is proposed that the modernised Victorian RFAs will have new terminology: ‘Listed Species and Communities’. This is defined as a species or community listed under Part 13 of the EPBC Act or Part 3 of the *Flora and Fauna Guarantee Act 1988* (Vic.) (FFG Act) and that is, or has the potential to be, impacted upon by forestry operations. Listed Species and Communities in this assessment encompasses ‘endangered species’, which are specifically referred to as part of ‘environmental values’ in para. (a)(j) of the definition of ‘RFA’ in the RFA Act. However, the concept of ‘listed species’ is broader than the meaning of endangered species as defined in the *National forest policy statement* as it includes extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent categories. Listed threatened species and ecological communities are matters of national environmental significance (MNES) under the EPBC Act.

The EPBC Act is the Australian Government’s central piece of environmental legislation. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, Ramsar wetlands and World and National Heritage places – defined in the EPBC Act as MNES.

At July 2019, there were 196 threatened species and 32 non-threatened migratory birds listed under the EPBC Act that are known or likely to occur within the Victorian RFA regions (Appendix A.2). Almost all listed species (98.5 per cent) have a conservation advice and/or recovery plan to assist recovery. There are also 14 listed threatened ecological communities in the Victorian RFA regions listed under the EPBC Act (Appendix 3). All have conservation advices, recovery plans or both in place to assist in management and recovery.

There are 14 listed threatening processes affecting threatened species in the Victorian RFA regions. National threat abatement plans have been prepared for most of the key threatening processes registered under the EPBC Act where a threat abatement plan was considered a feasible, effective or efficient way to abate the processes.

At the commencement of EPBC Act the list of threatened species, ecological communities and threatening processes consisted only of those previously listed under the *Endangered Species Protection Act* *1992* (Cth) (ESP Act). Since the commencement of the EPBC Act, 52 additional species known or likely to occur in the Victorian RFA regions have been listed as threatened under national legislation.

**National legislation protecting Listed Species and Communities**

After the Victorian RFAs were signed (1997–2000), new Commonwealth environmental legislation came into force that changed the definition and assessment of threatened species at the national level. The EPBC Act protects Australia’s native species and ecological communities by providing for the:

* identification and listing of threatened species and ecological communities
* development of conservation advice and, where appropriate, recovery plans for listed species and ecological communities
* development of a register of critical habitat identification
* recognition of key threatening processes
* development of threat abatement plans where appropriate
* implementation of environmental impact assessment processes for proposed actions with significant impacts to listed threatened species and ecological communities.

*Listing and protection processes*

The listing of species or ecological communities recognises their long-term survival is under threat. The national listing of species and ecological communities follows a rigorous scientific assessment process and involves consultation with stakeholders including scientific experts and the public. Advice on the eligibility of a species or ecological community for listing is provided to the responsible Australian Government minister by the independent Threatened Species Scientific Committee.

Once listed, a threatened species or ecological community is recognised as an MNES and must be considered through assessment and approval provisions of the EPBC Act.

*Conservation advice and recovery plans*

Since 2007, a conservation advice is required at the time of listing a threatened species or ecological community. Conservation advices outline the eligibility for listing, and immediate priorities for conservation, research and recovery (DoEE, n.d.-a).

For some species and ecological communities, a more comprehensive recovery plan may also be developed to guide recovery action. Recovery plans set out the research and management actions that are necessary to stop the decline of, and support the recovery of, listed threatened species and ecological communities (DoEE, n.d.-c). The aim of a recovery plan is to assist the long-term survival of the species or ecological community in its natural environment.

*Key threatening processes and threat abatement plans*

The way that key threatening processes are listed is similar to the listing of species and ecological communities. Once a key threatening process is listed under the EPBC Act, a threat abatement plan is developed if it is shown to be a ‘feasible, effective and efficient way’ to abate the threatening process. Threat abatement plans provide for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities.

As with recovery plans, a threat abatement plan can be made by the minister alone or jointly with relevant states and territories, or the Australian Government minister can adopt a state or territory plan. Before a plan is made or adopted, there must be public consultation and advice from the Threatened Species Scientific Committee about the plan.

*Interaction between the RFAs and the EPBC Act*

Consistent with the objectives of the EPBC Act, the RFAs provide for protection of the environment, promote ecologically sustainable development, promote the conservation of biodiversity and provide for the protection of conservation of heritage.

Section 38 of the EPBC Act streamlines forest planning processes by exempting forest operations in RFA areas from assessment and approval processes under the Act. The rationale for this approach is that the EPBC Act recognises ‘that in each RFA region a comprehensive assessment … has been, undertaken to address the environmental, economic and social impacts of forestry operations’ (Explanatory Memorandum, Environment Protection and Biodiversity Conservation Bill 1999 (Cth), para. 113). This means forestry operations that are undertaken in accordance with an RFA do not require approval for the purposes of any provision in Part 3 of the EPBC Act (Explanatory Memorandum, Environment Protection and Biodiversity Conservation Bill 1999 (Cth), para. 112). The exceptions are forestry operations within World Heritage properties or Ramsar wetland sites, where assessment and approval is required.

**Victorian legislation protecting listed species and communities**

The FFG Act is the key piece of Victorian legislation for the conservation of biodiversity, including threatened species and communities. The FFG Act operates across all land tenures, including private land, although the application of some provisions on private land is limited. The FFG Act aims to conserve all of Victoria’s native plants and animals, to ensure that any use of them by humans is sustainable, and to ensure that the genetic diversity of plants and animals is maintained. It establishes legal and administrative structures to enable and promote the conservation of Victoria's native flora and fauna and provides for the management of potentially threatening processes. The FFG Act establishes a range of mechanisms to achieve this objective, including:

* developing an overarching strategy for Victoria’s biodiversity
* maintaining lists of:
  + threatened species and communities
  + potentially threatening processes
* preparing action statements for listed items
* declaring critical habitat
* making interim conservation orders to protect critical habitat
* placing a duty on public authorities to have regard to objectives of the Act in their operations
* requiring authorisation for activities that involve the handling of protected flora and threatened fish.

*Protecting Victoria’s environment –* *biodiversity 2037* was published in 2017 as the new Flora and Fauna Guarantee Strategy for the purposes of section 17 of the FFG Act. More detail is provided in the following section.

At June 2019, the Threatened List and Processes List include 647 threatened species, 41 threatened communities and 43 potentially threatening processes. The listing process is driven by public nominations and overseen by the Victorian independent Scientific Advisory Committee, which makes recommendations to the relevant ministers as to the validity and eligibility of items nominated for listing (or delisting).

Under the FFG Act (s. 19), it is a statutory requirement to prepare action statements for all listed species, communities and potentially threatening processes. The Secretary must prepare an action statement as soon as possible after an item has been listed. Action statements must set out what has been done to conserve and manage the item and what is intended to be done. They may include information on what needs to be done. In preparing or amending an action statement, the Secretary must consider any management advice given by the Scientific Advisory Committee and the Victorian Catchment Management Council and must consider any other relevant nature conservation, social and economic matters.

Action statements have been prepared for 276 listed species, although there are many species with advanced drafts. Action statements do not formally expire; however, many of the current action statements are more than 10 years old. Action statements for forest‑dependent threatened species typically contain intended management actions that require the establishment of timber harvesting exclusion zones or modified harvesting procedures.

Actions contained within individual action statements, such as prescriptions requiring the establishment of Special Protection Zones where a Leadbeater’s Possum colony is detected, may become a mandatory prescription through incorporation into the *Code of Practice for Timber Production 2014* (the Code). All prescriptions outlined in the Code are required to be complied with during timber harvesting operations in Victoria.

Other relevant Victorian legislation protecting Listed Species and Communities includes:

* The *National Parks Act 1975*, which establishes the statutory basis for the protection, use and management of a system of more than 100 national and other parks in Victoria covering over 3 million hectares (comprising both forests and non-forest vegetation). National parks generally include areas of national significance, outstanding natural values and diverse land types. Together with state and wilderness parks (and nature conservation reserves established under the *Crown Land (Reserves) Act 1978*), national parks contribute significantly to the representativeness of EVCs and biodiversity across the state and make significant contributions to Victoria’s CAR reserve system.
* The *Wildlife Act 1975* regulates the taking, trading and keeping of wildlife. Under this Act, it is an offence to hunt, take or destroy wildlife – including threatened species – without authorisation.

The *Overview of Victoria’s Forest Management System (DELWP,* 2020) details how Victoria provides for the protection of threatened species and communities.

*Common Assessment Method*

The Common Assessment Method (CAM) is a consistent approach to the assessment and listing of nationally threatened species across Australian jurisdictions. It is based on the best‑practice standard developed by the IUCN, as used to create the Red List of Threatened Species and the Red List of Ecosystems, with some amendments to suit the Australian context.

The Victorian Government signed a memorandum of understanding (MOU) in April 2018 with the Australian Government and other states and territories to implement the CAM for species (known as the ‘CAM MOU’) (Australian Government, Australian Capital Territory Government, Tasmanian Government, Northern Territory Government, New South Wales Government, Queensland Government, Victorian Government, 2018). It has not, as yet, adopted the CAM for ecological communities.

The CAM MOU enables national assessments undertaken by one jurisdiction to be considered and accepted by another, under their legislation, ensuring that species are listed in the same national threat category across all Australian jurisdictions.

Under the CAM MOU, the Commonwealth is predominantly responsible for assessing species that occur in more than one state or territory. States and territories will generally lead on assessments for species and communities endemic to their jurisdiction.

As noted above, the CAM has not yet been given effect in Victorian law. The CAM will have a legislative basis as of 1 June 2020 when Flora and Fauna Guarantee Amendment Bill 2019 legislation comes into effect. At this time the Single Operational List of threatened species will become the Threatened List for the purposes of the FFG Act. Prior to June 2020, the department will continue to develop the Single Operational List of threatened species and their status in accordance with the CAM.

*Broader biodiversity and threatened species initiatives*

The management of biodiversity outcomes in State forests is also addressed through Victoria’s statewide biodiversity plan, *Protecting Victoria’s environment – biodiversity 2037* (*Biodiversity 2037*). The plan was developed to ensure that Victoria has a modern and effective approach to protecting and managing Victoria’s biodiversity (DELWP 2017c). It was published in 2017 as the new Flora and Fauna Guarantee Strategy for the purposes of section 17 of the FFG Act. *Biodiversity 2037* notes that 70 per cent of Victoria’s highest-value terrestrial biodiversity areas exist on the 40 per cent of land that is publicly owned; these areas include national, state and wilderness parks and other conservation reserves, and land used for a broader range of purposes – including State forests and smaller public land parcels.

The relevant targets in *Biodiversity 2037* are:

A net improvement in the outlook across all species by 2037, as measured by Change in Suitable Habitat,[[5]](#footnote-5) with the expected outcomes being:

* That no vulnerable or near-threatened species will have become endangered.
* That all critically endangered and endangered species will have at least one option available for being conserved *ex situ* or re-established in the wild (where feasible under climate change) should they need it.
* A net gain of the overall extent and condition of habitats across terrestrial, waterway and marine environments.

(DELWP 2017c, p. 20)

In this context, the management of biodiversity outcomes from State forests is incorporated within a broader program of biodiversity initiatives across public land. These initiatives include:

* comprehensively engaging with Traditional Owners and Aboriginal Victorians to include Aboriginal values and traditional ecological knowledge in biodiversity planning and management.
* working with government agencies, private organisations and community groups to identify prospective projects across all land tenures. Biodiversity Response Planning is a new area-based planning approach to biodiversity conservation in Victoria. It is designed to strengthen alignment, collaboration and participation between government agencies, Traditional Owners, non-government agencies and the community.
* substantial, multi-year investment in the highest-priority projects arising from the Biodiversity Response Planning process. In 2018, 85 new projects for on-ground biodiversity action (worth $33.67 million) and four new projects for Marine Environment Targeted Action (worth $1.1 million) were announced. Funded projects will be delivered over three years, commencing in 2018–19 and continuing to 2020–21. Further information on projects and funding is available on the DELWP website.[[6]](#footnote-6)
* developing and delivering decision-support tools which focus on the most cost-effective options for action to benefit the largest number of native species under climate change scenarios
* expanding and improving the collection of data, including consistent reporting on management activity, monitoring of asset condition where appropriate, and investigating the effectiveness of management to inform future decision-making.

In addition to the initiatives listed above, the Weeds and Pests on Public Land Program funds landscape-scale pest management projects including Southern Ark, Glenelg Ark, Grampians Ark, Central Highlands Ark, Barry Mountains fox control program and Mallee Bounceback (DELWP 2019c). Weed management projects (‘Edens’) are being implemented in the Central Highlands, Otway Ranges and Glenelg regions. The program invests $3.1 million each year across approximately 10 per cent of the state throughout Victoria’s highest biodiversity assets on public land. A further $1 million is contributed each year by delivery partner Parks Victoria. These initiatives are cross tenure and have been delivered for 15 years.

**Indicator 1.2b:** **The status of forest-dwelling species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment**

This indicator measures the conservation status of nationally listed threatened forest-dwelling species. Documentation of this information over time allows analysis of changes to species conservation status indicating the extent to which forest species biodiversity is being maintained.Forest-dwelling species are species that occur in forest vegetation types, although they may also occur outside forests. Forest-dependent species are species that require a forest habitat for at least part of their life cycle. EPBC Act listed species reported here have not been limited to those that are exclusively forest dependent.

As part of the CRA process undertaken for Victorian RFAs (1997–2000), an assessment was made of threatened flora and fauna listed under the legislation at the time, the FFG Act (Vic.) and the ESP Act (Cth). A number of non-threatened indicator species were also chosen to provide a broader assessment of fauna in the region. These included species representative of taxa at risk from various management activities. Assessments of these species included:

* vulnerability assessments to identify rare or threatened species that are at greatest risk of further significant decline and extinction as a result of activities, ongoing threatening processes and catastrophic events in the region
* species reservation analysis assessments to assess the extent to which species of conservation significance in each RFA region were protected in the reserve system at that time
* disturbances (threatening processes) assessments to describe potentially threatening processes relevant to each RFA region and the management arrangements currently in place to address these.

The Flora Information System of Victoria and the Atlas of Victorian Wildlife, comprising both formal survey and incidental observations, were used to conduct the CRA flora and fauna assessment. An assessment of the proportions of species records in reserves, non-reserve areas and partially reserved areas was also undertaken for threatened terrestrial vertebrate species.

The current assessment of threatened species for this indicator is based on species, community and threat information stored in the Commonwealth Environmental Resources Information Network Species Profile and Threats Database. Species identified here are known or likely to occur within Victoria’s RFA regions as at July 2019.

Habitat distribution models (HDMs) for high-priority forest‑dependent threatened species have been used to conduct a species reservation analysis for a subset of forest‑dependent threatened species. HDMs are based on species observation records stored in the Victorian Biodiversity Atlas (VBA). This analysis and further information on this process and other information systems used to inform the consideration of threatened species in forest management planning in Victoria is outlined under Indicators 1.2a and 1.2c.

As of July 2019, there are 196 EPBC Act listed threatened fauna and flora species known or likely to occur within the Victorian RFA regions (Table 10). EPBC Act listed species reported here have not been limited to those that are exclusively forest dependent. Appendix 2 details all EPBC Act listed species which are known or likely to occur within the Victorian RFA regions as well as the status of national conservation advices and recovery plans.

Table 10: Number of EPBC Act listed species known or likely to occur by RFA region

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RFA region | Critically endangered | Endangered | Vulnerable | Total |
| Central Highlands | 10 | 15 | 24 | 49 |
| East Gippsland | 3 | 11 | 38 | 52 |
| Gippsland | 11 | 23 | 46 | 80 |
| North East | 8 | 18 | 30 | 56 |
| West | 16 | 40 | 59 | 115 |
| Total across all RFA regionsa | 25 | 64 | 111 | 196 |

a Totals are less than the sum of the number for each listed category because many species occur in more than one RFA region. Threatened marine mammals, fish, sharks and migratory birds that are restricted to coastal and marine environments are excluded from the list.

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019.

*Victorian FFG Act listed species and Victorian Advisory List species*

There are 647 fauna and flora species and 41 ecological communities listed as threatened in Victoria under the FFG Act. Of these, 207 species are forest dependent and located within Victorian RFA regions (Table 11).

Table 11: FFG Act listed forest-dependent species by RFA region

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Species | Central Highlands | East Gippsland | Gippsland | North East | West | Total |
| Amphibian | 3 | 4 | 4 | 3 | 1 | 15 |
| Bat | 3 | 3 | 3 | 3 | 2 | 14 |
| Bird | 6 | 7 | 7 | 7 | 5 | 32 |
| Crustacean | 3 | 3 | 5 | 1 | 0 | 12 |
| Fish | 4 | 0 | 1 | 4 | 1 | 10 |
| Mammal | 9 | 8 | 11 | 7 | 10 | 45 |
| Plant | 9 | 24 | 16 | 12 | 8 | 69 |
| Reptile | 2 | 4 | 2 | 1 | 1 | 10 |
| Total | 39 | 53 | 49 | 38 | 28 | 207 |

Source: Data sourced from verified forest-dependent species observation records in the VBA 1980–2019, accessed July 2019

*Central Highlands*

The Central Highlands CRA assessed more than 67 plants of conservation significance,[[7]](#footnote-7) including factors that may predispose them to decline or extinction, potential threats and management actions in place to mitigate those threats. The CRA also provided information about 33 species of mammals, reptiles, birds and frogs and 15 flora species that are listed under Commonwealth or state legislation as being threatened. Six FFG Act listed native freshwater fish species were recorded at this time in the Central Highlands and two of these were also listed under the Commonwealth ESP Act when it was in force.

The Central Highlands area contains populations of Leadbeater's Possum, an endangered species with complex habitat requirements. The Baw Baw Frog is also confined to the Central Highlands, where it occupies a restricted range at higher elevations. The region also provides important habitat for a number of large forest owls. The initial discovery of the Baw Baw Frog in State forest areas on the south-western and north-eastern escarpments of the Baw Baw Plateau in 1996 led to the establishment of interim management guidelines to manage forestry activities in State forest in the species’ habitat. This was followed by the establishment of an SPZ over the area to protect the species and its habitat from the impacts of logging (Hollis 2011).

In July 2019, there were 49 EPBC Act listed fauna and flora species known or likely to occur within the Central Highlands RFA region (Table 12). Since the commencement of the EPBC Act, 17 additional species known or likely to occur in the Central Highlands RFA region have been listed as threatened under this legislation.

Table 12: Number of EPBC Act listed species known or likely to occur in the Central Highlands RFA region as of July 2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Critically endangered | Endangered | Vulnerable | Total |
| Bird | 4 | 1 | 1 | 6 |
| Crustacean | 0 | 0 | 0 | 0 |
| Flora | 2 | 8 | 13 | 23 |
| Freshwater fish | 1 | 2 | 3 | 6 |
| Frog | 1 | 1 | 2 | 4 |
| Insect | 1 | 1 | 0 | 2 |
| Mammal | 1 | 2 | 3 | 6 |
| Reptile | 0 | 0 | 1 | 1 |
| Other | 0 | 0 | 1 | 1 |
| Total | 10 | 15 | 24 | 49 |

Note: Marine mammals, fish, sharks and migratory birds that are restricted to coastal and marine environments are excluded from the list.

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019.

*East Gippsland*

The East Gippsland CRA assessed 369 flora species of conservation significance, including factors that may predispose them to decline or extinction, potential threats and management actions in place to mitigate those threats. The CRA also provided information about 38 species of mammals, reptiles, birds and frogs. Of the 29 native freshwater fish species recorded from East Gippsland in the CRA, four were listed under the FFG Act, and three were listed under the ESP Act.

Species assessed in the CRA include the Long-footed Potoroo, Smoky Mouse, Broad-toothed Rat, Powerful Owl and Sooty Owl.

As of July 2019, there were 52 EPBC Act listed fauna and flora species known or likely to occur within the East Gippsland RFA region (Table 13). Since the commencement of the EPBC Act, 13 additional species known or likely to occur in the East Gippsland RFA region have been listed as threatened under this legislation.

Table 13: Number of EPBC Act listed species known or likely to occur in the East Gippsland RFA region as of July 2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Critically endangered | Endangered | Vulnerable | Total |
| Bird | 2 | 3 | 4 | 9 |
| Crustacean | 0 | 0 | 0 | 0 |
| Flora | 1 | 4 | 22 | 27 |
| Freshwater fish | 0 | 0 | 1 | 1 |
| Frog | 0 | 0 | 6 | 6 |
| Insect | 0 | 0 | 0 | 0 |
| Mammal | 0 | 4 | 5 | 9 |
| Reptile | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| Total | 3 | 11 | 38 | 52 |

Note: Marine mammals, fish, sharks and migratory birds that are restricted to coastal and marine environments are excluded from the list.

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019.

*Gippsland*

The Gippsland CRA assessed more than 73 plants of conservation significance (nine listed under the ESP Act), including factors that may predispose them to decline or extinction, potential threats and management actions in place to mitigate those threats. The CRA also provided information about 39 species of mammals, reptiles, birds and frogs species (five of these were listed under the ESP Act). High-priority threatened species as well as indicator species were assessed. Of the 21 native freshwater fish species recorded from Gippsland in the CRA, five were listed under the FFG Act, and one was listed under the ESP Act.

Four of the 39 species assessed in the CRA were considered vulnerable to stochastic events, such as wildfire, due to the combination of small geographic range size, low abundance and narrow habitat specificity; these were the Long-footed Potoroo, New Holland Mouse, Southern Horseshoe Bat and Swamp Skink. The CRA recommended that these species be given particular consideration in developing priorities for management action. The EPBC Act listed Long-footed Potoroo and New Holland Mouse have both (subsequent to the RFA) had conservation advice and/or recovery plans developed.

As of July 2019, there were 80 EPBC Act listed fauna and flora species known or likely to occur within the Gippsland RFA region (Table 14). Since the commencement of the EPBC Act, 28 additional species known or likely to occur in the Gippsland RFA region have been listed as threatened under this legislation.

Table 14: Number of EPBC Act listed species known or likely to occur in the Gippsland RFA region as of July 2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Critically endangered | Endangered | Vulnerable | Total |
| Bird | 6 | 4 | 4 | 14 |
| Crustacean | 0 | 0 | 0 | 0 |
| Flora | 2 | 9 | 28 | 39 |
| Freshwater fish | 1 | 1 | 2 | 4 |
| Frog | 1 | 1 | 4 | 6 |
| Insect | 0 | 1 | 0 | 1 |
| Mammal | 1 | 5 | 7 | 13 |
| Reptile | 0 | 2 | 0 | 2 |
| Other | 0 | 0 | 1 | 1 |
| Total | 11 | 23 | 46 | 80 |

Note: Marine mammals, fish, sharks and migratory birds that are restricted to coastal and marine environments are excluded from the list.

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019.

*North East*

The North East CRA assessed more than 29 plants of conservation significance (14 listed under the ESP Act), including factors that may predispose them to decline or extinction, potential threats and management actions in place to mitigate those threats. The CRA also provided information about 49 species of mammals, reptiles, birds and frogs (six of these were listed under the ESP Act). At the time of the CRA, of the 14 native freshwater fish species recorded from the North East, eight are listed as threatened fauna in Victoria, including four which are listed under the FFG Act, and two of these four, which are also listed under the ESP Act.

The Long-footed Potoroo and Spotted Tree Frog were two priority species (listed nationally at that time under the ESP Act and currently listed under the EPBC Act) occurring in this RFA region and assessed as part of the CRA. Under the RFA, protections for these species included protections within the CAR reserve system and prescriptions.

Since the signing of the North East RFA, an action statement under the FFG Act and a National Recovery Plan and Conservation Advice under the EPBC Act have been developed for the Spotted Tree Frog. These guide actions to conserve this species.

As of July 2019, there were 56 EPBC Act listed fauna and flora species known or likely to occur within the North East RFA region (Table 15Table 14). Since the commencement of the EPBC Act, 22 additional species known or likely to occur in the North East RFA region have been listed as threatened under this legislation.

Table 15: Number of EPBC Act listed species known or likely to occur in the North East RFA region as of July 2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Critically endangered | Endangered | Vulnerable | Total |
| Bird | 3 | 1 | 2 | 6 |
| Crustacean | 0 | 0 | 0 | 0 |
| Flora | 2 | 4 | 20 | 26 |
| Freshwater fish | 2 | 3 | 1 | 6 |
| Frog | 0 | 3 | 2 | 5 |
| Insect | 1 | 1 | 0 | 2 |
| Mammal | 0 | 4 | 3 | 7 |
| Reptile | 0 | 2 | 2 | 4 |
| Other | 0 | 0 | 0 | 0 |
| Total | 8 | 18 | 30 | 56 |

Note: Marine mammals, fish, sharks and migratory birds that are restricted to coastal and marine environments are excluded from the list.

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019.

*West*

The West CRA assessed more than 101 plants of conservation significance (28 listed under the ESP Act), including factors that may predispose them to decline or extinction, potential threats and management actions in place to mitigate those threats. The CRA also provided information about 42 species of mammals, reptiles, birds and frogs species (five of these were listed under the ESP). Of the 21 native freshwater fish species recorded from the West RFA region in the CRA, six were listed under the FFG Act, and four of these were also listed under the ESP Act.

Species assessed in the CRA include the Hairy-pod Wattle, Brush-tailed Phascogale, Bush-stone Curlew and Spot-tailed Quoll.

As of July 2019, there were 115 EPBC Act listed fauna and flora species known or likely to occur within the West RFA region (Table 16). Since the commencement of the EPBC Act, 36 additional species known or likely to occur in the West RFA region have been listed as threatened under this legislation.

Table 16: Number of EPBC Act listed species known or likely to occur in the West RFA region as of July 2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Critically endangered | Endangered | Vulnerable | Total |
| Bird | 7 | 5 | 6 | 18 |
| Crustacean | 0 | 1 | 0 | 1 |
| Flora | 5 | 26 | 40 | 70 |
| Freshwater fish | 1 | 1 | 5 | 7 |
| Frog | 0 | 0 | 1 | 1 |
| Insect | 1 | 0 | 0 | 1 |
| Mammal | 1 | 5 | 5 | 11 |
| Reptile | 0 | 2 | 2 | 4 |
| Other | 1 | 0 | 0 | 1 |
| Total | 16 | 40 | 59 | 115 |

Note: Marine mammals, fish, sharks and migratory birds that are restricted to coastal and marine environments are excluded from the list.

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019.

*Status of listed species recovery plans and conservation advice*

Almost all EPBC Act listed species known or likely to occur within Victorian RFA regions have a conservation advice and/or recovery plan to assist recovery. The 32 non-threatened EPBC Act listed migratory birds do not require a conservation advice or recovery plan.

Victorian action statements are preferentially prepared for species listed as critically endangered. There are action statements prepared for 276 FFG Act listed species. The Australian and Victorian governments continue to work collaboratively in prioritising the development of new recovery plans.

Case studies on the management of three nationally listed species, the Blue-tongued Orchid, Long-footed Potoroo and Leadbeater’s Possum are outlined in the ‘Overview of Victoria’s forest management system 2020’.

*Threatened ecological communities*

As of July 2019, there were 14 ecological communities listed as threatened under the EPBC Act that were known or likely to occur in Victorian RFA region (Table 17). One ecological community, Silurian Limestone Pomaderris Shrubland of the South East Corner and Australian Alps bioregions, was listed under the predecessor to the EPBC Act, the ESP Act. The other 13 ecological communities were listed between 2006 and 2018, after all five Victorian RFAs were signed. A list of ecological communities occurring in the Victorian RFA regions is provided at Appendix 3.

Table 17: Number of listed ecological communities under the EPBC Act known or likely to occur in the Victorian RFA regions

| RFA region | Critically endangered | Endangered | Vulnerable | Total |
| --- | --- | --- | --- | --- |
| Central Highlands | 3 | 1 | 0 | 4 |
| East Gippsland | 3 | 1 | 1 | 5 |
| Gippsland | 5 | 3 | 1 | 9 |
| North East | 2 | 2 | 0 | 4 |
| West | 6 | 2 | 1 | 9 |
| Total all RFA regions | 9 | 4 | 1 | 14 |

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019

*Status of listed communities recovery plans and conservation advice*

Of the 14 EPBC Act listed threatened ecological communities within Victorian RFA regions, all have either a conservation advice, recovery plan or both in place to guide their recovery. A case study on the management of the EPBC Act listed community ‘Alpine Bogs and associated Fens’ is outlined in the *Overview of Victoria’s Forest Management System 2020*.

*Key threatening processes*

There are 14 threatening processes listed under the EPBC Act potentially affecting threatened species in Victorian RFA regions (see Table 18). The Australian Government has developed threat abatement plans for most of the key threatening processes registered under the EPBC Act where a threat abatement plan was considered a feasible, effective or efficient way to abate the process.

Table 18: EPBC Act listed key threatening processes potentially affecting threatened species in Victorian RFA regions

| EPBC Act listed key threatening process | Effective listing date | Threat abatement plan date of approval |
| --- | --- | --- |
| Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (*Manorina melanocephala*) | 9 May 2014 | Not applicable – threat abatement plan not considered a feasible, effective or efficient way to abate the process. |
| Competition and land degradation by rabbits | 16 July 2000 | 2016 |
| Competition and land degradation by unmanaged goats | 16 July 2000 | 2008 |
| Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*) | 16 July 2000 | 2014 |
| Infection of amphibians with chytrid fungus resulting in chytridiomycosis | 23 July 2002 | 2016 |
| Land clearance (excluding timber harvesting/utilisation) | 4 April 2001 | Not applicable – threat abatement plan not considered a feasible, effective or efficient way to abate the process. |
| Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases | 4 April 2001 | Not applicable – threat abatement plan not considered a feasible, effective or efficient way to abate the process. |
| Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants | 8 January 2010 | Not applicable – threat abatement plan not considered a feasible, effective or efficient way to abate the process. |
| Novel biota and their impact on biodiversity | 23 February 2013 | Not applicable – threat abatement plan not considered a feasible, effective or efficient way to abate the process. |
| Predation by European Red Fox | 16 July 2000 | 2008 |
| Predation by feral cats | 16 July 2000 | 2015 |
| Predation, habitat degradation, competition and disease transmission by Feral Pigs | 6 August 2001 | 2017 |
| Psittacine Circoviral (beak and feather) disease affecting endangered psittacine species | 4 April 2001 | 2005; ceased on 1 October 2015, however, a non-statutory threat abatement advice is in place. |
| The reduction in the biodiversity of Australian native fauna and flora due to the red imported fire ant, *Solenopsis invicta* | 2 April 2003 | 2006; ceased on 1 October 2016, however, a non-statutory threat abatement advice is in preparation. |

Source: Environmental Resources Information Network Species Profile and Threats Database. Accessed 31 July 2019

*Case study: predation by European Red Fox – the Southern Ark (East Gippsland) Weeds and Pests on Public Land Program*

Predation by the European Red Fox (*Vulpes vulpes*) is listed as a key threatening process under the EPBC Act. Under the Act, the Australian Government, in consultation with the states and territories, developed the *Threat abatement plan for predation by the European red fox*.

The threat abatement plan (TAP) identifies that fox populations need to be reduced over large areas because rapid population recovery, particularly by reinvasion, is a major problem (Australian Government Department of the Environment, Water, Heritage and the Arts [DEWHA] 2008b). The Southern Ark project in Victoria is identified as a successful example of a regional control program designed to protect at-risk species and substantially expand available habitat (DEWHA 2008a).

Far East Gippsland is a stronghold for native terrestrial mammals, birds and reptiles, several of which are rare or locally extinct in other parts of Victoria. In 1995 an analysis by regional biodiversity staff of the threats operating on vertebrates in East Gippsland identified predation by foxes as a process that affected multiple species, but was feasible to address. This led to the implementation of Project Deliverance (1998–2003) (Dexter & Murray 2009), a research project in which landscape-scale fox-baiting protocols were tested, refined, and applied operationally across several large areas of public forest (i.e. areas greater than 10,000 hectares) in the region.

Populations of several species of native mammals known to be preyed upon by foxes were monitored; these demonstrated a significant increase following fox control. These species included the threatened Long-nosed Potoroo and Southern Brown Bandicoot, as well as the more abundant Common Brush-tailed Possum. The results of Project Deliverance formed the basis for the Southern Ark project, which began in 2004.

Southern Ark operates across the entire eastern ‘wedge’ of Victoria, from the Snowy River valley to Cape Howe. It assists the recovery of multiple species across nearly one million hectares of State forest, national parks and private land. The recovery of both rare and more common species due to the reduction in the predation pressure from foxes has also led to the reinvigoration of the multiple ecosystem processes that these species are involved in, including soil aeration, the dispersal of critically important symbiotic hypogeal (underground) fungi, the breakdown in leaf litter and nutrient recycling, the reduction in fine fuels on the forest floor, and pollination and seed dispersal.

The Southern Ark project is funded by the Victorian Government through the Weeds and Pests on Public Land Program. This project is helping to ensure that Victoria’s biodiversity is healthy, valued and actively cared for and is aligned with the implementation of *Biodiversity 2037*.

Key achievements from this project include:

* Around 30,000 baits have been laid over 15 years.
* Long-footed Potoroos have been detected at over 200 new locations during the first round of camera-trap monitoring.
* It features one of the largest camera-trapping programs in Australia, with over 720 sites monitored for over five weeks each.
* Potoroos, bandicoots and possums all responded positively to fox control.
* Brush-tailed Rock-wallabies are recovering due to active management and fox control.
* Community groups, school students and university students have all been involved in its delivery.

The project[[8]](#footnote-8) is delivered by DELWP in partnership with Parks Victoria, a wide range of local private landholders and Moogji Aboriginal Council.

**National estate values**

National estate values in the RFA Act refer to the aesthetic, historic, scientific, social significance or other values [[9]](#footnote-9)of places that form part of the natural or cultural environment of Australia that make those places of significance or special value to current and future generations. National estate values are protected and managed through implementation of the CAR reserve system and the application of the Victorian forest management system.

The term ‘national estate’ refers to places defined in s. 4 of the repealed *Australian Heritage Commission Act 1975* (Cth) (AHC Act). After the signing of the five Victorian RFAs, the *AHC* *Act* was repealedand the Register of the National Estate was phased out*.* As a consequence, the RFAs do not reflect the current system of heritage protection under theEPBC Act through the National and Commonwealth Heritage Listsandthe *Australian Heritage Council Act 2003* (Cth).

The National Heritage List is a list of places with outstanding natural, Indigenous or historic heritage value to the nation. The Commonwealth Heritage List is a list of Indigenous, historic and natural heritage places owned or controlled by the Australian Government. There are 13 places on the National Heritage List and 17 places on the Commonwealth Heritage List within the Victorian RFA regions[[10]](#footnote-10) (Table 19 and Table 20).

For the past 20 years, the forest management system has provided for the protection of national heritage values of National Heritage places in accordance with National Heritage management principles.[[11]](#footnote-11)

**Changes to national legislation**

*Closure of the Register of the National Estate*

After the Victorian RFAs were signed between 1997 and 2000, a new system of national heritage protection was introduced. The Register of the National Estate was a national list of places of natural, historic and Indigenous significance. Each site was identified under the repealed AHC Act and the EPBC Act. The register was maintained by the Australian Heritage Commission and later the Australian Government between 1975 and 2007.

In 1997, the Council of Australian Governments agreed that it was more appropriate for heritage listing and protection to be the responsibility of the government agencies that were best placed to deliver agreed outcomes. As a result, the AHC Actwas repealed andthe Register of the National Estate was phased out as a statutory list.

The register was frozen in 2007 and ceased to be a recognised statutory list in February 2012. The Register of the National Estate is maintained on a non-statutory basis as a publicly available archive of information on more than 13,000 places throughout Australia. This list can be publicly accessed on the Australian Heritage Database.[[12]](#footnote-12)

*A new national heritage system*

The expiration and repeal of parts of the EPBC Act and the AHC relating to the Register of National Estate did not diminish protection of Commonwealth heritage places. These parts were superseded by stronger ongoing heritage protection provisions under national environment law.

National estate values are now managed through a combination of the National and Commonwealth Heritage Lists, the Victorian Heritage Register and the Heritage Codes of local planning schemes.The National Heritage List includes places of outstanding heritage value to the nation, and the Commonwealth Heritage List includes heritage places owned or controlled by the Commonwealth.

*Commonwealth and National Heritage List assessment*

Anyone can nominate a place with significant or outstanding heritage values for the Commonwealth or National Heritage List. The Australian Heritage Council assesses the values of nominated places against set criteria and makes recommendations to the Minister for the Environment about listing. There are two key tools used to assess Commonwealth and National Heritage List nominations: criteria and thresholds. To reach the threshold for the National Heritage List, a place must have ’outstanding’ heritage value to the nation. This means that it must be important to the Australian community as a whole. The threshold for inclusion on the Commonwealth Heritage List is local heritage significance.

**Victorian legislation to protect national estate values**

*Heritage Act 2017*

The *Heritage Act 2017* is administered by Heritage Victoria and is Victoria’s main cultural heritage legislation. The Act identifies and protects heritage places and objects that are of state-level cultural heritage significance to Victoria, including:

* archaeological sites and artefacts
* historic buildings, structures and precincts
* gardens, trees and cemeteries
* cultural landscapes
* shipwrecks and artefacts
* significant objects.

The Act establishes the Victorian Heritage Register, the Heritage Inventory and the Heritage Council of Victoria. It also establishes a legislative framework for heritage protection in Victoria, replacing the *Heritage Act 1995*, *Historic Buildings Act 1981*, *Historic Shipwrecks Act 1981* and part of the *Archaeological and Aboriginal Relics Preservation Act 1971*.

The Victorian Heritage Register is a database of places and objects that are of particular importance to the people of Victoria and that may be valued by particular social groups. The Heritage Council of Victoria is responsible for determining which places and objects are added to the database.

*Aboriginal Heritage Act 2006*

The *Aboriginal Heritage Act 2006* (AHA) recognises Aboriginal people as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage, and links the protection of Aboriginal cultural heritage in Victoria with planning and land development processes. The AHA replaced Part IIA of the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* and the Victorian *Archaeological and Aboriginal Relics Preservation Act 1972*.

The AHA also provides the mechanism through which Registered Aboriginal Parties (RAPs) are appointed. RAPs are organisations that represent Traditional Owners of the area for which the RAP has been appointed and hold decision-making responsibilities under the AHA for the protection, management and preservation of Aboriginal cultural heritage in these areas.

Section 148 of the AHA outlines the functions of a RAP:

(a) to act as a primary source of advice and knowledge for the Minister, Secretary and Council on matters relating to Aboriginal places located in or Aboriginal objects originating from the area for which the party is registered;

(b) to advise the Minister regarding, and to negotiate, the repatriation of Aboriginal cultural heritage that relates to the area for which the party is registered;

(c) to consider and advise on applications for cultural heritage permits;

(d) to evaluate and approve or refuse to approve cultural heritage management plans that relate to the area for which the party is registered;

(e) to enter into cultural heritage agreements;

(f) to apply for interim and ongoing protection declarations;

(g) to carry out any other functions conferred on registered Aboriginal parties by or under this Act.

The *Aboriginal Heritage Regulations 2018* give effect to the Act, outlining the standards, procedures and fees for proposing an activity or development in an area of cultural heritage sensitivity.

**Indicator 6.4b: Registered places of non-Indigenous cultural value in forests that are formally managed to protect those values**

This indicator measures and monitors management regimes for non-Indigenous cultural values, such as historical, research, education, aesthetic and social heritage values. Indigenous cultural heritage values are considered under indicators 6.4a, 6.4c and 6.4d, elsewhere in this document.

Within the Victorian RFA regions there are 13 places registered on the National Heritage List and 17 places on the Commonwealth Heritage List. Figure 3 shows the locations of the listed National and Commonwealth Heritage places in the Victorian RFA regions.

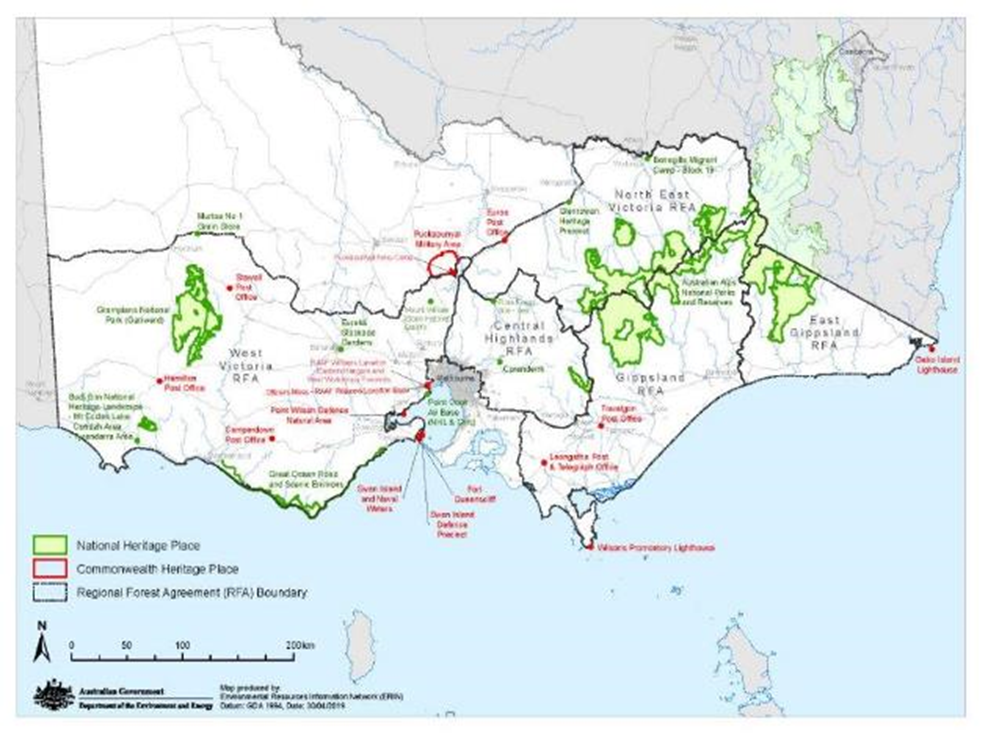


Figure 3: Locations of National Heritage and Commonwealth Heritage listed places within Victorian RFA regions, 2019

Source: DoEE 2019a

Across the Victorian RFA regions, approximately 1 million hectares of forested land is on sites classified as non-Indigenous Heritage Sites of Victoria. These are largely in the Alpine National Park and Grampians National Park. The cultural values of these sites are protected through state and Commonwealth legislation. Many of the National Heritage places (Figure 3) include forested areas and are managed to protect cultural and natural values by being in national parks, reserves and protected areas. Table 19 provides a list of locations added to the register since 2004.

Table 19: Victorian National Heritage List places

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | RFA regiona | Listing date |
| Australian Alps National Parks and Reserves | Natural | CH, EG, G, NE | 07/11/2008 |
| Bonegilla Migrant Camp – Block 19 | Historic | NE | 07/12/2007 |
| Budj Bim National Heritage Landscape –  Mt Eccles Lake Condah Area | Indigenous | W | 20/07/2004 |
| Budj Bim National Heritage Landscape –  Tyrendarra Area | Indigenous | W | 20/07/2004 |
| Coranderrk | Indigenous | CH | 07/06/2011 |
| Eureka Stockade Gardens | Historic | W | 08/12/2004 |
| Flora Fossil Site – Yea | Natural | CH, NE | 11/01/2007 |
| Glenrowan Heritage Precinct | Historic | NE | 05/07/2005 |
| Grampians National Park (Gariwerd) | Natural | W | 15/12/2006 |
| Great Ocean Road and Scenic Environs | Historic | W | 07/04/2011 |
| Mount William Stone Hatchet Quarry | Indigenous | W | 25/02/2008 |
| Murtoa No 1 Grain Store | Historic | W | 01/10/2014 |
| Point Cook Air Base | Historic | W | 31/10/2007 |

a RFA regions: CH – Central Highlands, EG – East Gippsland, G – Gippsland, NE – North East, W – West.

Table 20: Victorian Commonwealth Heritage List places

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | RFA regiona | Listing date |
| Camperdown Post Office | Historic | W | 08/11/2011 |
| Euroa Post Office | Historic | NE | 22/08/2012 |
| Fort Queenscliff | Historic | W | 22/06/2004 |
| Gabo Island Lighthouse | Historic | EG | 22/06/2004 |
| Hamilton Post Office | Historic | W | 08/11/2011 |
| Leongatha Post & Telegraph Office | Historic | G | 22/06/2004 |
| Officers Mess – RAAF Williams Laverton Base | Historic | W | 22/06/2004 |
| Point Cook Air Base | Historic | W | 26/06/2004 |
| Point Wilson Defence Natural Area | Natural | W | 22/06/2004 |
| Puckapunyal Army Camp | Historic | W | 22/06/2004 |
| Puckapunyal Military Area | Natural | W | 22/06/2004 |
| RAAF Williams Laverton – Eastern Hangers and West Workshops Precincts | Historic | W | 14/09/2009 |
| Stawell Post Office | Historic | W | 22/06/2004 |
| Swan Island and Naval Waters | Natural | W | 22/06/2004 |
| Swan Island Defence Precinct | Historic | W | 22/06/2004 |
| Traralgon Post Office | Historic | G | 08/11/2011 |
| Wilsons Promontory Lighthouse | Historic | G | 22/06/2004 |

a RFA Regions: CH – Central Highlands, EG – East Gippsland, G – Gippsland, NE – North East, W – West.

Victoria’s (non-Indigenous) heritage assets are listed in the Victorian Heritage Register[[13]](#footnote-13) and Heritage Inventory database. Those assets occurring in RFA regions are listed in Table 21.

Table 21: Number of Historic places, according to type across RFA regions

| Historic place type | No. of historic places | RFA region |
| --- | --- | --- |
| Air Transport | 1 | Gippsland |
| 3 | Central Highlands |
| 1 | North East |
| 3 | West |
| Cemeteries and Burial Sites | 21 | East Gippsland | |
| 34 | Gippsland | |
| 24 | Central Highlands | |
| 9 | North East | |
| 111 | West | |
| Community Facilities | 2 | East Gippsland |
| 1 | Gippsland |
| 4 | Central Highlands |
| 92 | West |
| Education | 3 | East Gippsland | |
| 16 | Gippsland | |
| 16 | Central Highlands | |
| 3 | North East | |
| 118 | West | |
| Exploration Survey Events | 39 | East Gippsland |
| 5 | Gippsland |
| 2 | Central Highlands |
| 3 | North East |
| 14 | West |
| Farming and Grazing | 21 | East Gippsland | |
| 92 | Gippsland | |
| 45 | Central Highlands | |
| 87 | North East | |
| 44 | West | |
| Finance | 1 | West |
| Forestry and Timber | 39 | East Gippsland | |
| 125 | Gippsland | |
| 1,006 | Central Highlands | |
| 88 | North East | |
| 323 | West | |
| Government and Administration | 2 | East Gippsland |
| 1 | North East |
| 16 | West |
| Health Services | 13 | West | |
| Hotels and Motor Inns | 2 | East Gippsland |
| 24 | Gippsland |
| 27 | Central Highlands |
| 12 | North East |
| 5 | West |
| Indigenous | 5 | West | |
| Landscape | 3 | Central Highlands |
| 16 | West |
| Law and Enforcement | 3 | Gippsland | |
| 6 | Central Highlands | |
| 11 | North East | |
| 51 | West | |
| Manufacturing and Processing | 2 | East Gippsland |
| 1 | Gippsland |
| 2 | Central Highlands |
| 1 | North East |
| 4 | West |
| Maritime Industry | 1 | East Gippsland | |
| 5 | Gippsland | |
| 25 | West | |
| Military | 8 | East Gippsland |
| 5 | Gippsland |
| 3 | Central Highlands |
| 2 | West |
| Mining and Mineral Processing | 56 | East Gippsland | |
| 514 | Gippsland | |
| 524 | Central Highlands | |
| 439 | North East | |
| 588 | West | |
| Monuments and Memorials | 1 | East Gippsland |
| 7 | Gippsland |
| 10 | Central Highlands |
| 4 | North East |
| 153 | West |
| Parks, Gardens and Trees | 4 | East Gippsland | |
| 7 | Gippsland | |
| 10 | Central Highlands | |
| 5 | North East | |
| 23 | West | |
| Postal and Telecommunication | 1 | East Gippsland |
| 2 | Gippsland |
| 1 | Central Highlands |
| 1 | West |
| Public Utilities | 4 | East Gippsland | |
| 3 | Gippsland | |
| 35 | Central Highlands | |
| 15 | North East | |
| 13 | West | |
| Rail Transport | 18 | East Gippsland |
| 3 | Gippsland |
| 26 | Central Highlands |
| 25 | North East |
| 77 | West |
| Recreation and Entertainment | 2 | East Gippsland | |
| 35 | Gippsland | |
| 9 | Central Highlands | |
| 44 | North East | |
| 99 | West | |
| Religious | 3 | Central Highlands |
| 6 | West |
| Residential | 4 | East Gippsland | |
| 132 | Gippsland | |
| 120 | Central Highlands | |
| 32 | North East | |
| 38 | West | |
| Retail and Wholesale | 2 | Gippsland |
| 11 | Central Highlands |
| 3 | North East |
| 21 | West |
| Road Transport | 16 | East Gippsland | |
| 13 | Gippsland | |
| 14 | Central Highlands | |
| 7 | North East | |
| 84 | West | |
| Scientific Facilities | 1 | East Gippsland |
| 2 | Central Highlands |
| 3 | West |
| Shipwrecks | 16 | East Gippsland | |
| 5 | Gippsland | |
| 14 | West | |
| Unspecified | 1 | Gippsland |
| 1 | Central Highlands |
| 3 | North East |
| 49 | West |
| Water Transport | 6 | East Gippsland | |
| 7 | Gippsland | |
| 1 | Central Highlands | |
| 73 | West | |

Source: Victorian Heritage Register and Heritage Inventory database (accessed May 2019).

*Case study: a vision for the future at Lake Condah*

Budj Bim is one of the large-scale restoration projects in Victoria made possible through the Victorian Government’s $222 million investment into waterway and catchment health. The Budj Bim National Heritage Landscape was created by volcanic lava flow and is sacred to the Gunditjmara people. It extends from Budj Bim (formerly Mt Eccles) to the ocean and encompasses a series of waterways including Lake Condah and the Fitzroy River.

Lake Condah, or Tae Rak, as it is traditionally known, is part of the Budj Bim National Heritage Landscape listed in 2004. The Gunditjmara people likened the seasonal rising and falling of water in Tae Rak to the beating heart of the Budj Bim landscape. The stone eel-trap systems used by the Gunditjmara for thousands of years are the oldest example of freshwater aquaculture in the world. This had allowed the landscape to be recognised as an internationally significant site.

The construction of a rural drainage scheme in 1954 damaged this culturally important place. After many attempts to restore this landscape, spanning 40 years, a weir constructed in 2010 rehabilitated the lake. This helped to bring healing to the Gunditjmara cultural values of the Budj Bim landscape. A key part of the weir construction was the promotion of Aboriginal employment. The Australian Government provided resources to support the employment of local Gunditjmara and other Aboriginal and Torres Strait Islander people on the construction team. Training was also provided to local Budj Bim rangers to manage the land around the lake. Reactivation of the eel-trap systems now provides commercial opportunities along the Budj Bim landscape and at Lake Condah through cultural tourism. The Traditional Owners have expressed plans to build an eel-processing facility for a dual economic and educational purpose.

The Gunditj Mirring Traditional Owners Aboriginal Corporation has succeeded in getting the Budj Bim Cultural Landscape, of which Lake Condah is a part, recognised by UNESCO’s World Heritage Register. Budj Bim Cultural Landscape, located in the West Victoria RFA region, was inscribed on the World Heritage List on 6 July 2019; this is the first time an Australian site has been recognised exclusively for its Aboriginal cultural values.

**World Heritage values**

There is one World Heritage property located within the Victorian RFA regions: Budj Bim Cultural Landscape, located in the West Victoria RFA region. Budj Bim will be discussed in more detail later in this section. The only other World Heritage property located in Victoria, the Royal Exhibition Building and Carlton Gardens, is not located within any of the Victorian RFA regions.

The Victorian and Australian governments cooperatively manage World Heritage properties in accordance with EPBC Act regulations and in line with the Australian World Heritage Intergovernmental Agreement. They have statements of Outstanding Universal Value that describe the listed World Heritage values of each property. They also have comprehensive management/strategic plans that provide broad management principles for the area and establish the framework for the integrated management, protection, interpretation and monitoring of the properties.

World Heritage properties are managed separately from processes put in place by the Victorian RFAs and are protected by Part 3 of the EPBC Act. The Australian and Victorian governments will continue to participate in the assessment and protection of any future World Heritage places consistent with the Australian World Heritage Intergovernmental Agreement.

Natural and cultural heritage, which contribute to the concept of World Heritage values, are protected and managed through the implementation of the CAR reserve system and application of the Victorian forest management system.

**Legislative protection of World Heritage values**

The Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) (1972) establishes a list of places that have natural and/or cultural values of outstanding global significance. As a signatory to the convention, Australia has an obligation to identify, protect and conserve places on the World Heritage List (DoEE 2018).

Under the EPBC Act, World Heritage properties are MNES. The EPBC Act therefore provides protection for World Heritage properties by ensuring that an assessment process is undertaken for proposed actions (including forestry operations) that will, or are likely to, have a significant impact on the World Heritage values of a declared World Heritage property. This process allows the Commonwealth Minister for the Environment to grant or refuse approval to take an action, and to impose conditions on the taking of an action, within a World Heritage property. The EPBC Act also provides for the preparation of management plans which set out the significant heritage aspects of the place and detail how the values of the site will be managed.

The exemption of forestry operations in RFAs from Commonwealth assessment and approval requirements under section 38 of the EPBC Act does not apply to operations within World Heritage properties or Ramsar wetland sites[[14]](#footnote-14).

**World Heritage listing**

To be inscribed on the World Heritage List, properties must demonstrate outstanding universal value and meet at least one of the 10 selection criteria. These criteria are based on cultural heritage and natural heritage as defined in the World Heritage Convention.

Only the Australian Government can nominate Australian places for inclusion on the World Heritage List. The World Heritage Committee assesses nominated places against the set criteria and makes the final decision as to the places that are included on the World Heritage List.

*Budj Bim Cultural Landscape*

The Budj Bim Cultural Landscape is located in the traditional Country of the Gunditjmara Aboriginal people in south-eastern Australia (Figure 4). It was inscribed on the World Heritage List on 6 July 2019. The Budj Bim Cultural Landscape incorporates intact and outstanding examples of the largest Gunditjmara aquaculture complexes and a representative selection of the most significant and best-preserved smaller structures. These include complexes at Tae Rak (Lake Condah), Tyrendarra and Kurtonitj. Each complex includes all the physical elements of the system (that is, channels, weirs, dams and ponds) that demonstrate the operation of Gunditjmara aquaculture. The property also includes Budj Bim, a Gunditjmara Ancestral Being and volcano that is the source of the lava flow on which the aquaculture system is constructed.

All of the Budj Bim Cultural Landscape is Aboriginal-owned and/or managed and is administered to respect the customary and legal rights and obligations of the Gunditjmara Traditional Owners.



Figure 4: Budj Bim Cultural Landscape

Source: DoEE 2019

1. MOG is the acronym for Modelled Old Growth. The Modelled Old Growth spatial layer in the corporate data library is also named MOG. [↑](#footnote-ref-1)
2. Eucalypts can broadly be categorised into ’Sprouter Forests’ and ‘‘Obligate Seeders’. The former responds to fire by sprouting epicormic shoots, are associated with mixed species forest, and are generally more tolerant of fire. [↑](#footnote-ref-2)
3. The full NFPS definition is:

   land that, together with its plant and animal communities, is in a state that has not been substantially modified by, and is remote from, the influences of European settlement or is capable of being restored to such a state; is of sufficient size to make its maintenance in such a state feasible; and is capable of providing opportunities for solitude and self-reliant recreation.

   (Commonwealth of Australia 1995, p. v [Glossary]) [↑](#footnote-ref-3)
4. https://www.environment.gov.au/land/nrs/science/capad [↑](#footnote-ref-4)
5. ‘Change in suitable habitat’ (CSH) is a measure for estimating the benefit to a species or suite of species present at a location from a specific management action or in-action. It is a composite measure, which reflects how the quality as well as the extent of habitat will improve over a 50-year timeframe. It is a key metric used within the Victorian Government’s Strategic Management Prospects (SMP) tool - a decision-support tool that uses spatial models on species distributions, information on key biodiversity threats, cost information for key management actions which address those threats and expert elicited response models for thousands of species to different management actions. [↑](#footnote-ref-5)
6. <https://www.environment.vic.gov.au/biodiversity/biodiversity-response-planning> [↑](#footnote-ref-6)
7. Refers to flora species listed as rare or threatened under FFG Act, Endangered Species Protection Act 1992 (Cth), Victorian Rare or Threatened Species list for plants (VROTs), and Victorian Rare or Threatened Australian Plants (ROTAP). [↑](#footnote-ref-7)
8. More information on this project or the Weeds and Pests on Public Land Program is available at [www.environment.vic.gov.au/weeds-and-pests](http://www.environment.vic.gov.,au/weeds-and-pests). [↑](#footnote-ref-8)
9. See the criteria evaluated for listing on the National Estate <https://www.environment.gov.au/system/files/resources/8b50f335-42e8-4599-b5e0-ac643f75475f/files/nhl-guidelines.pdf> [↑](#footnote-ref-9)
10. More information on these listing can be found at http://www.environment.gov.au/heritage/heritage-places. [↑](#footnote-ref-10)
11. See <https://www.environment.gov.au/heritage/about/national/managing-national-heritage-places> [↑](#footnote-ref-11)
12. See <https://www.environment.gov.au/heritage/publications/australian-heritage-database> [↑](#footnote-ref-12)
13. See <https://heritagecouncil.vic.gov.au/heritage-protection/levels-of-protection/> [↑](#footnote-ref-13)
14. See section 42 of the EPBC Act. [↑](#footnote-ref-14)