Biodiversity data, models and indicators for Forestry Tasmania's Forest Management Unit

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1. INTRODUCTION

Forestry Tasmania (FT) is seeking Forest Stewardship Council (FSC) certification of land it manages in Tasmania. FT contracted Natural Resource Planning Pty Ltd (NRP) to prepare a Regional Ecosystem Model (REM) and other biodiversity data and indicators as part of a range of inputs to assessment of High Conservation Value (HCV) forests within its area.

The FSC system provides for certification of Forest Management for eligible areas and designation of Controlled Wood status in areas ineligible for Forest Management certification. Ineligible areas generally are plantations that have been created from areas of native forests converted to plantations since 1994. Eligible areas are those that are under the direct management control of the entity seeking certification.

The FSC requires that both Forest Management and Controlled Wood are assessed in a designated Forest Management Unit (FMU). The FMU for which the data described in this report is contained within the Permanent Timber Production Zone (PTPZ) land is land managed by Forestry Tasmania under the *Tasmanian Forests Agreement Act 2013*.

This report describes biodiversity data, models and indicators developed by NRP as an input to FT for use in the FSC assessment. Two categories of data are described:

- Standard data products from NRP's Regional Ecosystem Model process; and
- A range of additional data and indicators identified by FT as inputs for the assessment of HCVs.

The REM is a comprehensive system for the spatial integration and analysis of biodiversity data. It was originally developed for use in rural property management but has since been widely used for forest management, particularly in relation to FSC requirements, in local government planning, by private landowners and by NRM bodies. The process of identifying the issues to be incorporated in the REM is described in Knight and Cullen (2009[1]). The development of the technical specifications for the REM is described in Knight and Cullen (2010[2]). It should be noted that some amendments to the specifications have been made since the initial publication, and are detailed herein.

The REM is relevant to only a subset of the FSC HCVs. The REM does not of itself identify HCVs. However, it provides a comprehensive, systematic and transparent database on a wide range of biodiversity attributes, and can be used to assist in the identification of values, thresholds and areas of HCV forests.

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[1] Knight, R.I. & Cullen, P.J. (2009). A review of strategies for planning & management of the natural resources of biodiversity, freshwater, land & soils in the Tasmanian midlands. A report of the Caring for Our Country project 'Using landscape ecology to prioritise property management actions in Tasmania'. Natural Resource Planning, Hobart, Tasmania.
http://www.naturalresourceplanning.com.au/assets/LandscapeEcology_StratReview_v1-1lr.pdf

[2] Knight, R.I. & Cullen, P.J. (2010). Specifications for a Regional Ecosystem Model of natural resources in the Tasmanian Midlands. A report of the Caring for Our Country Project 'Using landscape ecology to prioritise property management actions in Tasmania'. Natural Resource Planning, Hobart, Tasmania.
http://www.naturalresourceplanning.com.au/assets/REM_specifications_v1-0.pdf

To assist in determining appropriate thresholds and delineation of HCV areas, a number of additional indicators were identified by FT as needing to be developed for this version of the REM. These indicators provide further interpretation of the base REM results to address specific HCVs. These values are defined generally under the FSC system and specifically in the FSC Australia (2013[3]) evaluation framework for HCVs. The indicators described herein are primarily relevant to HCVs 1 (significant concentrations of biodiversity values) and 3 (threatened ecosystems).

This report describes the development of the REM for the FMU. It identifies:

- The conceptual structure of the REM;
- The spatial architecture on which the REM is constructed;
- Data inputs for generating the REM; and
- Rule sets and specifications for deriving REM indicators, both standard and as developed specifically for FT.

[3] FSC Australia (2013). High Conservation Values (HCVs) evaluation framework for use in the context of implementing FSC certification to the FSC Principles and Criteria & Controlled Wood standards. Version 3.4, March 2013, FSC Australia, Melbourne. http://www.fscaustralia.org/sites/default/files/Australia%20HCV%20Framework%20Final%203-4.pdf

2. BACKGROUND TO THE REGIONAL ECOSYSTEM MODEL

The REM is a comprehensive system for:

- Integrating spatial data on the distribution of the major components of biodiversity, and the factors affecting them;
- Analysing the relationships among the components of biodiversity and the environment; and
- Spatially identifying areas which have immediate or potential conservation concerns, and providing indicators of their relative importance, to inform approaches and priorities for management.

The REM was originally developed with funding from the Australian Government's Caring for Our Country program. The initial aim in developing the REM was for it to assist in prioritising property management actions in the Tasmanian Midlands, with a view to delivering effective management of terrestrial biodiversity, freshwater aquatic ecosystems and land and soil resources.

The Australian Government has continued its investment in projects that are using the REM to deliver biodiversity outcomes. At the time of writing four projects comprising total funding of ~$1.3M have or are being undertaken. These projects have used the REM for a range of purposes, including property management planning and prioritisation, identifying priority areas for management intervention to secure important biodiversity values, and revegetation and rehabilitation works designed to secure and improve the ecological functioning of the landscape.

The REM involves a comprehensive and systematic approach to planning for biodiversity management, and so has also been used for a range of purposes beyond its original intent. These include in local government planning, with various aspects of the REM developed for Clarence, Kingborough and Huon Valley Councils, and also for forestry companies involved in FSC certification of their management (e.g. Gunns, Norske-Skog and PF Olsen).

There are eight major processes involved in development and maintenance of the REM. Each of these processes needs to be undertaken in a structured and logically consistent manner in order to produce meaningful and useful outputs capable of supporting responsible biodiversity management. Table 1 provides a summary of each of the major processes of the REM.

More detailed specifications for the REM, including decision rules and prioritisation matrices, are presented in Section 3.

Table 1. Major processes of the Regional Ecosystem Model

REM process	Brief description
1. Strategy review	Systematic review of major strategy documents setting scope of biodiversity priorities. Summaries of major scientific themes associated with each Issue. Outputs: Classification into biodiversity 'Issues'.
2. REM specifications	Inherits list of Issues from strategy review. Issues reviewed for confounding, logical consistency and data availability. Outputs: Hierarchical organisation of biodiversity Issues. Prioritisation schemae for each Issue. Integration schemae for biodiversity hierarchy.
3. Standardised spatial architecture	Statewide coverages of hexagons at 0.25 ha and 0.1 ha scales. Centroids of hexagons (i.e. points) used as the spatial unit for REM data storage and analysis.
4a. Standard data inputs	Systematic Statewide data covering: • Vegetation primary (e.g. vegetation community) and derived (e.g. patch size) attributes; • Old growth forests; • Eucalypt structural dominance; • Biophysical naturalness; • Hydrologic features; • Predicted mature habitat availability; • CFEV river section catchments; • Land system components mapping; and • Natural Values Atlas threatened and priority species location records.
4b. Custom data inputs	Additional data of higher reliability than standard inputs, where available, for example: • Field based mapping of vegetation, old growth, eucalypt structure and biophysical naturalness; • PI type mapping of vegetation attributes; • Species habitat and location polygons; • Field mapping of watercourse locations.
5. REM construction	Standard rules for generating coverage of area of interest, plus adjoining related areas. GIS scripts to attribute coverage with full set of REM data inputs. Derived attributes generated from inputs using data hierarchy.
6. Generate REM indicators	GIS scripts to generate standard REM indicators and custom REM indicators for project.

REM process	Brief description
7. Spatial data consolidation	Reattribution of REM coverage as polygons (hexagons). Dissolve of reattributed hexagons to produce specific outputs or simplified REM coverage as polygons.
8. Additional HCV indicators	Additional indicators developed specifically for the FT project, as detailed in section 4.

2.1 Strategy review

The foundation of the REM is a systematic review of the major 'strategy documents' guiding natural resource management in Tasmania[4]. The purpose of the strategy review was to provide a systematic classification of Natural Resource Management (NRM) Assets and Issues for use as input to development of the Regional Ecosystem Model. The strategy review was undertaken to address biodiversity, freshwater ecosystems and land and soils; however for the current purpose only biodiversity is discussed.

Strategy documents selected for the review were defined broadly to include policy frameworks, NRM Strategies, Government and non-Government programs, legislation and international agreements. The review addressed 11 strategy documents whose purpose included overarching principles for biodiversity and a number of other documents addressing one or a few issues only.

Each Issue identified from within the reviewed strategy documents was presented as:

- A concise statement of the scope of the Issue;
- A brief discussion of key scientific findings and issues;
- A cross-tabulation of the Issue against indicating the strategy documents which address the Issue; and
- A summary of the main features of the strategy documents identified.

Attachment 1 provides an example of an Issue summary from the strategy review.

Table 2 shows the list of Issues identified in the strategy review and the strategy documents from which they were identified.

[4] Knight & Cullen (2009) *op. cit.*

Table 2. Assets and Issues in the Biodiversity Asset Class, from REM strategy review[5]

Issues	Overarching Documents[6]						Other Documents
	Nat. Cons.	DEW	FPC	NRM Nth	NRM Sth	Tas. Tog.	
Asset: Native Vegetation							
Clearing Bias	Y			Y		Y	• Permanent Forest Estate Policy
Connectivity			Y	Y	Y		• National Biodiversity Strategy
Vegetation Conservation Status	Y	Y		Y	Y	Y	• National Biodiversity Strategy • Tasmanian Salinity Strategy • Permanent Forest Estate Policy • Regional Forest Agreement
Grazing Impacts							• National Biodiversity Strategy • Tasmanian Threatened Species Strategy
Invasive Species	Y	Y	Y	Y	Y	Y	• National Biodiversity Strategy • Tasmanian Threatened Species Strategy • Tasmanian Weed Management Strategy
Old Growth Forest	Y		Y			Y	• National Biodiversity Strategy • Regional Forest Agreement
Pathogens	Y		Y	Y		Y	• National Biodiversity Strategy • Tasmanian Threatened Species Strategy
Remnant Vegetation	Y		Y	Y			• National Biodiversity Strategy • Tasmanian Salinity Strategy • Tasmanian Threatened Species Strategy
Representativeness							• National Biodiversity Strategy

[5] From Knight & Cullen (2009) *op. cit.*, pp13-14.
[6] Nat. Cons. – DPIW Nature Conservation Strategy, DEW – National NRM assets and indicators; FPC – Forest Practices Code; NRM North – NRM North strategy; NRM South – NRM South strategy; Tas. Tog. – Tasmania Together revised benchmarks.

Issues	Overarching Documents[6] Nat. Cons.	DEW	FPC	NRM Nth	NRM Sth	Tas. Tog.	Other Documents
Reservation Status	Y		Y	Y	Y	Y	• National Biodiversity Strategy • Regional Forest Agreement
Riparian Vegetation	Y		Y				• National Biodiversity Strategy
Tree Decline				Y	Y		• Tasmanian Salinity Strategy
Vegetation Condition		Y		Y	Y		• National Biodiversity Strategy • Tasmanian Salinity Strategy • Tasmanian Threatened Species Strategy
Wilderness							• National Biodiversity Strategy • Regional Forest Agreement
Asset: Priority species							
Threatened Species	Y	Y	Y	Y	Y	Y	• National Biodiversity Strategy • Tasmanian Salinity Strategy • Tasmanian Threatened Species Strategy • Regional Forest Agreement
Hollow Dwelling Species	Y		Y				• Regional Forest Agreement
Other Priority Species			Y				• National Biodiversity Strategy • Tasmanian Salinity Strategy • Tasmanian Threatened Species Protection Strategy • Regional Forest Agreement
High Species Diversity			Y				• National Biodiversity Strategy • Regional Forest Agreement

2.2 REM structure and specifications development

The purposes of the REM specifications process are:

- to organise the list of Issues inherited from the strategy review into a logically consistent structure which can be used for generating regional scale models of biodiversity; and
- to derive indicators of relative priorities for consideration of the management needs of each Issue within the model and for groups of Issues forming discrete themes within the model.

The REM specifications were initially developed as part of the original Caring for Our Country project[7] but have been subject to continuing review and modification to reflect better scientific understanding of Issues within the model and perspectives on biodiversity that have arisen as a result of the expansion in geographic coverage, availability of new data, and increased resolution of both the spatial application of the model and its underlying taxonomy.

The REM specifications process follows a standardised format designed to ensure consistency and transparency. Each Issue from the strategy review has been assessed to identify:

- a concise statement of the scope of each Issue;
- issues of logical consistency, relationship to other Issues and confounding;
- whether the Issue would be incorporated explicitly in the REM, or be identified as an Ancillary Issue that may be relevant in particular circumstances;
- relevant indicators and measures for each Issue;
- core assumptions relating to the interpretation of each Issue;
- the availability of spatial data to provide geographic presentation of each Issue;
- data processing methods required to generate spatial representation of each Issue; and
- prioritisation matrices used to assign Level of Concern classes.

Attachment 2 provides an example of the specifications development process, for the same Issue provided as an exemplar from the strategy review.

An important part of the specifications development process is the assignment of Level of Concern classes. Level of Concern uses the same classification as the Conservation Management Priority (CMP) system used in the CFEV project (DPIPW, 2008[8]), with classes ranging from Low through Medium, High and Very High. However, Level of Concern in the REM is considered to be a flag for management needs to be considered, rather than a management priority of itself.

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[7] See Knight and Cullen (2010) *op. cit.*

[8] Department of Primary Industries & Water (2008). Conservation of Freshwater Ecosystems Values (CFEV) project technical report. CFEV program, Department of Primary Industries & Water, Hobart. http://www.dpiw.tas.gov.au/inter.nsf/WebPages/CGRM-7JHVSJ?open

Level of Concern also uses the concept of two different management perspectives that were incorporated into CFEV:

- Immediate – an estimate of the relative priority for immediate management action to address current risk to the natural resource; and
- Potential – an estimate of the relative priority to protect and manage the natural resource from risks which may arise in the future.

A further principle that was applied during the REM specifications process is that thresholds should, wherever possible, be based on precedent uses of the same thresholds. For example, the size thresholds for remnant vegetation provided in Attachment 2 match the classes used in the Comprehensive Regional Assessment for the Regional Forest Agreement[9]. Similarly the classes for different percentages of native riparian vegetation within river section catchments match those used for the CFEV project. In cases where no precedent thresholds could be identified, available data was assessed and classes assigned.

The REM specifications development process resulted in 14 of the Issues from the strategy review being organised into a hierarchical structure with two key facets:

- Biological Significance – the biological attributes of an area that define its relative significance from a conservation science perspective; and
- Landscape Ecological Function – the principal attributes of the landscape that determine its ability to sustain the elements of biodiversity it contains,

Figure 1 shows the conceptual structure of the REM.

Each of the 14 Issues which form the inputs to the REM have associated spatial data sources, rule sets and prioritisation matrices. The matrices combine in a hierarchical fashion so that successively 'higher' levels in the REM can be assessed for integrated Level of Concern indicators of their constituent Issues. Figure 2 shows the prioritisation matrices for each level of the REM. The integration matrix for landscape function is relatively complex and is presented in section 3.1.1.6.

Section 3 contains a detailed description of the data inputs, data hierarchy, prioritisation matrices and specifications of the standard REM developed for this project.

[9] Tasmanian Public Land Use Commission (1997). Tasmania-Commonwealth Regional Forest Agreement background report part H: National Estate report. February 1997, Tasmanian Public Land Use Commission, Hobart.

Figure 1. Conceptual structure of the Regional Ecosystem Model

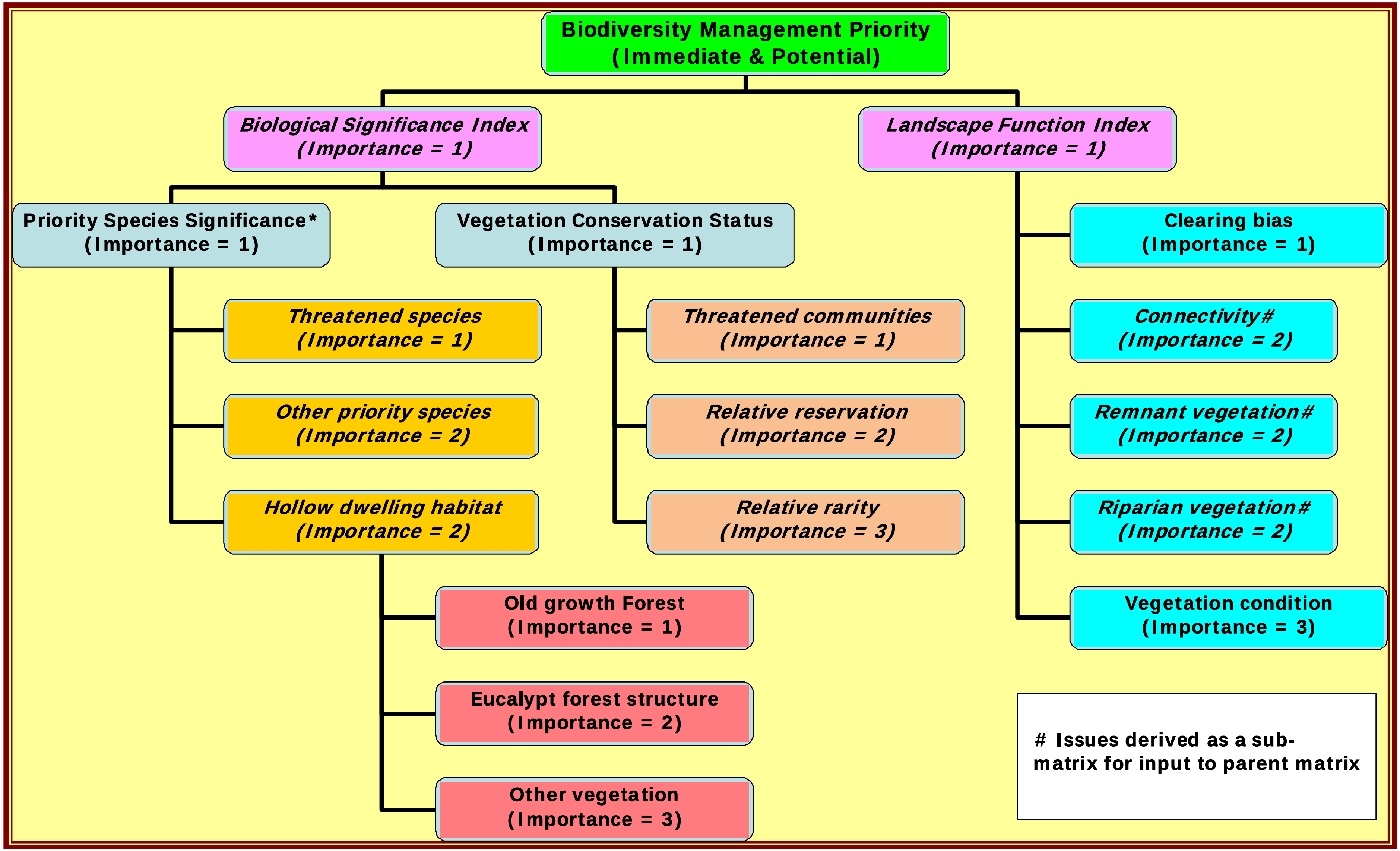


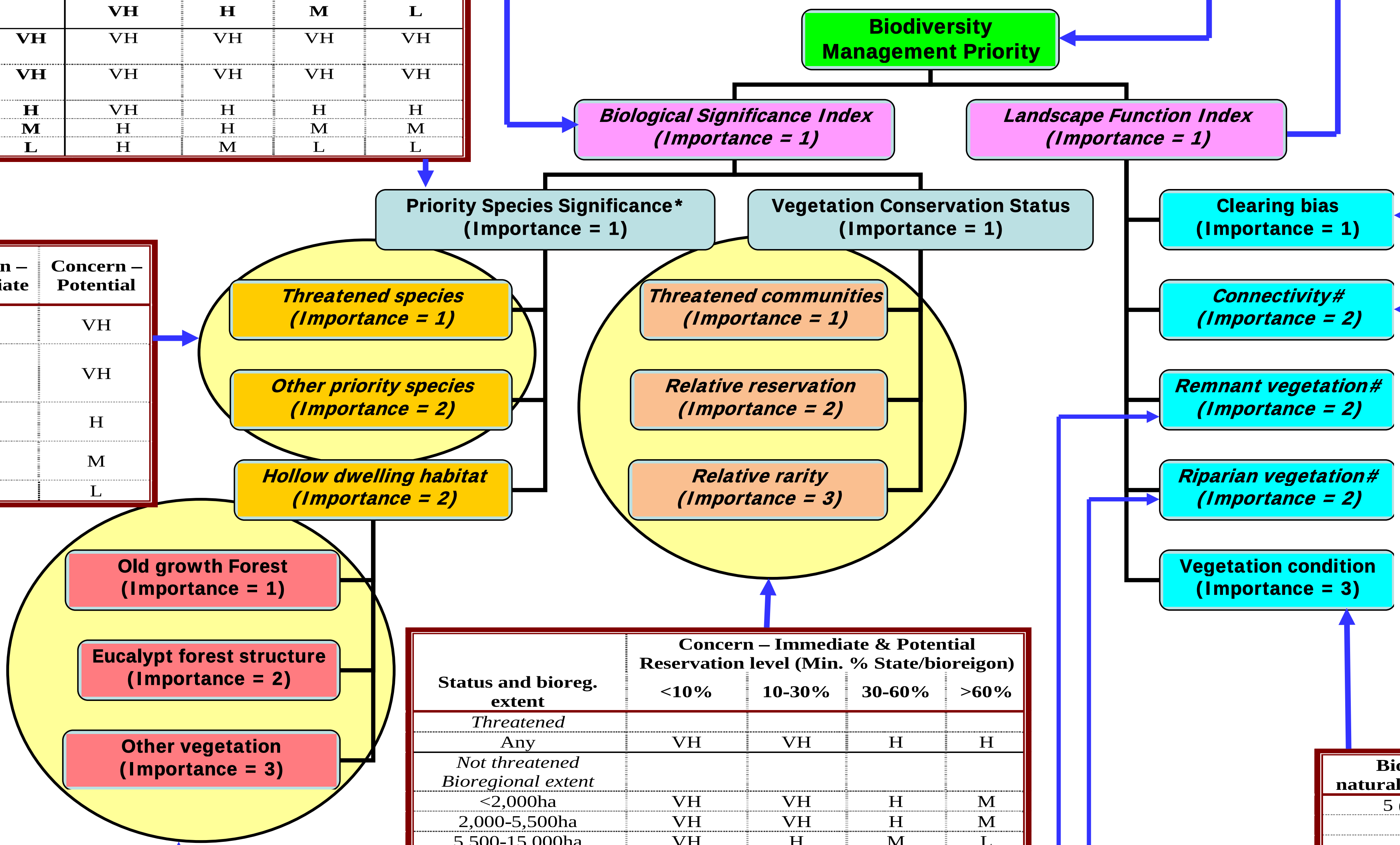
Figure 2. Tasmanian Regional Ecosystem Model Indicators, Content & Prioritisation Matrices

(See section 3.1.1.6 for Landscape Function Integration)

Native Vegetation Index	Priority Species Index VH	H	M	L
VH	VH	VH	VH	VH
H	VH	VH	H	H
M	VH	H	M	M
L	VH	H	M	L

Biological Significance Index	Landscape Function Index VH	H	M	L
VH	VH	VH	VH	VH
H	VH	VH	H	H
M	VH	H	M	M
L	VH	H	M	L

Threatened & Other Priority Species		Hollow Dwelling Species Habitat VH	H	M	L
Two or more listed species	**VH**	VH	VH	VH	VH
Endangered, Critically Endangered	**VH**	VH	VH	VH	VH
Vulnerable, Rare	**H**	VH	H	H	H
Other Priority Species	**M**	H	H	M	M
None	**L**	H	M	L	L



Component Cleared (%)	Concern – Immediate	Concern – Potential
Cleared		
>90%	VH	L
70-90%	H	L
30-70%	M	L
<30%	L	L
Native veg.		
>90%	VH	VH
70-90%	H	H
30-70%	M	M
<30%	L	L

Species category/ attribute	Concern – Immediate	Concern – Potential
Two or more listed species	VH	VH
Endangered, Critically Endangered	VH	VH
Vulnerable, Rare	H	H
Other priority species	M	M
None	L	L

Distance of:	Concern – Immediate	Concern – Potential
Cleared land to native veg.		
<50m	L	L
50-250m	M	L
250-1,000m	H	L
>1,000m	VH	L
Native remnant to non-remnant		
<50m	L	VH
50-250m	M	H
250-1,000m	H	M
>1,000m	VH	L
Non-remnant		
Any	L	L

Status and bioreg. extent	Concern – Immediate & Potential Reservation level (Min. % State/bioregion) <10%	10-30%	30-60%	>60%
Threatened				
Any	VH	VH	H	H
Not threatened Bioregional extent				
<2,000ha	VH	VH	H	M
2,000-5,500ha	VH	VH	H	M
5,500-15,000ha	VH	H	M	L
15,000-55,000ha	H	M	M	L
>55,000ha	M	M	L	L

Biophysical naturalness category	Concern – Immediate	Concern – Potential
5 (highest)	L	VH
4	L	VH
3	M	H
2	H	M
1 (lowest)	VH	M
0 (non-native)	L	L
-1 (water, sand, mud)	na	na

Descriptor of hollow probability (eucalypt forest only)	Concern – Immediate	Concern – Potential
Old growth forest	L	VH
Mature; Predominantly Mature, Some Regrowth	M	H
Predominantly Regrowth, Some Mature	H	M
Regrowth, Silvicultural Regeneration	VH	L
All other vegetation	L	L

Forest Practices Authority - predicted hollow abundance	Concern – Immediate	Concern – Potential
High	L	VH
Medium	M	H
Low	H	M
Not rated	L	L

Native vegetation patch size (ha)	Concern – Immediate	Concern – Potential
<2ha	M	L
2-20ha	VH	VH
20-200ha	H	VH
>200ha	L	M

River section catchment or wetland riparian vegetation (%)	Concern – Immediate	Concern – Potential
<1	VH	L
1-20%	H	VH
20-80%	M	H
>80%	L	M

2.3 REM spatial architecture

The REM integrates large volumes of data from a large number of data sources and a range of different data formats. Parts of the REM process also generate additional data that is created within the REM rather than being sourced from among the inputs. These factors have necessitated development of a spatial architecture for the REM that is capable of meeting complex geoprocessing requirements in an efficient and reliable manner, while also producing outputs that have a spatial accuracy which is useful in planning and management.

The REM architecture is based on overlaying the area of interest with a cell-based GIS layer whose format is interchangeable between vector polygons and points using the ESRI shapefile format. The main elements of the REM architecture and its use are:

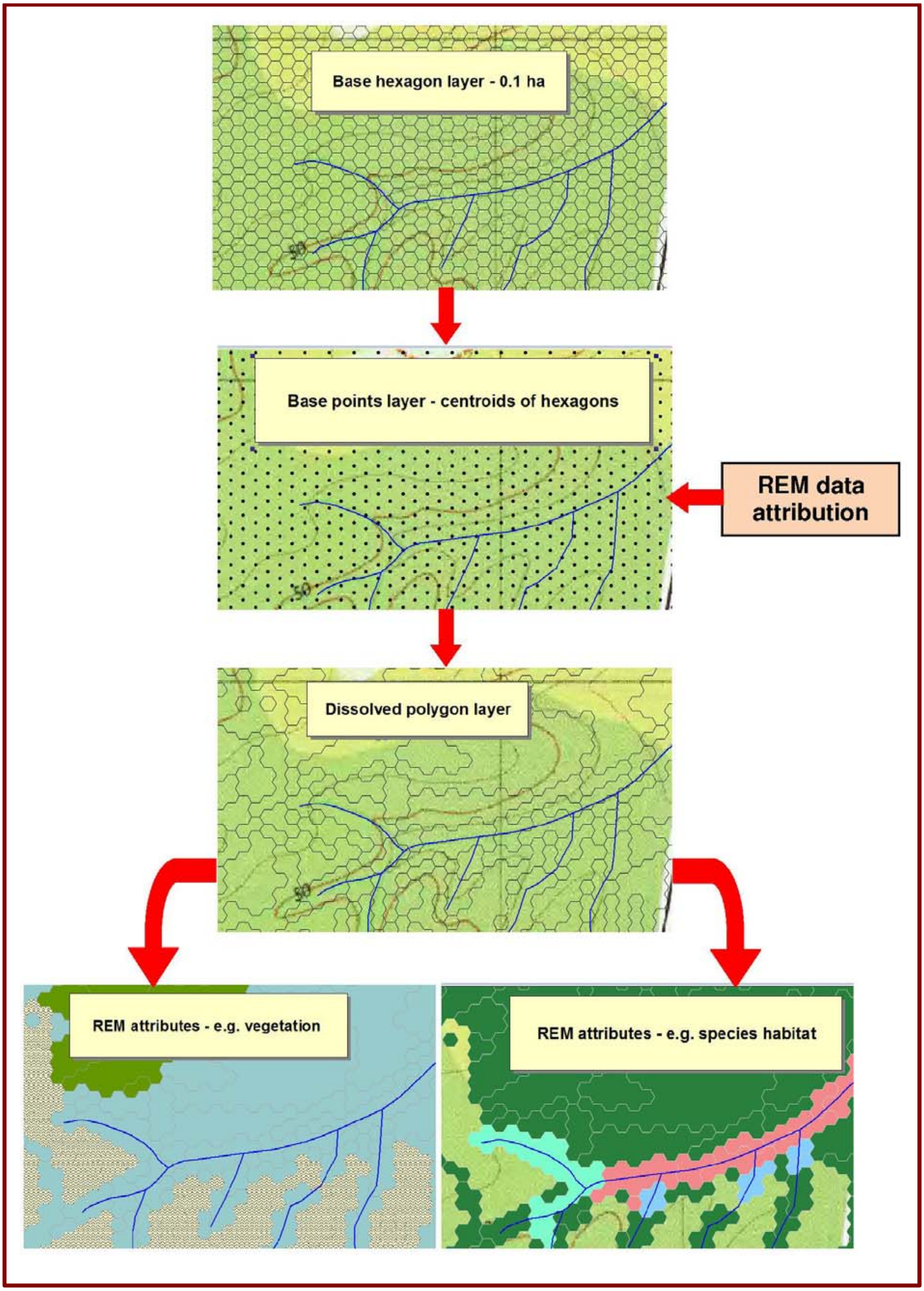
1. The base polygon layer for developing the REM for any area is a Statewide coverage of offset hexagons of 0.1 ha. Due to the large number of polygons involved (~68 million), these are stored as tiles which are edge-matched to have no gaps or overlaps.
2. The centroids of the REM hexagons are stored as a matching set of tiles of vector point Shapefiles and share the same unique Statewide identifier as their parent hexagons. These points are effectively a lattice that 'samples' the entire State approximately every 33 metres.
3. Subsets of the REM point Shapefiles are selected that cover the area for which a REM coverage is to be generated. This can be a single layer or, where the area is large, a set of tiles that are processed separately to achieve efficiency in processing times. The optimal size for tiles is generally less than 1.2 million points, beyond which processing times increase exponentially. In the current case the area was large and geographically dispersed, so 15 tiles were generated and processed separately.
4. The REM is attributed by a series of GIS scripts which populate the point layers with data from the various inputs, and from various combinations of inputs and processes applied within the REM to derive attributes (e.g. species models, various distance-based functions). This is achieved through use of spatial joins, table joins and spatial selections. The method does not involve any geoprocessing, so no slivers, gaps or overlaps are produced. The spatial geometry of vector points is also the simplest it can get, so speed of processing is maximised.
5. As the first stage of converting the REM back to a polygon format, the primary data fields within the REM layer are concatenated to a single field. The standard REM format requires approximately 130 data fields to build the full set of attributes and indicators. The majority of fields within the REM are derived from a smaller number of primary inputs, so each combination of primary data can be used as a 'key' to the full REM which is accessed via lookup tables.
6. The parent hexagons of each REM point are attributed with the concatenated field of primary data, via the unique identifier which is shared between the hexagons and the points.
7. The hexagons are then dissolved on the value of the concatenated field. This creates polygons based on each combination of the primary data, resulting in an 'atomic' structure in which each polygon is internally homogeneous but differs

from each of its neighbours on at least one primary data attribute. Polygons with this characteristic are referred to as Atomic Planning Units (APUs).

8. The full set of REM fields is attached to the dissolved hexagon layer by means of a table join on the concatenated field. This enables the dissolved hexagon layer to be fully attributed with all the REM fields, both primary and derived.
9. The dissolved hexagons layer is then further reduced in size by first imposing a spatial hierarchy of the most accurate or critical of the primary data, then dissolving polygons below a threshold size which share the elements of the hierarchy. In the current case, the vegetation community and riparian zones were considered to be the most accurate components of the model, with the model also considered sensitive to reconfiguration of riparian zones due to their small size. The final REM hexagons layer was therefore produced dissolving all polygons of 0.1 ha (the minimum size) into neighbours which were identical on both their vegetation community and riparian zone attributes (minor rules apply where multiple options are available).

Figure 3 provides a graphical summary of how the spatial architecture is applied.

Figure 3. Simplified REM spatial architecture and process



2.4 REM data sources

The REM uses data from a wide variety of sources to construct its database of primary biodiversity attributes, to derive secondary attributes from the primary inputs, and to generate the REM indicators. The REM uses a standardised set of data sources in its construction, based on them being sources which are readily and continuously available for use.

A number of the standard data sources for the REM are generated from desktop studies, or from combinations of field survey and desktop study. As a result there is variation in their accuracy and reliability.

Logical consistency is a key issue in the REM. Data come from a wide range of sources and can have spatial boundaries which are not coincident with data from other sources on related issues. This gives rise to the possibility of producing derived attributed which are inconsistent with the input data, including 'absurd' possibilities.

All data used within the REM is subject to a strict data hierarchy that ensures logical consistency. The highest level in the hierarchy is the classification of vegetation, primarily from Tasveg. For example, where an input on the presence of old growth forest occurs partly in areas mapped as cleared land, water or non-forest vegetation, the old growth attribute is not assigned in order to maintain logical consistency.

The REM also makes use of definitive fields for some attributes. Definitive fields are REM fields that are derived from multiple inputs to arrive at a determined value for a field using logical rules. For example, the definitive value for biophysical naturalness is a function of a data hierarchy integrating RFA naturalness, field mapped naturalness and FT disturbance class data, along with logical rules relating to the type of vegetation.

A further core principle of the REM is continual improvement in data quality. In practice this means each project for which the REM is constructed includes a review of additional data sources that either may be available outside the standard sources, or may need to be generated (e.g. through field survey).

For the REM described here there were large quantities of spatial data developed and maintained by FT which were identified as able to offer substantial enhancement to the content of the REM, and also improvement in the accuracy and reliability of its inputs, and hence its outputs. The REM was modified to incorporate these data where appropriate.

Attachment 3 provides details of the spatial data sources that were used to generate the REM. Each data source is described by name, content, components of the REM in which it is used, and data custodian. Additional notes are also included where appropriate. Detail on the way in which each of the data sources is used is presented in sections 3 and 4.

2.5 REM construction

The REM is constructed on a shapefile of points, generated as the centroids of hexagons of 0.1 ha area. The spatial extent of the area covered by the REM is always larger than the area of interest. This arises through the need of the REM to recalculate the percentage of native riparian vegetation in each CFEV river section catchment that intersects the area of interest.

In the current case, the area for which the REM was initially generated was the assessment area defined by FT, plus the additional area of any river section catchments intersecting it. The area for which the REM data was developed was 1.134 M ha, of which a subset forms the FT FMU.

The initial base layer of the REM consists of only the points, a unique ID to enable linking to the parent points tile, and a unique ID for the REM tile to be generated. As noted above, the REM is broken down into tiles (n = 15) to keep data processing manageable.

Construction of the REM is controlled by a sequence of GIS scripts. A number of the scripts build on the outputs of earlier scripts in the sequence, so changes to REM rules controlled by lower order scripts generally necessitate rerunning higher order scripts that are affected by the changes.

Attachment 4 provides a summary of each of the scripts in the REM process. The REM for the FMU involved developing a number of custom scripts for indicators to use in HCV identification and thresholding. These are also identified in Attachment 4.

2.6 Generation of REM indicators

Generation of REM indicators is via two GIS scripts which are run after the REM has been constructed and populated with data. The first script generates the standard REM indicators for the Issues identified in Figure 1. The second script generates both data and indicators that were identified for use in the process of identifying and thresholding HCVs.

The GIS indicators are generated through various combinations of lookup tables, spatial selection, and derivation from inputs already contained within the REM. Attachment 4 identifies the REM issues and HCV indicators that were generated. Section 3 provides a detailed breakdown of rule sets, data hierarchies and processing, and lookup tables for the REM indicators. Section 4 provides the same information for the additional HCV indicators identified by FT.

2.7 REM spatial data consolidation

The GIS tiles used to generate the REM are too large to be easily managed as a single GIS layer, and by virtue of being fragmented into tiles can be difficult to manipulate for reporting or analysis. These issues arise largely due to the size of the attribute table and the large number of fields needed to contain the REM data.

Within this large number of fields, however, is a smaller subset of 'primary' data on which the rest of the database is built. This subset of fields was used to consolidate the point-based REM tiles into a single polygon layer. The consolidation was performed by concatenating the values of the primary fields into a single field containing a delimiter to separate the primary inputs. The following fields were used as the basis for the consolidation:

- Definitive (Section 2.4) vegetation community field;
- IBRA bioregional code assigned to the input vegetation polygon;
- Predicted mature eucalypt habitat class;
- Definitive field for vegetation structural type;
- Definitive field for biophysical naturalness;
- Concatenated list of threatened species codes;
- Concatenated list of other priority species codes;
- Clearing bias of the desktop land system component;
- Clearing bias of the automated land system component;
- CFEV river section catchment identifier;
- REM riparian zone attribution (yes/no);
- Contiguous extent of native vegetation;
- Distance class (1-4) of remnant vegetation to non-remnant vegetation; and
- Distance class (1-4) of connectivity through cleared land.

Using the definitive field values for vegetation community, structural type and biophysical naturalness substantially reduces the REM database table size, but also results in the inputs to the definitive fields being lost from the consolidated version. These data are, however, preserved in the original point tiles and can be accessed as needed.

The concatenated field generated through this process was attributed to the parent hexagon of each REM point using a table join on the unique ID of the point, which is identical to that of the parent polygon. The hexagons are then dissolved on the value of the concatenated field to produce a polygon layer with a reduced number of records. Data from the point layer of each REM tile is then added to the consolidated layer by means of a table join, and all remaining fields, excluding the inputs to the definitive fields and data stored for information only (e.g. local government area), added permanently to the layer.

The final stage of the consolidation process is to dissolve small polygons (0.1ha threshold was used) into their most similar neighbours. To achieve this a field combining both the vegetation community code and the riparian zone attribute (yes/no) was added. Polygons of the 0.1 ha threshold size were then dissolved into the neighbour with the longest adjacent border which also had the same combination of vegetation community and riparian zone attribute. Where this condition was not met the polygon was retained at its original size.

Attachment 5 contains metadata for the dissolved spatial layer of the REM.

2.8 Additional HCV indicators

Use of the REM for assessing HCV forests required further processing of the standard REM data. This was undertaken through a process of:

- Identifying HCV criteria which REM data are relevant (current HCV 1 and 3);
- Identifying indicators to inform assessment of aspects of the HCV criteria;
- Developing rule sets to reflect the range of variation within indicators; and
- Spatially attributing the indicators into both the point and consolidated polygon versions of the REM.

Section 4 provides details on the HCV indicators that were developed and the data processing methods used to generate them.

3. REM INDICATOR SPECIFICATIONS FOR THE FOREST MANAGEMENT UNIT

The REM is constructed through a relatively complex set of data inputs, rule sets and lookup tables. This set collectively forms the REM specifications, which are enforced using logical consistency rules and data control procedures during the REM generation process.

The sections which follow present each of the REM Issues in terms of:

- Definition;
- Data inputs;
- Data hierarchy;
- Lookup tables; and
- Prioritisation matrices used to assign REM indicators.

The specifications for the standard REM inputs are presented 'bottom up', i.e. Issues which are lower in the REM structural model (Figure 1) are described first, followed by any integrated indicators which are derived from them. The summaries do not address the rational for inclusion of an Issue in the REM or the research which addresses it. These can be found in the REM strategy review document[10].

The specifications for each of the additional indicators generated for the HCV assessment are described in Section 4.

3.1 Landscape Ecological Function

3.1.1 Biophysical naturalness

Attribute: Biophysical naturalness classes matched to the rules and classes used in the RFA biophysical naturalness mapping.

Data inputs & hierarchy	Definitive field	Attribute classes
1. Field-mapped BN	LF_BN_useZ	-1. Not native vegetation (cleared land types, water, rock sand, mud)
2. BN derived from FT Distrubance13.shp		0. Cleared land types (Tasveg 'F' codes). 1 (lowest) to 5 (highest).
3. BN derived using logical rules where not above		

[10] Knight and Cullen (2009). *op. cit.*

Data processing: Biophysical naturalness from field-mapped sources was considered definitive. Remaining biophysical naturalness was derived by combining FT's updated disturbance classes with vegetation data and RFA BN classes from the Atomic Planning Units data layer (see Attachment 3). Table 3 shows the rule set for updating biophysical naturalness from the various inputs.

Level of Concern matrix:

Biophysical naturalness class	Concern – Immediate	Concern – Potential
5 (highest)	L	VH
4	L	VH
3	M	H
2	H	M
1 (lowest)	VH	M
0 (non-native)	L	L
-1 (water, sand, mud)	na (L)	na (L)

Table 3. Updated biophysical naturalness classes from APUs (RFA-based) and native eucalypt disturbance (PI-based[11])
Note: Schema does not apply where BN has been mapped from field-sources

RFA/APU BN class (where not field mapped):	**5 (highest, native)**	**4**	**3**	**2**	**1 (lowest, native)**	**0 (cleared types)**	**-1 (water, rock, sand, mud)**
Native eucalypt forest disturbance classes (FT data)							
0 = No recorded disturbance. Stand contains no aged regeneration elements (of any species), nor plantation, nor any thinned, fire damaged, or cutover condition code	5	4	3	2	1	0	-1
1 = Some evidence of past disturbance. Non aged non-eucalypt regeneration, or has a condition code of thinned, fire damaged, or cutover.	4	4	3	2	1	0	-1
2 = Moderately disturbed once. Original eucalypt stand elements dominate a single regeneration class (eg following partial logging). Stand contains only one aged regeneration element, which is either the second or third-listed significant element.	3	3	3	2	1	0	-1
3 = Moderately disturbed several times. Original eucalypt stand elements dominate two or more regeneration classes (eg following multiple partial loggings). Stand contains more than one aged regeneration element, of which the first is either the second or third-listed element.	2	2	2	2	1	0	-1
4 = Heavily disturbed. Few remnants of original stand (eg clearfelled, habitat or seed-trees, shelterwood removed, or severe fire). Stand contains one or more aged regeneration elements, of which one is first-listed before other significant eucalypt elements.	2	1	1	1	1	0	-1
5 = Very heavily disturbed. No remnants of original stand (eg clearfelled or severe fire). Stand is either totally unstocked (following logging), or contains one or more aged regeneration element and no other significant eucalypt elements.	1	1	1	1	1	0	-1
6 = Has ceased to be native forest. Converted to plantations, pasture etc. (Note: This rule is controlled by vegetation mapping where not logically consistent).	0	0	0	0	0	0	-1
Other							
Other native vegetation.	5	4	3	2	1	0	-1
Plantations, cleared land types.	0	0	0	0	0	0	-1
Water, rock, sand, mud.	-1	-1	-1	-1	-1	-1	-1

[11] PI = photo-interpretation. For a description see Stone, M.G. (1998). Forest-type mapping by photo-interpretation: A multi-purpose base for Tasmania's forest management. Tasforests, 10:15-32.

3.1.2 *Riparian vegetation*

Attribute: The percentage of the local catchment of each of river section and wetland which is under native riparian vegetation, stratified into bands as described for the CFEV project (Department of Primary Industries and Water 2008[12]). The indicator applies equally to both the cleared and native vegetation components of the catchment.

Data inputs	Data hierarchy	Definitive fields	Attribute classes
CFEV River Section Catchment Id	1. Recalculated native riparian vegetation percentage for RSC	LF_R_rzonZ (Y/N) determination of riparian zone)	Continuous data from 0.00 to 1.00, -9.99 where not applicable (e.g. waterbodies).
Vegetation type (native, other)	2. CFEV native riparian vegetation percentage for RSC	LF_R_RVpcZ (Definitive percentage of RSC native riparian vegetation)	CFEV native riparian vegetation is only used where a small number of REM points (<= 5) occurs in a River Section Catchment; otherwise the recalculated value is used.
Riparian zone definition			
LIST hydarea data			
FT watercourse data			

Data processing:

Riparian zones within the REM are defined as follows:

1. REM points within 35m of lineal watercourses.
Lineal watercourses are those represented by lines rather than polygons and stored in the layer FT-REM_wcourse_use.shp.

2. REM points within 35m and including wetlands.
Wetlands are defined as:
- Polygons in the LIST Hydarea layer identified as wetlands;
- Polygons in Tasveg identified as saltmarsh and wetlands ("A" codes) and also some swamp forests (codes NLM and NME).

3. REM points within 35m of watercourse polygons in the LIST Hydarea layer that are not tagged as Class 1 streams.

4. REM points within 50m of estuaries, waterbodies and watercourse polygons named as "xxxx River"). Estuaries and waterbodies are defined as polygons within the LIST Hydarea layer identified as estuaries, waterbodies or watercourses. Points within the polygons are not attributed as riparian, except as a result of rule 2 above.

[12] Department of Primary Industries & Water (2008). Conservation of Freshwater Ecosystems Values (CFEV) project technical report. CFEV program, Department of Primary Industries & Water, Hobart.

Percentage of native riparian vegetation in each CFEV river section catchment is recalculated from the input data by script 3a (see Attachment 3).

Level of Concern matrix

River section catchment or wetland riparian vegetation (%)	Concern – Immediate	Concern – Potential
<1	VH	L
1-20%	H	VH
20-80%	M	H
>80%	L	M

Notes:
Level of Concern percentage bands match those used for classification in CFEV.

3.1.3 Remnant vegetation

Attribute: The contiguous extent of each patch of native vegetation communities, stratified into size classes. A size threshold of 200ha for remnants is used.

Data inputs	Data hierarchy	Definitive fields	Attribute classes
Vegetation type attribute (field [Vegcom_tyZ] = "N")	None.	LF_M_HaZ	Continuous data on the contiguous extent of native vegetation.
		LF_M_clZ	Size class for vegetation patch size: 1. Not native vegetation. 2. Remnant 0-2 ha. 3. Remnant 2-20 ha. 4. Remnant 20-200ha. 5. Non-remnant, contiguous native vegetation >200 ha.

Data processing:
Data is recalculated when each new version of the APU data is created, which assigns a unique ID to each patch of native vegetation (n = 31,663) and calculates the contiguous area (0.01 ha – 3,257,270 ha). A threshold for contiguity of 10 m is used. Native vegetation is defined as Tasveg communities which are not agricultural, urban, exotic or 'other' natural environments (water, rock, sand, mud) and are not tagged in the APU data as 'Induced'. Induced vegetation is that considered likely to have been so modified that its current structure does not match its natural form. Categorisation applies generically to Lowland Grassland Complex (GCL) and Queenstown Regrowth (SQR). Attribution can be set manually for field mapped situations within these and selected other communities (e.g. native grasslands considered induced through loss of tree cover).

Level of Concern matrix:

Native vegetation patch size (ha)	Concern – Immediate	Concern – Potential
<2 ha	M	L
2-20 ha	VH	VH
20-200 ha	H	VH
>200 ha	L	M

Notes:
The ranges of patch size classes within the indicator reflect first the range of 2-200 ha for remnants nominated by Kirkpatrick and Gilfedder (1995[13]). Patches >2 ha were considered generally to retain much more conservation value than smaller patches. Remnants <2ha were considered to be of little importance to landscape function, while >200 ha are subject to the processes which affect remnants at a significantly diminished intensity and effect. The split in the middle size class in the indicator is based on the RFA assessment of remnant vegetation, which considered patches <20 ha, though potentially locally important, as below the threshold for importance in maintaining existing processes or natural systems at the regional scale (Tasmanian Public Land Use Commission 1997[14]).

3.1.4 Connectivity

Attribute: For remnant vegetation patches, the distance to the nearest non-remnant patch. For cleared land, the distance to the nearest patch of native vegetation.

Data inputs	Data hierarchy	Definitive fields	Attribute classes
Vegetation type attribute (field [Vegcom_tyZ] = "N", "C" or "I")	None.	LF_C_lustZ	Lookup string for connectivity attributes. See data processing for details.
Contiguous native vegetation patch size (field [LF_M_haZ]).			

Data processing:
Data on the distance of remnant vegetation patches to non-remnants is generated when each new version of the Atomic Planning Units data is built. Connectivity of cleared land is generated by a script within the REM that uses spatial selection to sequentially assign cleared land with a class for distance to native vegetation. Both remnant and cleared land

[13] Kirkpatrick, J.B. & Gilfedder, L. (1995). Maintaining integrity compared with maintaining rare and threatened taxa in remnant Bushland in subhumid Tasmania. Biological Conservation, 74(1):1-8..
[14] Tasmanian Public Land Use Commission (1997). Tasmania-Commonwealth Regional Forest Agreement background report part H: National Estate report. February 1997, Tasmanian Public Land Use Commission, Hobart.

connectivity use a set of banded classes defined by an increasing increment as distance increases:

- 0-50m (5m increment);
- 50-100m (10m increment)
- 100-200m (20m increment);
- 200-500m (50m increment);
- 500-1,000m (100m increment);
- 1,000-2,000m (200m increment);
- 2,000-5,000m (500m increment); and
- >5,000m (1,000m increment).

The distances above are then placed into four classes and matched with the vegetation type to form the lookup string for determining Level of Concern.

Connectivity class	Description
C1	Cleared land <50m from native vegetation
C2	Cleared land 50-250m from native vegetation
C3	Cleared land 250-500m from native vegetation
C4	Cleared land >1000m from native vegetation
I1	Induced vegetation <50m from native vegetation
I2	Induced vegetation 50-250m from native vegetation
I3	Induced vegetation 250-500m from native vegetation
I4	Induced vegetation >1000m from native vegetation
N1	Remnant <50m from non-remnant
N2	Remnant 50-250m from non-remnant
N3	Remnant 250-1000m from non-remnant
N4	Remnant >1000m from non-remnant
N5	Non-remnant patch of native vegetation, i.e. >200 ha
ZZ	Water or Other (see [Vegcom_tyZ])

Level of Concern matrix:

Connectivity class	Level of Concern – Immediate	Level of Concern - Potential
C1	L	L
C2	L	M
C3	L	H
C4	L	VH
N1	VH	L
N2	H	M
N3	M	H
N4	L	VH
ZZ	L	L
N5	L	L
I1	L	L
I2	M	M
I3	H	H
I4	VH	VH

3.1.5 Clearing bias

Attribute: The percentage of each land component that has been cleared, stratified spatially into areas now cleared or with extant native vegetation. Clearing bias measures the degree of bias towards clearing of particular types of land. High clearing bias in these types can result in proportionally greater impacts on biodiversity than in the landscape as a whole.

Data inputs	Data hierarchy	Definitive fields	Attribute classes
Vegetation type attribute (field [Vegcom_tyZ] = "N", "C" or "I")	1. Both automated and field/desktop land components data available	LF_CB_luZ	Lookup string for clearing bias attributes. See data processing for details.
Clearing bias of automated land component, from automated land systems component data	2. Field/desktop land components available, but not automated land components		
Clearing bias of described land component, from field and desktop mapped land system components data (partial coverage)	3. Automated land components available, but not field/desktop land components		

Data processing:
The input data layers are attributed with the clearing bias of each land system component. Clearing bias is the percentage of the mapped extent of the land system component which has been cleared of native vegetation (i.e. it does not have the attribute of vegetation type = "N"). Where data from both input sources is available, the clearing bias used is the mean of the inputs; where only one or the other is available then the clearing bias is that of the available data.

The scripting process analyses the vegetation type and clearing bias inputs and assigns them to a class which forms the lookup string for assigning Level of Concern.

Clearing bias class	Description
C3	Cleared land on land component 70-90% cleared
C1	Cleared land on land component <30% cleared
C2	Cleared land on land component 30-70% cleared
C4	Cleared land on land component >90% cleared
I1	Induced native vegetation on land component 30% cleared
I2	Induced native vegetation on land component 30-70% cleared
I3	Induced native vegetation on land component 70-90% cleared
I4	Induced native vegetation on land component >90% cleared
N1	Native vegetation on land component <30% cleared
N2	Native vegetation on land component 30-70% cleared
N3	Native vegetation on land component 70-90% cleared
N4	Native vegetation on land component >90% cleared
ZZ	Water or Other types (see [Vegcom_tyZ]

Level of Concern matrix:

Component Cleared (%)	Level of Concern – Immediate	Level of Concern – Potential
Cleared land or induced vegetation		
>90% (C4, I4)	VH	L
70-90% (C3, I3)	H	L
30-70% (C2, I2)	M	L
<30% (I2, I1)	L	L
Native veg.		
>90% (N4)	VH	VH
70-90% (N3)	H	H
30-70% (N2)	M	M
<30% (N1)	L	L

3.1.6 Integrated index for Landscape Ecological Function

The integrated index for Landscape Ecological Function treats the five component Issues as a set of attributes operating at three scales:

- Landscape scale – Clearing bias measures variation in the loss of native vegetation across the landscape, which can create extinction debts and trophic cascades that can affect species composition and survival over large areas;
- Local scale – Connectivity, remnant vegetation and riparian vegetation measure variation in the local scale configuration of native vegetation in parts of the landscape, and hence of the ability of species to move through the landscape; and
- Within-patch scale – Biophysical naturalness measures variation in the condition characteristics of each area of native vegetation, including variation within continuous areas, which can in turn affect species persistence.

The integrated index for landscape function is generated as a two stage process which reflects the different scales within the index. First, the Level of Concern classes for connectivity, remnant vegetation and riparian vegetation are integrated to produce a subindex at the local scale. The subindex is then combined with the Level of Concern classes for clearing bias (landscape scale) and biophysical naturalness (within-patch scale) issues to derive an overall indicator for landscape ecological function.

Table 4 shows the integrated Level of Concern classes for the local scale Issues, with the overall assessment of landscape ecological function shown in Table 5. The tables also contain ranked orders of each of the combinations of inputs. The ranked orders are intended to facilitate finer scale assessment of attributes and variation if required. It should be noted that although the tables use the same combinations for Level of Concern both Immediate and Potential, the resultant indices change in response to whether the inputs are from the Immediate or Potential perspective.

Table 4. Level of Concern subindex for Connectivity, Remnant Vegetation and Riparian Vegetation

Connectivity	Remnant Vegetation	Riparian Vegetation	CRR Index	Rank (1 = highest)
VH	VH	VH	VH	1
H	VH	VH	VH	2
VH	VH	H	VH	3
VH	H	VH	VH	4
M	VH	VH	VH	5
H	VH	H	VH	6
VH	VH	M	VH	7
H	H	VH	VH	8
VH	H	H	VH	9
VH	M	VH	VH	10
L	VH	VH	H	11
M	VH	H	H	12
H	VH	M	H	13
VH	VH	L	H	14
M	H	VH	H	15
VH	H	M	H	16
H	M	VH	H	17
VH	M	H	H	18
VH	L	VH	H	19
L	VH	H	H	20
M	VH	M	H	21
H	VH	L	H	22
L	H	VH	H	23
VH	H	L	H	24
M	M	VH	H	25
VH	M	M	H	26
H	L	VH	H	27
VH	L	H	H	28
L	VH	M	H	29
M	VH	L	H	30
L	M	VH	H	31
VH	M	L	H	32

Connectivity	Remnant Vegetation	Riparian Vegetation	CRR Index	Rank (1 = highest)
M	L	VH	H	33
VH	L	M	H	34
H	H	H	H	35
M	H	H	M	36
H	H	M	M	37
H	M	H	M	38
L	VH	L	M	39
L	L	VH	M	40
VH	L	L	M	41
L	H	H	M	42
M	H	M	M	43
H	H	L	M	44
M	M	H	M	45
H	M	M	M	46
H	L	H	M	47
L	H	M	M	48
M	H	L	M	49
L	M	H	M	50
H	M	L	M	51
M	L	H	M	52
H	L	M	M	53
L	H	L	M	54
L	L	H	M	55
H	L	L	M	56
M	M	M	L	57
L	M	M	L	58
M	M	L	L	59
M	L	M	L	60
L	M	L	L	61
L	L	M	L	62
M	L	L	L	63
L	L	L	L	64

Table 5. Overall Level of Concern index for Landscape Ecological Function

Clearing bias	CRR Index	Biophysical naturalness	LEF index	Rank (1 = highest)
VH	VH	VH	VH	1
VH	VH	H	VH	2
VH	H	VH	VH	3
VH	VH	M	VH	4
VH	H	H	VH	5
VH	VH	L	VH	6
H	VH	VH	VH	7
VH	M	VH	VH	8
VH	H	M	VH	9
H	VH	H	VH	10
VH	M	H	VH	11
VH	H	L	VH	12
H	H	VH	VH	13
H	VH	M	VH	14
VH	L	VH	VH	15
VH	M	M	VH	16
H	H	H	H	17
H	VH	L	H	18
M	VH	VH	H	19
VH	L	H	H	20
VH	M	L	H	21
H	M	VH	H	22
H	H	M	H	23
M	VH	H	H	24
VH	L	M	H	25
H	M	H	H	26
H	H	L	H	27
M	H	VH	H	28
M	VH	M	H	29
VH	L	L	M	30
H	L	VH	H	31
H	M	M	H	32

Clearing bias	CRR Index	Biophysical naturalness	LEF index	Rank (1 = highest)
M	H	H	M	33
L	VH	VH	M	34
M	VH	L	M	35
H	L	H	M	36
H	M	L	M	37
M	M	VH	M	38
M	H	M	M	39
L	VH	H	M	40
H	L	M	M	41
M	M	H	M	42
M	H	L	M	43
L	H	VH	M	44
L	VH	M	M	45
H	L	L	M	46
M	L	VH	M	47
M	M	M	M	48
L	H	H	L	49
L	VH	L	M	50
M	L	H	L	51
M	M	L	M	52
L	M	VH	L	53
L	H	M	L	54
M	L	M	L	55
L	M	H	L	56
L	H	L	L	57
M	L	L	L	58
L	L	VH	L	59
L	M	M	L	60
L	L	H	L	61
L	M	L	L	62
L	L	M	L	63
L	L	L	L	64

3.2 Biological Significance

3.2.1 *Priority species*

Priority species in the REM are all listed threatened species and other priority species. Other priority species are flora species considered to be poorly reserved (section 3.2.1.2) and two non-listed fauna species - the Eastern Quoll *Dasyurus viverrinus* and Tasmanian Bettong *Bettongia gaimardi* both of which are now extinct on mainland Australia.

3.2.1.1 Hollow dwelling species habitat

Attribute: Relative dominance of forest vegetation structure by old growth, mature and regrowth elements as an indicator of the likely relative abundance of eucalypt tree hollows and mature forest elements.

Data inputs	Data hierarchy	Definitive fields	Attribute classes
Definitive field for vegetation community.	1. Field mapped old growth	OG_useZ	Determination of old growth is a function of eligibility of forest community for old growth form and the availability of either field mapping (preferred in hierarchy) or old growth mapped by FT.
Field mapped old growth	2. Field mapped eucalypt forest structural dominance	Vstr_useZ	See data processing
Old growth 2013	3. Old growth 2013	FPA_holow	High, Medium, Low, Not suitable.
FPA predicted mature eucalypt abundance classes	4. FPA predicted mature eucalypt abundance		
2013 PI-type structural dominance	5. 2013 PI-type structural dominance		
RFA forest resource types reconstruction	6. Reconstructed RFA forest resource type map data		
Definitive value for biophysical naturalness	7. Definitive value for biophysical naturalness		

Data processing:
The hollow dwelling species habitat indicator is derived from three inputs – old growth forest, predicted mature habitat availability mapping, and eucalypt structural dominance data. The rules for integrating the inputs are relatively complex, so there is no definitive field for hollow dwelling species habitat, which is instead attributed directly to the Level of Concern classes.

The first stage of the integration is the determination of old growth forest. The definitive field for the vegetation community is used to control attribution to only eucalypt forest types which have an old growth form (not all have this characteristic e.g. King Island and Furneaux eucalypt forests). Field mapped sources of old growth are preferred in the hierarchy and are assigned as old growth or not. Where there is no field determination of old growth it is assigned from the 2013 old growth layer provided by FT.

The definitive field for old growth is automatically transferred to the vegetation structure field, and retains primacy in the hierarchy in subsequent steps.

Where the forest is not old growth and eucalypt structural dominance has been determined from field mapping, the field mapping class is assigned.

For forest still unattributed, relative dominance of mature and regrowth eucalypt elements is then determined from classes in the 2013 PI-type structural data.

Where the vegetation is mapped as eucalypt forest and there is no structural class in any of the preceding rules, the structural class from the RFA forest resource types map is assigned.

If eucalypt forest is still unattributed from the above rules, the structural class is assigned from the definitive value for biophysical naturalness as follows:

- BN 1 – Silvicultural regeneration;
- BN 2-3 – Regrowth;
- BN 4-5 – Predominantly regrowth.

The final attribution has limitations in area where eucalypt cover is sparse and dominated by mature trees (e.g. open woodlands in grazing systems). However there is limited occurrence of these situations within the FMU.

Codes and descriptors of the vegetation structural classes are shown below.

Structural class	Description
Non	Not eucalypt forest
Reg	Silvicultural regeneration
Rgr	Regrowth
PRg	Predominantly regrowth, some mature
PMt	Predominantly mature, some regrowth
Mat	Mature
OG	Old growth (over-rides other codes where present and logically consistent)
MPm	Mat / PMt (undifferentiated) - from published RFA maps
RRg	Reg / Rgr (undifferentiated) - from published RFA maps

The predicted mature eucalypt availability data is used to the attribution of Level of Concern where the forest is not old growth. This is illustrated in the Level of Concern Matrix below.

Level of Concern matrix

Attribute class	Level of Concern – Immediate	Level of Concern - Potential
OG	L	VH
FPA High	L	VH
FPA Medium	M	H
FPA Low	H	M
Mat	M	H
PMt	M	H
PRg	H	M
Rgr	VH	L
Reg	VH	L
MPm	M	H
RRg	VH	L
Non	L	L

3.2.1.2 Other (non-threatened priority species

Attribute: Known locations and modelled habitat of species which are not listed as threatened but are identified as of some concern, due to their conservation needs either not seen to be adequately met through the combination of reservation and/or normal land management practices.

The species group comprises two species of fauna and 870 flora taxa.

The fauna species in the group are the Eastern Quoll (*Dasyurus viverrinus*) and Tasmanian Bettong (*Bettongia gaimardi*). Both species have become extinct on mainland Australia since European settlement and one of the key factors implicated in their extirpation – the European Fox (*Vulpes vulpes*) – is a current threat in Tasmania. The Eastern Quoll has also been found to have declined rapidly in areas where the Tasmanian Devil (*Sarcophilus harrissi*) has declined due to Devil Facial Tumour Disease, due to a trophic cascade from removal of Devil predation on larger predators that might compete with or predate the Eastern Quoll (Hollings *et al.* 2014[15]).

[15] Hollings, T., Jones, M., Mooney, N. & McCallum, H. (2014). Trophic cascades following the disease-induced decline of an apex predator, the Tasmanian Devil. Conservation Biology, 28(1):63-75. DOI: 10.1111/cobi.12152

The flora taxa in the group are those identified by Lawrence *et al.* (2008[16]) as occurring in less than two conservation reserves in a bioregion, except where recorded in a single reserve that is larger than 1,000 ha. These species are considered in the REM as potentially poorly reserved in the bioregions where the condition applies.

Data processing:
Habitat of species in this group is modelled from known locations recorded in the Natural Values Atlas. This process is described in the following section (threatened species) and can be identified by their classification in Attachment 6.

Data inputs and Level of Concern matrix:

Data inputs	Definitive fields	Attribute classes	Level of Concern – Immediate	Level of Concern - Potential
Species modelling rules (script and lookup table)	Sp_O_listZ	Concatenated list of species codes	M (any present)	M (any present)
NVA records	Sp_O_numZ	Number of 'Other' priority species attributed		
Riparian zones				
Plantations				
Waterbodies and 2d watercourses				
Native vegetation				

3.2.1.3 Threatened species

Attribute: Known locations and modelled habitat of species which are listed as threatened under the Tasmanian *Threatened Species Protection Act 1995* or Commonwealth *Environment Protection and Biodiversity Conservation Act 2009.*

The group comprises 174 fauna, 462 flora and 26 taxa of fungi. Not all these taxa occur within the FMU. Some taxa are also duplicated in the lists due to multiple entries in the Natural Values Atlas (e.g. both species and subspecies).

Data processing:
Species are attributed in the REM through two modelling systems, which is applied to both the threatened species and other priority species (see preceding section). Each species is assigned a unique code, typically a combination of initial letters of the generic and species

[16] Lawrence, N., Storey, D. & Whinam, J. (2008). Reservation status of Tasmanian native higher plants. February 2008, Biodiversity Conservation Branch, Department of Primary Industries & Water, Hobart. http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-7CW3RX?open

names. Multiple habitat attributes are assigned for some species, where there are distinct differences in habitat characteristics for different parts of the species life cycle (e.g. where a species breeding habitat and foraging habitat have different characteristics).

The first, default, modelling system applies to all priority species unless specifically excluded. The system uses records from the NVA with basic parameters for each species to approximate habitat around known locations. Each species model uses the full set of parameters to control the attribution in the REM.

Parameter	Notes
NVA record accuracy	The maximum accuracy of an NVA record which can be used in a species model. Accuracy is generally smaller for sessile taxa (e.g. generally localised flora) than for more mobile fauna species.
Model distance	The distance from an NVA record in which habitat can be attributed.
Model year	The earliest year an NVA record can be used for modelling habitat. This applies to species whose range or abundance is known to have changed from the historical situation, hence only more recent records are used in defining extant habitat. The rule applies to species such as the Tasmanian Devil and Eastern Barred Bandicoot.
Model riparian	Applies to species whose habitat is most frequently associated with riparian areas. Riparian zones within the value of the model distance are attributed for the species, along with a default distance (100m) around the recorded location. Where NVA records are not located in or near a riparian zone, the species is modelled only as the distance (100 m) around the location.
Plantations	Controls whether a species can have habitat modelled in plantation areas. By default most species are excluded from being attributed in plantations. The rule applies to raptor nests (Wedge-tailed Eagle and White-bellied Sea Eagle) whose breeding can be disrupted by disturbance in the zone around the nest, irrespective of vegetation type.
Water	Controls whether the species can have habitat attributed in water. By default most species are excluded from occurring in water. For some species water forms part of the habitat (e.g. fish, freshwater crayfish, caddisflies) and so is included in the model.
Native vegetation	Controls whether the species can only have habitat attributed in native vegetation. This rule applies to relatively mobile and widespread fauna species. A number of these species have relatively large numbers of their records from open areas (e.g. road kills) through which they may be travelling but which do not form the main habitat of the species. Species in this category include the Quolls, Eastern Barred Bandicoot, Tasmanian Bettong and Tasmanian Devil.

Attachment 6 identifies the species that are modelled under this process, and the rules that apply to each species.

The second modelling process in the REM is a more detailed set of habitat models for selected priority fauna species. The species modelled under this process are a subset of fauna species whose range and habitat parameters are being reviewed for use in the Forest Practices Authority Threatened Fauna Advisor. The species and descriptions used in the modelling process were those documented by the FPA as at February 2014 (v 1.4); however this is subject to ongoing review and has changed since the modelling process was commenced.

Around 130 species are included in the FPA list, of which 83 were modelled under this process for the REM. Species not modelled were generally those that do not occur in the FMU, have no clear basis on which to formulate habitat models, or are highly localised species (e.g. cave fauna) whose known locations are dealt with under the default modelling process using NVA records. Details of the species models are presented in Attachment 7.

The models can be best described as 'expert rules' models, in which each model is described in terms of the primary drivers of habitat, the spatial data used to build the model, and the rules that are applied to the data.

Data inputs	Definitive fields	Attribute classes
See model description for each species	Sp_T_listZ	Concatenated list of species codes
	Sp_T_numZ	Number of threatened species attributed
	Sp_stmaxZ	Class for the highest 'status' of the species attributed (both threatened and other species): • 0 – No species attributed; • 4 – 'Other' priority species (no subdivision on number); • 3 – Single Rare or Vulnerable species; • 2 – Single Endangered or Critically Endangered species; • 1 – More than one listed threatened species.

Level of Concern matrix:
Both threatened species and other priority species modelled for the REM are assigned Level of Concern classes concurrently, using a hierarchy based on the species conservation status and, for threatened species, the number of species attributed.

Species category/attribute	Concern – Immediate	Concern – Potential
Two or more listed species	VH	VH
Endangered, Critically Endangered	VH	VH
Vulnerable, Rare	H	H
'Other' priority species	M	M
None	L	L

3.2.1.4 Integrated level of concern for Priority Species

The integrated Level of Concern index for Priority Species treats the three component issues as a hierarchy. Listed threatened species are treated as the most important element in the integration, as by legal definition these are species that are likely to become extinct if not properly managed. They occupy only the highest classes in the integration matrix. Hollow dwelling species habitat and non-listed priority species are of lesser importance in the integration. In the absence of co-occurrence with other priority species Issues, hollow dwelling species habitat is limited to a maximum class of High and non-listed priority species to a maximum class of Medium.

Level of Concern matrix:

Threatened & Other Priority Species		**Hollow Dwelling Species Habitat**			
		VH	**H**	**M**	**L**
Two or more listed species	**VH**	VH	VH	VH	VH
Endangered, Critically Endangered	**VH**	VH	VH	VH	VH
Vulnerable, Rare	**H**	VH	H	H	H
Other Priority Species	**M**	H	H	M	M
None	**L**	H	M	L	L

3.2.2 REM vegetation conservation status

Attribute: Relative conservation status of the vegetation, expressed as a combination of the legislated threat status of vegetation communities, their bioregional extent, and the percentage of their extant area that is within conservation reserves.

Much of the work that has assessed vegetation conservation status and consequent priorities for management in Tasmania has used the Commonwealth's 'JANIS' criteria for establishing the comprehensive, adequate and representative reserve system (Commonwealth of Australia, 1997[17]).

The primary purpose of the REM is to inform management of unreserved land, so the vegetation conservation prioritisation was developed to be independent of reservation criteria while still accounting for the level of reservation across the landscape. The index consists of five elements:

[17] Commonwealth of Australia (1997). Nationally agreed criteria for the establishment of a comprehensive, adequate & representative reserve system for forest in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Commonwealth of Australia, Canberra.

- Classification of the vegetation;
- Bioregional mapping rules;
- Conservation status determinations;
- Analysis of reservation status; and
- Analysis of bioregional extent.

Classification

The classification of ecosystems within the REM is at three levels. The base level mapping within the REM (field [Vegcom_usZ]) is the vegetation communities from the Tasveg classification (v2). In some cases NRP undertakes field mapping at a finer scale than Tasveg, in order to make the mapping more informative to the task at hand. This level of classification is used only for mapping and not in conservation analysis or generation of indicators.

The second level of classification in the REM – REM vegetation – is an upward hierarchical classification of the base level mapping into the vegetation communities that are used for generating the standard REM indicators. Two principal factors were considered in developing the second level of classification:

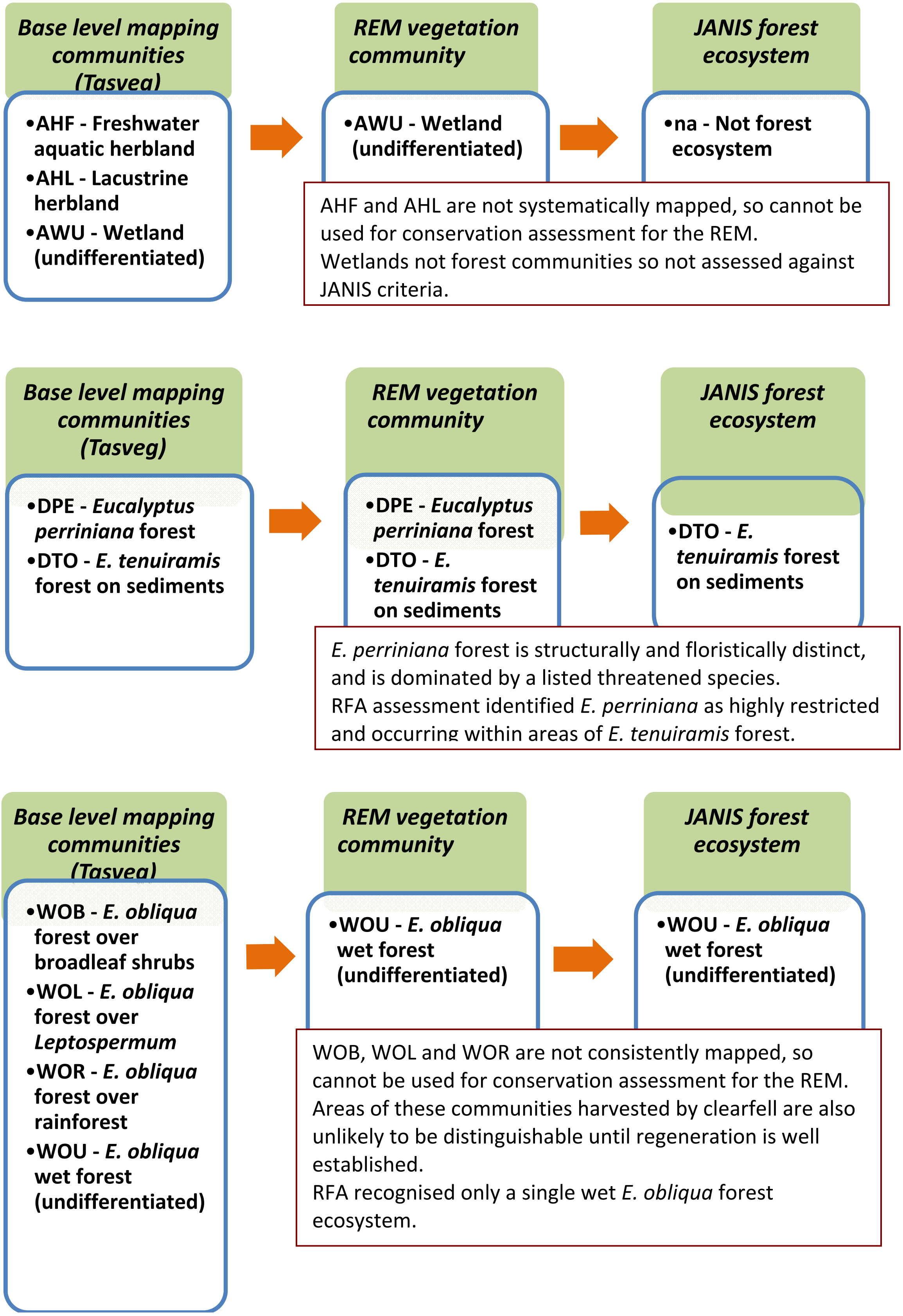
First was the coherence and consistency of available mapping data. Some communities, for example wetlands or understorey types in wet forests, are mapped as sub-units of a higher level of classification, and are not necessarily mapped systematically across their range. In these instances an agglomeration of the mapping to a higher level classification is used (e.g. all Tasveg freshwater wetlands are treated as a single undifferentiated class, the three understorey-defined communities in wet *E. obliqua* forest are all treated as part of an undifferentiated wet *E. obliqua* community).

The second factor considered in developing the classification was distinctiveness. These are mapped vegetation communities, particularly forest communities, which are either distinct from the communities into which they are included for analysis of the CAR reserve system, or have distinct and recognised conservation significance. Examples of communities in this category include *E. gunnii*, *E. barberi*, *E. perriniana* and wet *E. globulus* forests, all of which are subsumed into higher level classification under the RFA.

The third level of classification is a further upward hierarchical classification of the REM vegetation to vegetation communities (ecosystems) to be used for the analysis of conservation status, reservation targets and reservation status against the JANIS criteria. In the case of the REM for the FT FMU, these communities are the 51 forest communities recognised under the RFA. This classification is used for the HCV indicators described in Section 4.

Appendix 7 shows the derivation of the vegetation communities at all three levels of classification. Figure 4 provide examples of the classification and its application at the three levels described.

Figure 4. Examples of levels of vegetation classification in the REM



Bioregional mapping rules

The REM analysis of vegetation conservation status incorporates assessment of the extent and reservation of communities at the bioregional level. Tasmania's nine bioregions are mapped relatively coarsely. Use of the IBRA boundaries as uninterpreted spatial data can result in vegetation communities being assigned a higher conservation significance than is warranted, due to them being spatially located in one bioregion, when their biotic and environmental characteristics are those of the nearby but non-contiguous bioregion.

To address this issue, the approach to 'fuzzy bioregions' developed by CARSAG (2004[18]) has been maintained and developed in the APU data layer and used for this project. Application of 'fuzzy bioregions' involved examining the distribution of every Tasveg vegetation community in turn, in relation to the mapped bioregion boundaries, and with consideration of the physical, climatic and biotic characteristics of each community.

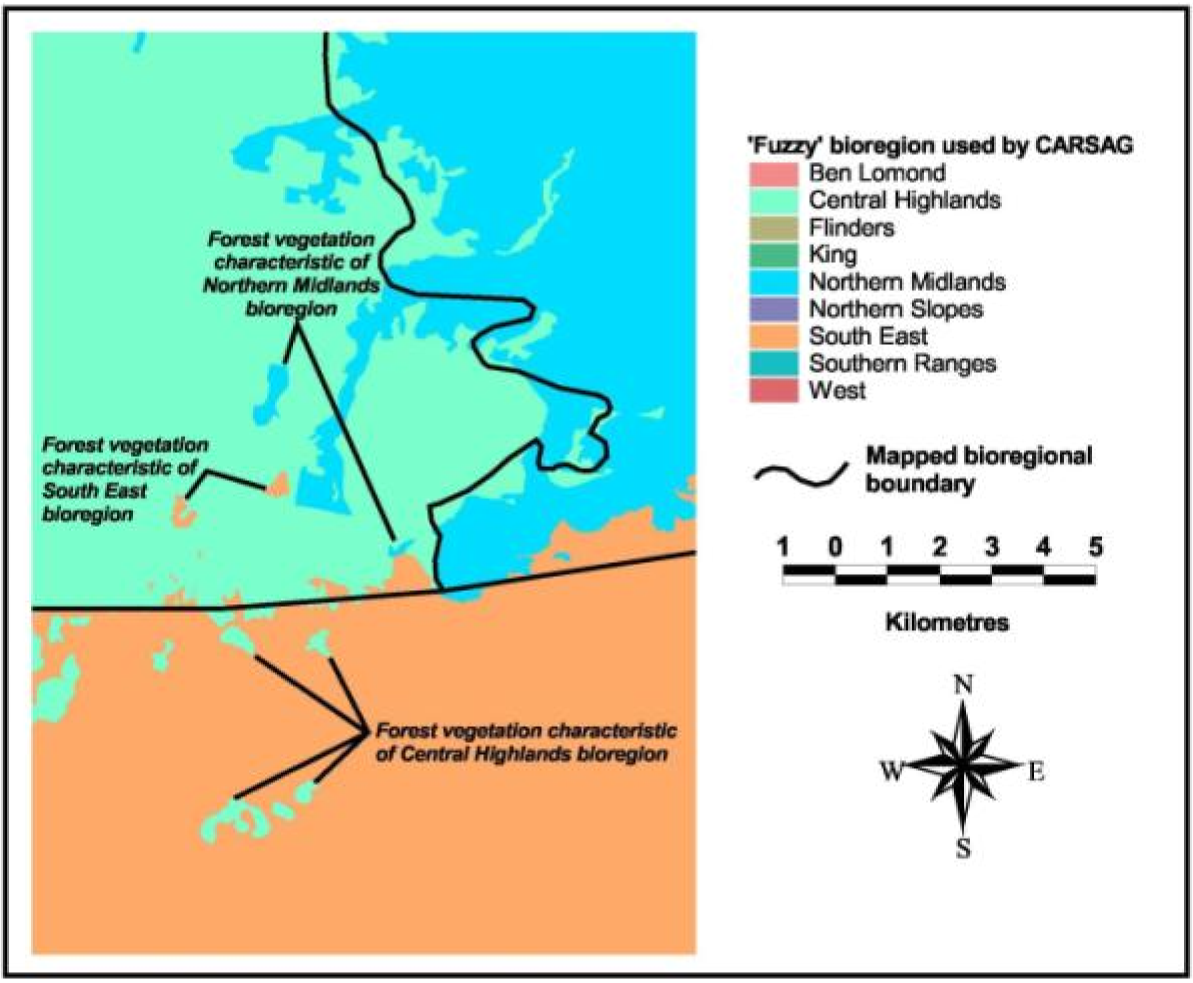
The result of this analysis is that some patches of vegetation, while mapped in one bioregion, have been reallocated to the nearby bioregion. In the absence of this work, some vegetation communities may appear as rare in one bioregion when their occurrence is simply arising from the patchiness in the distribution of vegetation communities and/or the coarseness of the IBRA boundaries, particularly where bioregion boundaries are associated with steep climatic, physical and climatic gradients.

Figure 4 shows an example of application of fuzzy boundaries to Tasmanian forest vegetation.

Attachment 9 provides a full listing of the bioregional allocation decisions that have been incorporated into the analysis. The bioregional assessment also identified a number of instances where mapping from Tasveg has been amended to more closely match defining features at a location (e.g. to ensure consistency with geological substrate, where a defining characteristic of a community).

[18] Comprehensive, Adequate & Representative Scientific Advisory Group (2004). Assessing reservation priorities for private forested land in Tasmania. Private Forest Reserves Program, Department of Primary Industries, Water & Environment, Hobart.

Figure 5. Example of 'fuzzy' bioregional boundaries



Source: CARSAG (2004), p47

Conservation status determinations
The conservation status of vegetation used in the REM is based on recognition of vegetation communities that are listed as threatened under either the Tasmanian *Nature Conservation Act 2002* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The REM does not further differentiate threatened communities other than on the basis that they are listed or not. Attachment 8 indicates the communities treated as threatened. Additional assessment of JANIS threat categories was undertaken for the HCV indicators and is described in section 4.

Reservation status
Reservation is the percentage of the vegetation community that is within conservation reserves. Data on the extent and percentage reservation of each community is calculated both within the bioregion and for Tasmanian as a whole. For the REM for the FMU, these data were updated to reflect the DPIPWE 2013 Tasmanian reserves spatial layer, which includes the ungazetted tranches two and three of the *Tasmanian Forests Agreement Act 2013* as informal reserves and hence are counted as part of the reserved area.

The percentage of reservation used in the Native Vegetation Index is the lower of the State and bioregional reservation figures. A lower bioregional reservation percentage may indicate a higher priority for conservation within the bioregion, while a lower Statewide reservation percentage may indicate a lower priority within the bioregion but a higher priority in others. It should be noted that this assessment of reservation is primarily concerned with informing management on unreserved land. Reservation relative to targets is addressed in section 4.3.3.

Bioregional extent
The bioregional extent of each vegetation community used in the analysis was calculated from the APU data layer used as the vegetation input to the REM. The data are banded using the rules developed in the original formulation of the REM. These bands were derived from expert opinion after analysis indicated there were no clear disjunctions in the range of extent of the communities by bioregion.

Level of Concern matrix:

	Concern – Immediate & Potential Reservation level (% extent in bioreigon)			
Status and bioregional extent	**<10%**	**10-30%**	**30-60%**	**>60%**
Threatened				
Any	VH	VH	H	H
Bioregional Extent (not threatened)				
<2,000ha	VH	VH	H	M
2,000-5,500ha	VH	VH	M	M
5,500-15,000ha	VH	H	M	L
15,000-55,000ha	H	M	L	L
>55,000ha	M	L	L	L

Notes:
For threatened communities, only Conservation Status and Reservation Status influence the Index. For non-threatened communities, Bioregional Extent and Reservation Status are combined to produce the Index values. All non-native vegetation communities, along with water, rock, sand and mud are assigned a Low value on the Index.

3.2.3 Integrated index for Biological Significance

Attribute: An overall indicator of the priority for management consideration of the biota of an area, as represented either through the surrogacy provided by vegetation communities or as species or species groups that have been identified as of additional conservation or management concern.

The Biological Significance Index matrix of the REM was developed to reflect an assumed equal level of importance to Vegetation Conservation Status and Priority Species Significance. Each unique combination (n=16) of the two input matrices was generated and a qualitative assessment undertaken to assign priorities. The assessment can be described as mostly giving preference to the maximum of the input matrices, except where a cumulative significance was identified (e.g. where both input matrices were High the overall combined index was assigned to Very High).

Level of Concern matrix:

Native Vegetation Index	**Priority Species Index**			
	VH	**H**	**M**	**L**
VH	VH	VH	VH	VH
H	VH	VH	H	H
M	VH	H	M	M
L	VH	H	M	L

The integration matrix has also been ranked on each of the combinations of inputs. The ranked orders are intended to facilitate finer scale assessment of attributes and variation if required. It should be noted that although the tables use the same combinations for Level of Concern both Immediate and Potential, the resultant indices change in response to whether the inputs are from the Immediate or Potential perspective.

Native vegetation	Priority species	Biological Significance Index	Rank (1 = highest)
VH	VH	VH	1
H	VH	VH	2
VH	H	VH	3
H	H	VH	4
M	VH	VH	5
L	VH	VH	6
VH	M	VH	7
VH	L	VH	8
M	H	H	9
L	H	H	10
H	M	H	11
H	L	H	12
M	M	M	13
L	M	M	14
M	L	M	15
L	L	L	16

3.3 Biodiversity Management Priority

Attribute: An overall indicator of the priority for management consideration of the biodiversity of an area, based on the biological significance of the biota it contains and the ability of the landscape's functional ecological characteristics to maintain the biota.

The Biodiversity Management Priority Index was developed to reflect an assumed equal importance of the Biological Significance and Landscape Function indices. Landscapes that are ecologically functional will frequently contain fewer elements of biodiversity which need active or concentrated management, but need to be maintained with adequate function to prevent such needs emerging. Areas that contain features of higher biological significance may occur anywhere but tend to be more concentrated in landscapes with poorer ecological function.

Each unique combination (n=16) of the input matrices was generated and a qualitative assessment undertaken to assign Priority categories. The results of the assessment and its characteristics were the same as for the Biological Significance Index, i.e. preference was generally given to the maximum value of the input matrices, except where a cumulative significance was identified. Notional averaging of large differences in the input values to the matrix was not considered appropriate, as higher values of each Index were considered not to be diminished by the absence of a corresponding high value in the other Index.

Level of Concern matrix:

Biological Significance Index	Landscape Function Index VH	H	M	L
VH	VH	VH	VH	VH
H	VH	VH	H	H
M	VH	H	M	M
L	VH	H	M	L

The integration matrix has also been ranked on each of the combinations of inputs. The ranked orders are intended to facilitate finer scale assessment of attributes and variation if required. It should be noted that although the tables use the same combinations for Level of Concern both Immediate and Potential, the resultant indices change in response to whether the inputs are from the Immediate or Potential perspective.

Landscape Ecological Function	Biological Significance	Biodiversity Management Priority	Rank (1 = highest)
VH	VH	VH	1
H	VH	VH	2
VH	H	VH	3
M	VH	VH	4
VH	M	VH	5
L	VH	VH	6
H	H	VH	7
VH	L	H	8
M	H	H	9
H	M	H	10
L	H	H	11
H	L	H	12
M	M	M	13
L	M	M	14
M	L	M	15
L	L	L	16

4. HIGH CONSERVATION VALUE INDICATOR SPECIFICATIONS FOR THE FOREST MANAGEMENT UNIT

One of the uses of the REM is in the assessment of HCVs. A number of the standard indicators are directly relevant to HCVs but FT identified a range of others as required. This was based on consideration of the criteria and definitions of the different HCVs within the FSC Australia HCV evaluation framework (FSC Australia, 2013[19]).

The indicators were developed by interrogation of combinations of data already within the REM or by generating new data from other sources. The indicators were then added to lookup tables, where required, and then to the REM via a series of GIS scripts developed for each additional indicator. All indicators are expressed spatially within the REM.

4.1 Priority species indicators

4.1.1 Number of endemic priority species

Indicator: A count of the number of endemic priority species.

HCV criteria: 1.

Summary: Tasmania is home to a relatively large number of endemic species, some of which occur over very large areas of the State and are likely to result in very few areas being identified with no endemic species present. It was considered that the management requirements of the HCV areas with high species endemism are likely to be more important where there are higher numbers of endemic priority species. Additional data interpretation of species endemism and identification of areas is contained in the Comprehensive Regional Assessment treatment of National Estate Values (Tasmanian Public Land Use Commission, 1997[20]).

Data processing: Each priority species in the REM lookup table was checked for NVA classification of endemism. Where no code was indicated (n = ~230) additional reference material was consulted so that each species was definitively coded as endemic or not. A GIS script was then run to count the number of endemic priority species attributed for each point in the REM and to write the count to a separate field.

Output field: [EndSp_num]

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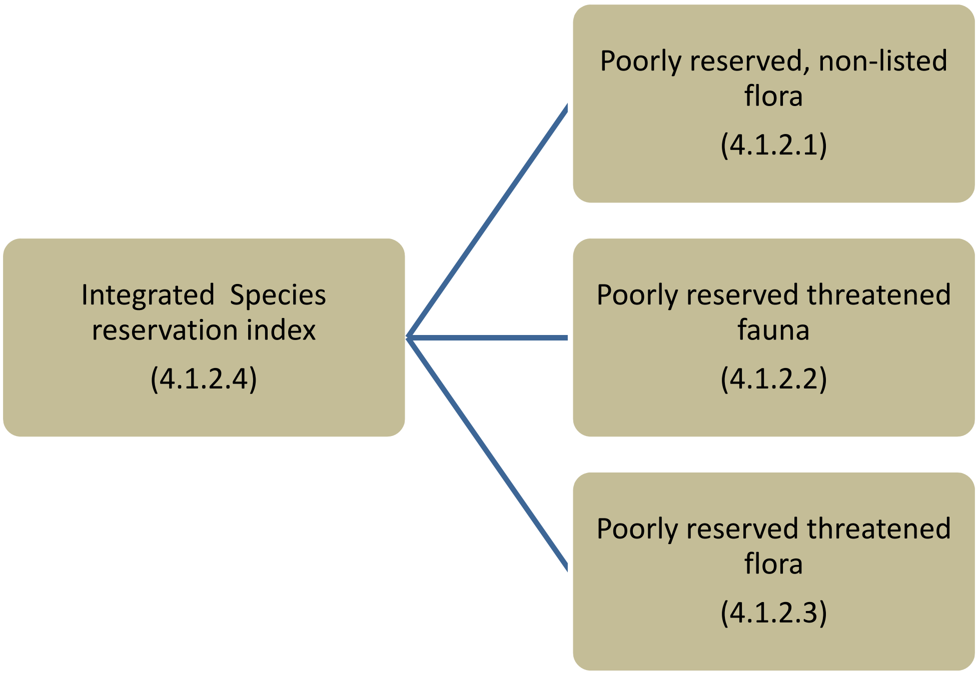
[19] FSC Australia (2013). High Conservation Values (HCVs) evaluation framework for use in the context of implementing FSC certification to the FSC Principles and Criteria & Controlled Wood standards. Version 3.4, March 2013, FSC Australia, Melbourne. http://www.fscaustralia.org/sites/default/files/Australia%20HCV%20Framework%20Final%203-4.pdf

[20] Tasmanian Public Land Use Commission (1997). Tasmania-Commonwealth Regional Forest Agreement background report part H: National Estate report. February 1997, Tasmanian Public Land Use Commission, Hobart.

4.1.2 Species reservation index

The species reservation index is compiled from three separate analyses of reservation – non-listed priority flora species, threatened flora and threatened fauna. The index was compiled from the different sources as there were no data available on fauna reservation levels, and poorly reserved flora were recorded in the standard REM species table only where they were not threatened, as reservation status does not affect the REM indicator for threatened flora species.

Each input to the index is described separately below, followed by a description of the integrated species reservation index. The inputs to the index are shown below.



4.1.2.1 Number of poorly reserved non-listed priority flora species

Indicator: Count of the number of poorly reserved species that are not listed as threatened.

HCV criteria: 1.

Summary: Poorly reserved non-listed flora species are identified in the REM using data from the analysis of Lawrence et al. (2008[21]), which presents a breakdown of each species by bioregion and the size and number of reserves in which it is recorded. Species are considered to be poorly reserved in the REM if they occur in less than two reserves in a bioregion, except where they occur in a single reserve larger than 1,000 ha.

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[21] Lawrence, N., Storey, D. & Whinam, J. (2008). Reservation status of Tasmanian native higher plants. February 2008, Biodiversity Conservation Branch, Department of Primary Industries & Water, Hobart. http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-7CW3RX?open

Data processing: The REM species lookup table is populated with the list of bioregions in which each species is considered to be poorly reserved, which are attributed spatially in the REM as outlined in Section 3.2.1.2. Species in this category are only attributed where they are not threatened, as reservation status does not affect the standard REM indicator for threatened species. Data on poorly reserved non-listed species is stored in the REM as part of the total number of non-listed priority species (field [Sp_O_numZ]). A separate attribute for the number of poorly reserved non-listed flora species was generated using a GIS script which discounted the total number of non-listed priority species by the number that are fauna. (This approach was adopted for efficiency, as only two of the non-listed priority species are fauna).

Output field: [Flora_poor]

4.1.2.2 Number of poorly reserved threatened fauna species

Indicator: Count of the number of poorly reserved threatened fauna species.

HCV criteria: 1.

Summary: Poorly reserved threatened fauna species were defined as:

- Endangered or Critically Endangered species with records in reserves on less than 30% of the land systems on which the species has been recorded; or
- Rare or Vulnerable species with records in reserves on less than 15% of the land systems on which the species has been recorded.

Data processing: A separate GIS layer integrating the 2013 Tasmanian reserves spatial layer, land systems and land systems components data was prepared. A GIS script was developed to select each species in turn, select all NVA records with spatial accuracy <=500 m, and select all polygons from the integrated reserves and land systems layer that intersect the records. The number of land systems on which the species has been recorded was summed, as was the number of the land systems where a record of the species occurred in a reserve. These data were added to the species lookup table and the proportion of land systems on which the species has been recorded in reserves was calculated, and a separate field attributed if the species was indicated as poorly reserved.

Where the number of land systems was too low for reliable calculation of proportions, a schema based on whole numbers was used to determine whether the species was poorly reserved, as shown below.

Land Systems (n)	Species End. / Crit. End.	Species Rare / Vulnerable
1	1	1
2	1	1
3	1	1
4	2	1
5	2	2
6	2	1
>=7	0.3 * n	0.15 * n

The reservation data were also generated for land systems components for comparison, but do not form part of the index. The results of both analyses are included in Attachment 6.

A second GIS script was then run over data to generate a count of the number of threatened fauna species at any point in the REM that are considered to be poorly reserved.

Output field: [Fauna_poor]

4.1.2.3 Number of poorly reserved threatened flora species

Indicator: Count of the number of poorly reserved threatened flora species.

HCV criteria: 1.

Summary: As for poorly reserved threatened fauna species.

Data processing: As for poorly reserved threatened fauna species.

Output field: [FlorT_poor]

4.1.2.4 Integrated species reservation index

Indicator: Summed total of the number of poorly reserved non-listed flora; threatened flora and threatened fauna.

HCV criteria: 1.

Summary: Indicator is a sum of the three inputs described above.

Data processing: A field containing the sum of the input fields ([Flora_poor], [FlorT_poor] and [Fauna_poor]) was added and populated.

Output field: [Sppres_ndx]

4.1.3 Threatened species concentration index

An overall index of the concentration of threatened species was derived from a number of inputs and classifications. These are described separately below, followed by a description of the integrated index.

The habitat, distribution, sensitivity and population characteristics of threatened species vary enormously. Some species occur widely across the landscape and, while threatened, are sensitive to only certain types of disturbance (albeit some critically). Other species are more localised and may need all of their extent to be protected. These factors apply particularly to Tasmanian threatened fauna. Two concepts were developed as a means of providing differentiation among species based on variation in these characteristics – Landscape Dependent Fauna (LDF) and fauna species with Critically Limited Locations (CLL).

The LDF species group was created as a means to differentiate the species that occur widely across the landscape. These species are not necessarily sensitive to loss of any one area from their distribution. Instead they are considered to be dependent on an adequate supply of key habitat features at the landscape scale across their distribution. Table 4 shows the species considered to have the characteristics of LDF. Within this group was identified a further attribute for den, nest or roost sites, which may be locally sensitive.

CLL fauna species were used to identify those species whose distribution is either highly restricted, or whose range of environmental situations in which the species occurs is limited. These species are considered either more likely to be sensitive to loss, disturbance or inappropriate management, or to carry greater risk to survival of the species across its range. CLL species were defined as those that have been recorded on only one land system or on no more than six land system components (six components generally being the maximum number in a land system). 84 fauna species were identified as meeting the criteria for CLL (Table 5). Not all the species occur in the FMU.

Table 4. Landscape Dependent Fauna

Species	EPBC status	TSPA status	Dens / nest /roosts	Notes
Australian Grayling (*Prototroctes maraena)*	VU	v		
Bass Strait Wombat (*Vombatus ursinus* subsp. *ursinus*)	VU			Species does not occur in FMU. Included for completeness.
Clarence Galaxias (*Galaxias johnstoni*)	EN	e		
Eastern Barred Bandicoot (*Perameles gunnii*)	VU			
Eastern Quoll (*Dasyurus viverrinus*)			Y	Non-listed species. Not part of index but included for completeness. No dens in NVA.
Giant Freshwater Crayfish (*Astacopsis gouldi*)	VU	v		
Grey Goshawk (*Accipiter novaehollandiae*)		e	Y	
Masked Owl (*Tyto novaehollandiae*)	VU	e	Y	
Spotted-tailed Quoll (*Dasyurus maculatus*)	VU	r	Y	Only one den in NVA.
Swan Galaxias (*Galaxias fontanus*)	EN	e		
Swift Parrot (*Lathamus discolor*)	EN	e	Y	
Tasmanian Azure Kingfisher (*Ceyx azureus* subsp. *diemenensis*)	EN	e	Y	No nest site data currently available. Species nests in areas adjacent to rivers.
Tasmanian Bettong (*Bettongia gaimardi)*				Non-listed species. Not part of index but included for completeness.
Tasmanian Devil (*Sarcophilus harrisii*)	EN	e		Only post-2005 recorded locations are included as extant habitat. Approximately 30 dens in NVA.
Wedge-tailed Eagle (*Aquila audax* subsp. *fleayi*)	EN	e	Y	
White-bellied Sea Eagle (*Haliaeetus leucogaster*)		v	Y	

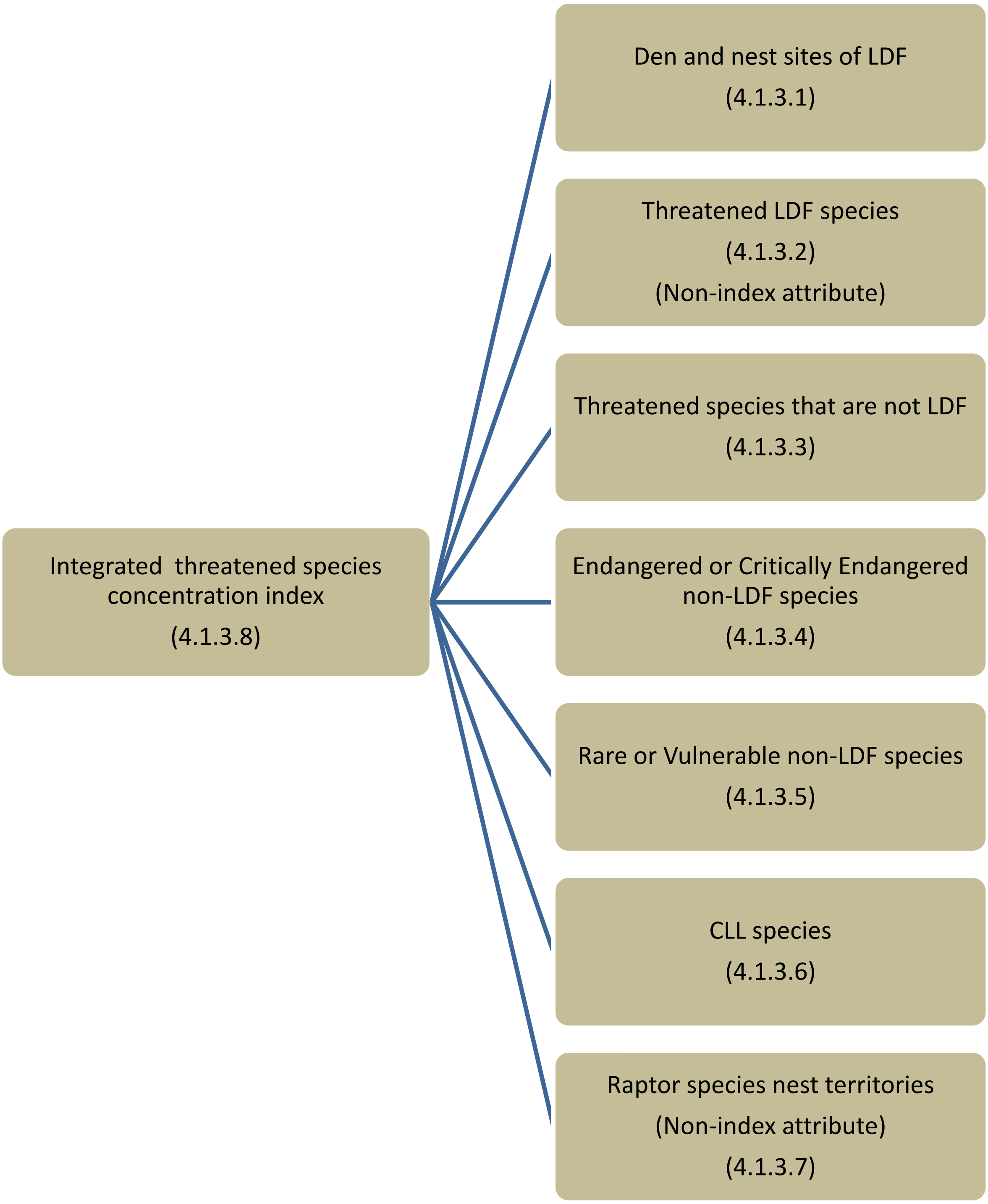
Table 5. Fauna species with Critically Limited Locations

Species	EPBC status	TSPA status
King Island Brown Thornbill (*Acanthiza pusilla* subsp. *archibaldi*)	EN	e
King Island Scrubtit (*Acanthornis magna* subsp. *greeniana*)	CR	e
Chevron looper moth (*Amelora acontistica*)		v
Rapid River freshwater snail (*Beddomeia angulata*)		r
Hydrobiid snail (West Gawler) (*Beddomeia averni*)		e
Bell's freshwater snail (*Beddomeia bellii*)		r
Hydrobiid snail (Bowry Creek) (*Beddomeia bowryensis*)		r
Hydrobiid snail (Cam River) *(Beddomeia camensis)*		e
Hydrobiid snail (Table Cape) (*Beddomeia capensis*)		e
Hydrobiid snail (Heathcote Creek) (*Beddomeia fallax*)		r
Forth River freshwater snail (*Beddomeia forthensis*)		r
Hydrobiid snail (Frankland River) (*Beddomeia franklandensis*)		r
Hydrobiid snail (Frome River) (*Beddomeia fromensis*)		e
Hydrobiid snail (Farnhams Creek) (*Beddomeia fultoni*)		e
Hydrobiid snail (Salmon River Road) (*Beddomeia gibba*)		r
Hydrobiid snail (Buttons Rivulet) (*Beddomeia hallae*)		e
Hydrobiid snail (Viking Creek) (*Beddomeia hermansi*)		e
Hulls freshwater snail (*Beddomeia hullii*)		r
Upper Castra freshwater snail (*Beddomeia inflata*)		r
Hydrobiid snail (Macquarie River) (*Beddomeia kershawi*)		e
Hydrobiid snail (Dip Falls) (*Beddomeia kessneri*)		
Hydrobiid snail (St Pauls River) (*Beddomeia krybetes*)		v
Hydrobiid snail (Cataract Gorge) (*Beddomeia launcestonensis*)		e
Castra Rivulet freshwater snail (*Beddomeia lodderae*)		v
Blythe River freshwater snail (*Beddomeia petterdi*)		e
Hydrobiid snail (Keddies Creek) (*Beddomeia phasianella*)		v
Hydrobiid snail (Emu River) (*Beddomeia protuberata*)		r
Hydrobiid snail (St Patricks River) (*Beddomeia ronaldi*)		e
Hydrobiid snail (Salmon River) (*Beddomeia salmonis*)		r
Savage River Mine freshwater snail (*Beddomeia trochiformis*)		r
Hydrobiid snail (Great Lake) (*Beddomeia tumida*)		e
Claytons Rivulet freshwater snail (*Beddomeia waterhouseae*)		e
Wilmot River freshwater snail (*Beddomeia wilmotensis*)		r
Hydrobiid snail (Blizzards Creek) (*Beddomeia wiseae*)		v
Zeehan freshwater snail (*Beddomeia zeehanensis*)		r
Great Lake glacidorbid snail (*Benthodorbis pawpela*)		r
Craggy Island cave cricket (*Cavernotettix craggiensis*)		r
Tunbridge looper moth (*Chrysolarentia decisaria*)		e
Saltmarsh looper moth (*Dasybela achroa*)		v
Ammonite snail (*Discocharopa vigens*)	CR	e
Flinders Island cave slater (*Echinodillo cavaticus*)		r
Caddis fly (Macquarie River) (*Ecnomina vega*)		r

Species	EPBC status	TSPA status
Weldborough forest weevil (*Enchymus sp. nov*)		r
Furneaux burrowing crayfish (*Engaeus martigener*)	EN	v
Hydrobiid snail (Great Lake) (*Glacidorbis pawpela*)		pr
Cave Beetle (Ida Bay) or blind cave beetle (*Goedetrechus mendumae*)		v
Salt lake slater (*Haloniscus searlei*)		e
Ida Bay cave harvestman (*Hickmanoxyomma cavaticum*)		r
Bornemissza's stag beetle (*Hoplogonus bornemisszai*)	CR	e
Caddis fly (St Columba Falls) (*Hydrobiosella sagitta*)		r
Caddis fly (Upper Scamander River) (*Hydroptila scamandra*)		r
Cave beetle (Hastings Cave) (*Idacarabus cordicollis*)		r
Ida Bay cave beetle (*Idacarabus troglodytes*)		r
Isopod (Great Lake) (*Mesacanthotelson setosus*)		r
Isopod (Great Lake) (*Mesacanthotelson tasmaniae*)		r
Southern sandstone cave cricket (*Micropathus kiernani*)	CR	e
Spider (Cataract Gorge) or Plomley's trapdoor spider (*Migas plomleyi*)		e
Stanley snail (*Miselaoma weldii*)		e
Eastern Curlew (*Numenius madagascariensis*)		e
Caddis fly (South Esk River) (*Oecetis gilva*)		r
Cave spider (Bubs Hill Cave) (*Olgania excavata*)		r
Isopod (Great Lake & Shannon Lagoon) (*Onchotelson brevicaudatus*)		r
Isopod (Great Lake) (*Onchotelson spatulatus*)		e
Caddis fly (Wedge River) (*Orphninotrichia maculata*)		r

Species	EPBC status	TSPA status
Caddis fly (Derwent River) (*Orthotrichia adornata*)		r
Great Lake galaxias (*Paragalaxias eleotroides*)	VU	v
Arthurs galaxias (*Paragalaxias mesotes*)	EN	e
Cave cricket (*Parvotettix rangaensis*)		r
Whinray's cave cricket (*Parvotettix whinrayi*)		r
Snail (Cataract Gorge) (*Pasmaditta jungermanniae*)		v
Warratah Road freshwater snail (*Phrantela annamurrayae*)		r
Little Henty River freshwater snail (*Phrantela conica*)		r
Heazlewood River freshwater snail (*Phrantela marginata*)		r
Green Rosella (King Island) (*Platycercus caledonicus brownii*)		v
Lake Fenton trapdoor spider (*Plesiothele fentoni*)		e
Tasmanian hairstreak (*Pseudalmenus chlorinda* tax *myrsilus*)		r
Cave pseudoscorpion (Mole Creek) (*Pseudotyrannochthonius typhlus*)		r
Caddis fly (Corinna) (*Ramiheithrus kocinus*)		r
Silky snail (*Roblinella agnewi*)		r
Schayer's grasshopper (*Schayera baiulus*)		e
Caddis fly (Bluff Hill Creek) (*Stenopsychodes lineata*)		r
Caddis fly (Huon & Picton Rivers) (*Tasimia drepana*)		r
Amphipod (Great Lake) (*Tasniphargus tyleri*)		r
Isopod (Great Lake) (*Uramphisopus pearsoni*)		r

The inputs to the index and other attributes generated but not used directly are shown below.



4.1.3.1 Den and nest sites of Landscape Dependent Fauna

Indicator: A count of the number of species which have known dens or nests in an area, and known roosts of the Masked Owl.

*HCV criteria:*1.

Summary: Den and nest sites of LDF represent sites which may be sensitive to loss, disturbance or inappropriate management, within the otherwise extensive range of these species. Den and nest data is recorded in the NVA but the completeness of data varies significantly between species. Some species, such as Wedge-tailed Eagles and White-bellied Sea Eagles have numbers of records which may represent a significant proportion of the total in the State. For other species, such as dens of Tasmanian Devils (n = 30) and Spotted-tailed Quolls (n = 1), the coverage is far from complete or virtually lacking.

Data processing: Den and nest sites are tagged as a separate attributes in the REM species lookup table, in addition to other attributes of species habitat such as foraging or breeding habitat or habitat around known locations. For example, nests of the Swift Parrot are coded SP_n, while foraging habitat is coded SP_f. Dens, nests and roosts are also attributed in the NVA records. The species modelling process separately generates habitat associated with dens and nests, and assigns it a distinct code in the lists of species codes in the REM. Thus for these species it is possible to distinguish the different elements of the habitat (note that multiple habitat attributes of the one species are still only counted as a single species).

A separate GIS script is run on the completed REM layer to count the number of species which have dens or nests attributed in an area. This data is stored in a separate field in the REM.

Output field: [LDF_denest]

4.1.3.2 Number of threatened Landscape Dependent Fauna

Indicator: The number of threatened LDF fauna species in an area.

HCV criteria: 1.

Summary: See discussion of the LDF concept in Section 3.2.1.3 above.

Data processing: A GIS script is used to test each concatenated list of threatened species codes, and to sum the number of species attributed for each point in the REM. The script controls for species with multiple habitat attributes so they are only counted once. The count of the number of LDF species is written to a separate field.

Output field: [LDF_RTE]

4.1.3.3 Number of threatened species that are not Landscape Dependent Fauna

Indicator: The number of threatened species (flora and fauna) in an area that are not LDF.

HCV criteria: 1.

Summary: Threatened species that are not LDF are considered more likely to be sensitive to loss, disturbance or inappropriate management. Risk to these species is also magnified where the total number of sites or areas where they occur is small. The indicator facilitates identification of areas that may be sensitive for threatened species.

Data processing: The GIS processing of this group of species is the opposite to that of LDF. Each concatenated string of species codes is tested, with the total number of threatened species (field [Sp_T_numZ]) reduced for each occurrence of an LDF. The resultant count is written to a separate field. This is equivalent to the sum of the numbers of non-LDF species that are Endangered or Critically Endangered (section 4.1.3.4) or Vulnerable or Rare (section 4.1.3.5).

Output field: [Thr_notLDF]

Note: The data stored in the output field is for information only and is not used in the integrated index, which distinguishes species in this class based on their threat status.

4.1.3.4 Number of Endangered or Critically Endangered species that are not Landscape Dependent Fauna

Indicator: The number of species of flora and fauna which are not LDF but are listed as Endangered or Critically Endangered.

HCV criteria: 1.

Summary: This indicator is a subset of the total number of threatened species that are not LDF. Conservation status data is stored within the REM species lookup table, which includes a separate field attributing species that are either Endangered or Critically Endangered.

Data processing: GIS processing for this group of species tests each species in the concatenated list of species codes (field [Sp_T_listZ]) to first determine they are not LDF, and then that they are Endangered or Critically Endangered. The count of the number of species meeting the criteria is written to a separate field.

Output field: [End_notLDF]

4.1.3.5 Number of Rare or Vulnerable species that are not Landscape Dependent Fauna

Indicator: The number of species of flora and fauna which are not LDF but are listed as Vulnerable or Rare.

HCV criteria: 1.

Summary: This indicator is a subset of the total number of threatened species that are not LDF. Conservation status data is stored within the REM species lookup table, which includes a separate field attributing species that are either Vulnerable or Rare.

Data processing: GIS processing for this group of species tests each species in the concatenated list of threatened species codes (field [Sp_T_listZ]) to first determine they are not LDF, and then that they are Vulnerable or Rare. The count of the number of species meeting the criteria is written to a separate field.

Output field: [RV_notLDF]

4.1.3.6 Number of species with Critically Limited Locations

Indicator: A count of the number of species in an area that are characterised as having Critically Limited Locations.

HCV criteria: 1.

Summary: See discussion of the CLL concept in section 4.1.3 above.

Data processing: A GIS script is used to test each concatenated list of threatened species codes, and to sum the number of species attributed for each point in the REM. The script controls for species with multiple habitat attributes so they are only counted once. The count of the number of LDF species is written to a separate field.

Output field: [CLL_spp]

4.1.3.7 Number of raptor species nest territories

Indicator: A count of the number of raptor species whose territories occur in an area.

HCV criteria: 1.

Summary: The raptor species used in the indicator are those that are listed as threatened, i.e. Masked Owl, Wedge-tailed Eagle, Grey Goshawk and White-bellied Sea Eagle. Codes for these species are given a unique attribute suffixed to indicate nest sites (xxxx_n). Masked Owl roost sites are also included within this attribution.

Data processing: Raptor nest territories are modelled in the REM using NVA record location data. A subsequent GIS script is used to find areas containing nests (indicated by the present of "_n;") in the list of species codes, and to then count the number of species with the attribute. The count of the number of species is written to a separate field.

Output field: [Raptor_nst]

Note: This indicator is recorded separately in the REM for information. It is not used directly in the integrated index, as it is a sublet of the indicator for den and nest sites of LDF (section 4.1.3.1).

4.1.3.8 Integrated threatened species concentration index

Indicator: A score indicating the relative concentration of threatened species, weighted by species threat status, habitat specificity and distribution.

HCV criteria: 1.

Summary: Species conservation status in the indictor is differentiated into two groups – species that Endangered or Critically Endangered, and species that are Rare or Vulnerable. Habitat specificity is differentiated into three classes – LDF species, den and nest sites of LDF species, and other species. Distribution of species is differentiated on the basis of them being CLL species or not. The index gives a high weighting to species that are of more threatened conservation status, greater habitat specificity and more limited distribution.

Habitat specificity & distribution	Rare / Vulnerable species	Endangered / Critically Endangered species
LDF species – den / nest sites	1	100
LDF species - habitat	0	10
Other (not LDF) species with CLL	1	100
All other species (i.e. not CLL or LDF)	1	10

Data processing: A GIS script is used to assess the inputs to the indicator described in the preceding sections, and where necessary match the each species in the concatenated string of species codes to the its conservation status in the species lookup table. The resultant integrated index is the sum of the 'scores' for each species at a location, and is written to a separate field.

Output field: [RTEcon_ndx]

4.1.4 Species depletion index

Indicator: An indicator of the relative depletion of the species present in an area and their former population size or distribution, weighted by the species conservation status and its extant distribution.

HCV criteria: 1.

Summary: Species depletion is an explicit factor in determining whether species are listed as threatened. It is used in species determinations for the Commonwealth EPBC Act[22] and the Tasmanian TSP Act[23], and is also part of the IUCN framework for maintenance of the global 'Red List' of threatened species. Rare species are generally considered not to have been significantly depleted; they are naturally rare and the risk to their survival is largely from stochastic factors. Vulnerable and Endangered species have higher levels of depletion, including potential future depletion, included as part of the guidelines for listing.

Species conservation status	Not CLL species	CLL species
Rare	0	0
Vulnerable	1	2
Endangered / Critically Endangered	2	3

Data processing: A GIS script is used to test each concatenated list of species codes in the REM and assign the appropriate 'score' to each species. The scores for each species are summed to generate the indicator for the location, which is written to a separate field.

Output field: [SppDep_ndx]

[22] Threatened Species Scientific Committee (nd). Guidelines for assessing the conservation status of native species according to the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) and EPBC Regulations 2000. Australian Government, Canberra. http://www.environment.gov.au/system/files/pages/d72dfd1a-f0d8-4699-8d43-5d95bbb02428/files/guidelines-species.pdf (Cited: 11 Mar 2014)

[23] Department of Primary Industries, Parks, Water & Environment (2008). Guidelines for the listing of species under the Tasmanian Threatened Species Protection Act 1995. Revised guidelines as at 29/10/08, Department of Primary Industries, Parks, Water & Environment, Hobart. http://www.dpiw.tas.gov.au/inter,nsf/Attachments/LBUN-59X7G2?open

4.2 Old growth forest indicators

4.2.1 Conservation status of old growth forests

Indicator: Conservation status category of type 1 old growth forests, determined on a bioregional basis using the JANIS criteria.

HCV criteria: 3.

Summary: Old growth forests are considered to be an HCV under the FSC Australia HCV evaluation framework. Type 1 old growth forests are those mapped to the definition used in the RFA, i.e. old growth forests are ecologically mature forests where the effects of disturbance are now negligible. Old growth forests are classified under the JANIS criteria as:

- Rare – generally having an extent of 1,000 ha or less in the bioregion (“R”);
- Depleted –the proportion of a forest community which is old growth is around 10% of the total community area (“D”); and
- Present but not Rare or Depleted (“p”).

The categories of Rare and Depleted are not exclusive; old growth forest may be either Rare or Depleted or both (“RD”).

Data processing: Old growth forest mapping was integrated into the REM and old growth determined using logical rules based on the associated vegetation community having a recognised old growth form, and equivalence between Tasveg communities and RFA communities for JANIS analysis (see Attachment 8). The conservation status of old growth forests on a bioregional basis was sourced from the IVG report of Knight (2012 *op. cit.*), which automatically assigned Rare or Depleted status where the quantitative thresholds were met and incorporated qualitative determinations where:

- The extent of old growth was 1,000 – 1,500 ha; or
- The percentage of the forest community extant as old growth was 10 – 15%.

The data were reviewed to identify old growth forest which are both Rare and Depleted. These data were stored to a separate field in the REM. The data are presented in Attachment 10.

Output field: [OG_statusZ]

4.2.2 Type 2 old growth forest of Rare or Depleted Type 1 old growth

Indicator: Forest vegetation which is not mapped old growth but contain significant late-successional/old-growth structure and functions and whose associated Type 1 old growth is Rare or Depleted.

HCV criteria: 3.

Summary: Type 2 old growth was defined by FT as forests that are not old growth but are:

- Mature forests in PI-type mapping; and
- Have a biophysical naturalness of four or five.

Data processing: Type 2 old growth was identified from within the REM from the definitive fields for vegetation structure (field [Vstr_useZ]) and biophysical naturalness (field [LF_BN_useZ]). Rare and Depleted Type 1 old growth was identified from data described in the previous section. Data for the indicator was stored in a separate field ("Y").

Output field: [OGtyp2_RD]

4.2.3 Type 1 old growth reservation index

Indicator: An indicator of the relative significance of management for the old growth forests of an ecosystem in a bioregion, based on the extent to which the old growth is reserved relative to it JANIS reservation target and also its JANIS conservation status.

HCV criteria: 3.

Summary: The JANIS criteria used a base target of 60% of the extant are area of old growth forest at the time of assessment, with a target of 100% for Rare and/or Depleted old growth types. Analysis of old growth against JANIS reservation targets was updated for the IVG (Knight, 2012 *op. cit.*), and include a minimum target of the old growth of each forest community of 1,000 ha (if available) in each bioregion.

The IVG analysis is now significantly out of date due to the creation of new reserves under the *Tasmanian Forests Agreement Act 2013*. The methods described in the IVG analysis were used to generate an updated reservation analysis for old growth, including application of the rules for quantitative and qualitative determinations of conservation status. The schema for the index is shown below.

	Reservation shortfall on JANIS target				
JANIS conservation status	**0%**	**0-10%**	**10-30%**	**30-50%**	**>50%**
Not threatened	0	1	2	3	3
Rare	0	1	2	3	3
Depleted	0	2	3	4	4
Rare and Depleted	0	2	3	4	4

Data processing: An integrated GIS layer was generated combining current vegetation mapping (APU data), old growth mapping[24] and the Tasmanian reserves spatial layer of DPIPWE (30 June 2013). This layer includes areas of future reserves to be gazetted under the TFA Act, and are treated as reserved areas for the analysis. Data on the extent and reservation of old growth forests was extracted from the integrated layer and added to the spreadsheet used previously for reservation analysis. Decisions flagged by the spreadsheet as needing to be qualitatively reviewed were determined. Data from the analysis was then added to an old growth forests lookup table. A field was also added to the lookup table into which values of the indicators were placed.

A GIS script was then used to transfer values of the index from the old growth forest lookup table to a separate field in the REM containing the old growth forest reservation index. Attachment 10 contains the updated old growth reservation analysis.

Output field: [OG1_resndx]

4.2.4 Type 2 old growth reservation index

Indicator: An indicator of the relative importance of Type 2 old growth in maintaining older forest features across the landscape, when Type 1 old growth is not adequately reserved.

HCV criteria: 3.

Summary: Type 2 old growth was considered to be important in maintaining older forest features across the landscape where the Type 1 old growth of the same community was Rare or Depleted (see section 4.2.2) and not reserved to its JANIS target (see section 4.2.3). The index was stratified based on the percentage of the area of Type 2 old growth that would be required to fulfil the reservation target shortfall for Type 1 old growth. The schema used to provide a relative ranking is shown below.

	Type 2 old growth required to meet Type 1 reservation shortfall				
Type 1 old growth status	**0%**	**0-10%**	**10-30%**	**30-50%**	**>50%**
Not threatened	0	0	0	0	0
Rare	0	1	2	3	4
Depleted	0	1	2	3	4
Rare and Depleted	0	2	2	3	4

Data processing: Data on the extent and area in reserves of Type 2 old growth was added to the old growth forests lookup table. These were analysed against any shortfalls in the reservation of Type 1 old growth, where the Type 1 was Rare or Depleted. The percentage of Type 2 that would be needed to meet the Type was shortfall was calculated and stored to a

[24] Old growth is part of the setting of vegetation community targets, as in some cases the old growth target can be greater than the community target, so the community target becomes the old growth target.

separate field, from which an additional field was generated containing values for the index. The percentage requirement was set to 0 where the area of type 2 in reserves exceeded the reservation shortfall for type 1 old growth. The analysis also accounted for the area of type 2 old growth being less than the shortfall on type 1 old growth. In these cases the area of type 2 old growth was substituted for the type 1 shortfall, and the percentage requirement of type 2 old growth calculated from this figure. The index values were then transferred to the REM using a GIS script. Data from the analysis are presented in Attachment 10.

Output field: [OG2_resndx]

4.3 Ecosystem indicators

4.3.1 Rainforest index

Indicator: A binary indicator of the vegetation of an area being mapped as rainforest.

HCV criteria: 3.

Summary: Rainforests are mapped in the Tasveg classification as rainforests and related scrubs. The scrub component of the classification shares significant numbers of species with rainforests which have the structural form of forests. All Tasveg rainforests and scrubs ("R" codes) were tagged for the index.

Data processing: Vegetation mapped with an "R" code was assigned a value of 1, which was stored in a separate field.

Output field: [Rainft_ndx]

4.3.2 Ecosystem depletion index

Indicator: A scale indicating relative depletion of an ecosystem in its bioregion since pre-1750, based on classes in the JANIS criteria (Commonwealth of Australia, 1997[25]).

HCV criteria: 3.

Summary: The JANIS criteria provide guidance on the determination of the conservation status of ecosystems based on their extant area and relative loss since 1750. The conservation status categories can be summarised as:

- Endangered – depletion approaching 90% or more of pre-1750 extent;
- Vulnerable – depletion approaching 70% or more of the pre-1750 extent;
- Rare – not significantly depleted but of limited extent; and
- Not threatened.

The categories are not exclusive and both Endangered and Vulnerable ecosystems can also be Rare. The combination of Endangered or Vulnerable with Rare was considered to increase the risk to an ecosystem due to its limited extent. The index is shown below.

[25] Commonwealth of Australia (1997). Nationally agreed criteria for the establishment of a comprehensive, adequate & representative reserve system for forest in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Commonwealth of Australia, Canberra.

JANIS bioregional conservation status	Ecosystem depletion index
Not threatened	0
Rare	0
Vulnerable	1
Vulnerable and Rare	2
Endangered	3
Endangered and Rare	4

Data processing: Data on the pre-1750 extent and loss of forest vegetation communities was sourced from Knight (2012[26]), which represents the most recent available update of the pre-1750 analysis developed for the RFA (TPLUC, 1996[27]). Data on the pre-1750 extent and loss of non-forest vegetation communities was sourced from CARSAG (2002[28]), which provides data for six of the nine Tasmanian bioregions. In common with the methods used in the CARSAG report, conservation status was automatically assigned where quantitative thresholds were met and qualitatively assigned through consideration of classes proximal to the quantitative thresholds. This involves consideration of the conservation status of communities which are:

- Have an extant area of 1,000–1,500 ha to determine if they may be Rare;
- Have been depleted by 50-70% of their pre-1750 extent, to determine if they may be Vulnerable;
- Have been depleted by 80-90% of their pre-1750 extent to determine if they may be Endangered;
- Listed as threatened under the *Nature Conservation Act 2002*.

The data was also reviewed so that the co-occurrence of Rare with Vulnerable or Endangered was identified and recorded (the previous assessments only identified a single category). Bioregional conservation status for non-forest communities in the remaining three bioregions was determined on a case-by-case basis taking account of the current mapped extent and categories of restriction in the CARSAG report. These communities are generally in bioregions where depletion is likely to have been limited, so is considered to have adequate reliability. Attachment 11 provides a bioregional breakdown of the extent of Tasmanian vegetation communities and their conservation status.

[26] Knight, R.I. (2012). Analysis of comprehensiveness of existing conservation reserves & proposed additions to the Tasmanian forest reserves system. Report to the Independent Verification Group for the Tasmanian Forests Intergovernmental Agreement, February 2012. Natural Resource Planning, Hobart. http://www.environment.gov.au/land/forests/independent-verification/pubs/ivg_comprehensiveness_1a.pdf
[27] Tasmanian Public Land Use Commission (1996). Tasmanian-Commonwealth Regional Forest Agreement background report part C: Environment & Heritage report volume I. November 1996. Tasmanian Public Land Use Commission, Hobart.
[28] Comprehensive, Adequate & Representative Reserve System Scientific Advisory Group (2002). Advice on reservation targets for Tasmanian native non-forest vegetation. 31 July 2002. Comprehensive, Adequate & Representative Reserve System Scientific Advisory Group, Department of Primary Industries, Water & Environment, Hobart.

The data were stored in the vegetation communities lookup table for the REM. A GIS script was used to add the conservation status categories for each community-bioregion combination to the REM layer (field [IBRA_statZ]) and to record the numeric value of the indicator in a separate field.

Output field: [VegDep_ndx]

4.3.3 Ecosystem reservation index

Indicator: An indicator of the relative significance of management for an ecosystem in a bioregion, based on the extent to which the ecosystem is reserved relative to it JANIS reservation target and also its JANIS conservation status.

HCV criteria: 3.

Summary: The JANIS criteria used the percentage of pre-1750 extent of ecosystems as the base target for establishing conservation reserves. These data are available for forest communities but are not complete for non-forest. Analysis of reservation levels for forest and non-forest vegetation communities was therefore undertaken separately. It was considered preferable to use a consistent framework for the non-forest analysis, rather than using the pre-1750 framework where data were available and another where not.

Analysis of forest communities against JANIS reservation targets was updated during the development of the Tasmanian Forests Agreement (Knight, 2012 *op. cit.*) but is now significantly out of date due to the creation of new reserves under the *Tasmanian Forests Agreement Act 2013*. The methods described in the report were used to generate an updated reservation analysis for forest communities, including application of the rules relating to fuzzy bioregions (Attachment 9), quantitative and qualitative determinations of conservation status, and logical consistency rules addressing the nestedness of the JANIS targets framework. The rules for determining reservation targets and addressing nestedness were:

- All communities have a minimum reservation target of 1,000 in each bioregion, if extant;
- If the reservation target for Vulnerable communities is less than 15% of the pre-1750 extent then the target is raised to 15% of the pre-1750 area (or the extant area if less);
- If the reservation target for old growth of the community is a larger area than the target for the community as a whole then the target area for old growth is adopted for the community (which in practice would be implemented by pursuing reservation of old growth); and
- If the extant area falls below the applicable reservation target then the extant area is adopted as the target.

The results of the analysis are presented in Attachment 11. The schema for the index is shown below.

	Reservation shortfall on JANIS target				
JANIS conservation status	**0%**	**0-10%**	**10-30%**	**30-50%**	**>50%**
Not threatened	0	1	2	3	3
Vulnerable (and not Rare)	0	1	2	3	3
Rare	0	2	3	4	4
Endangered	0	2	3	4	4

For non-forest vegetation updated figures for extent and reservation, taking account of *TFA Act* reserves, was generated. Values for the index were those developed for the vegetation conservation status index (section 3.1.2.2) and are scaled from one to four.

Data processing: An integrated GIS layer was generated combining current vegetation mapping (APU data), old growth mapping[29] and the Tasmanian reserves spatial layer of DPIPWE (30 June 2013). This layer includes areas of future reserves to be gazetted under the TFA Act, and are treated as reserved areas for the analysis. Data on the extent and reservation of forest communities was extracted from the integrated layer and added to the spreadsheet used previously for reservation analysis. Decisions flagged by the spreadsheet as needing to be qualitatively reviewed were determined. Data from the analysis was then added to a vegetation lookup table and the values of the index added to a separate field.

Non-forest reservation levels had been previously updated for the native vegetation conservation status index, so required no further processing.

A GIS script was then used to transfer values of the index from either the vegetation lookup table (for forests) or the native vegetation conservation index field (non-forest) to a separate field containing the ecosystem reservation index.

Output field: [Vegres_ndx]

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[29] Old growth is part of the setting of vegetation community targets, as in some cases the old growth target can be greater than the community target, so the community target becomes the old growth target.

4.3.4 Remnant vegetation index

Indicator: A binary index indicating patches of remnant vegetation considered to be in heavily cleared landscape.

HCV criteria: 3.

Summary: Native vegetation patch size is stored in the APUs and identifiable from the remnant vegetation analysis in the standard REM (section 3.1.3). Remnants were considered to meet the requirements of the indicator if they:

- Have a High or Very High Immediate Level of Concern for landscape ecological function (see section 3.1.6); or
- Are located on a land system component with >90% clearing bias (see section 3.1.5); or
- Are located in an area where the density of native vegetation is <10% at the one kilometre scale, or less than 30% at the five kilometre scale (see attachment 3 to the REM report, pages 13-14, for a description of this data).

Data processing: Data for remnants meeting the criteria for landscape function or clearing bias were identified from within the REM and stored in a separate field ([Remveg_ndx]). Remnants meeting the criteria for native vegetation density were identified externally from the REM using spatial selection on the APU and native vegetation density layers, before being added to the indicator field in the REM.

Output field: [Remveg_ndx]

Biodiversity data, models and indicators for Forestry Tasmania's Forest Management Unit: Attachments 1-5, 8-11

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CONTENTS

ATTACHMENT 1. EXAMPLE ISSUE SUMMARY FROM REM STRATEGY REVIEW[1]

4.1.1.8 Issue: Remnant vegetation

Summary

Remnant vegetation is defined as islands of native vegetation, below a specified size, that are surrounded by cleared land.

Remnant vegetation has been identified as being of critical importance to landscape function and biodiversity conservation within the region and throughout eastern and southern Australia. Remnant vegetation is directly related to the issues of native vegetation clearing bias, condition, tree decline, riparian vegetation, connectivity, salinity and erosion.

The role and management of remnant vegetation has been subject to substantial research (see, for example, Saunders *et al*. 1987[2]). This research has produced some interesting results that indicate the complexity of the subject . Examples include:

- Characteristics of tree hollows vary between species, and hence have different value for hollow dwelling fauna in remnants (Bennett *et al*. 1994[3]).
- Lindenmayer *et al*. (1999[4]) found no significant differences in mammal species presence and abundance between remnants and large continuous forest areas surrounded by softwood plantations.
- The importance of remnant size varies among species and taxonomic groups, with size (but not isolation) having been found consistently important for small mammals (Holland and Bennett 2009[5]) but not for threatened flora species (Kirkpatrick and Gilfedder 1995).
- Edge effects in small remnants may lead to loss of condition or of entire remnants through landuse effects such as grazing-induced increases in soil nutrients, tree decline and weed invasion (Close *et al*. 2008[6]).
- The geometry of remnant patches is important, particularly lobes which enhance maintenance and reconstruction of ecosystems significantly relative to the proportion

[1] From Knight & Cullen (2009), *op. cit.* pp42-44.
[2] Saunders, D.A., Arnold, G.W., Burbidge, A.A. & Hopkins, A.J.M. (Eds). Nature conservation: the role of remnants of native vegetation. Surrey Beatty & Sons.
[3] Bennett, A.F., Lumsden, L.F. & Nicholls, A.O. (1994). Tree hollows as a resource for wildlife in remnant woodlands: spatial & temporal patterns across the northern plains of Victoria, Australia. Pacific Conservation Biology, 1(3):222-235.
[4] Lindenmayer, D.B., Cunningham, R.B. & Pope, M.L. (1999). A large-scale 'experiment' to examine the effects of landscape context & habitat fragmentation on mammals. Biological Conservation, 88:387-403.
[5] Holland, & Bennett, A.F. (2009). Differing responses to landscape change: implications for small mammal assemblages in forest fragments. Biodiversity & Conservation, 18(11):2997-3016.
[6] Close, D.C., Davidson, N.J. & Watson, T. (2008). Health of remnant woodlands in fragments under distinct grazing regimes. Biological Conservation, 141(9):2395-2402.

of remnant size they represent (Harwood and Mac Nally 2005[7]). An exaggerated form of lobes in remnants are linear corridors.

Although these findings point to divergent needs in the management of remnant vegetation, they do not detract from their potential importance in landscape function and the need for them to be managed appropriately, particularly through consideration of landscape context, permeability and the matrix in which they occur.

Remnant vegetation can also be important in the economic performance of farm production environments. Walpole (1999) found that the value of pasture output on a farm was greatest when farm tree cover was 34% but did not increase beyond this level, possibly due to the competitive influence of trees exceeding the stimulatory effect on pasture production.[8]

Strategies

Issues	**Overarching Document**						**Other Documents**
	Nat. Cons.	DEW	FPC	NRM Nth	NRM Sth	Tas. Tog.	
Remnant vegetation	Y		Y	Y			• National Biodiversity Strategy • Tasmanian Salinity Strategy • Tasmanian Threatened Species Strategy

The Tasmanian Nature Conservation Strategy's Recommended Action 31 is to amend the Forest Practices Act 1985 to increase protection for special values, including identifying and protecting remnants as a 'special value' and classifying them in forestry planning as 'vulnerable land' (p27). The Government states that the Forest Practices System already recognises remnants through the special values evaluation process and that further protection is afforded under the Threatened Species Management Protocols and the new Australian Forestry Standard provides for best practice on these issues.

For areas where native forests occur mainly as remnants, the Forest Practices Code requires consideration be given to the retention of remnants and widening and linking habitat strips (D3).

The NRM North Strategy's recommended Action MAB1 addresses this issue as of lower priority through developing strategies to facilitate the reservation of high priority remnants of

[7] Harwood, W. & MacNally, R. (2005). Geometry of large woodland remnants & its influence on avifaunal distributions. Landscape Ecology, 20(4):401-416.
[8] Walpole, S.C. (1999). Assessment of the economic & ecological impacts of remnant vegetation on pasture productivity. Pacific Conservation Biology, 5:28-35.

native vegetation and the inclusion of conservation provisions within all levels of government planning.

The National Biodiversity Strategy's Action 1.2.2 (d) (Bioregional planning) includes improving protection of and management for biological diversity in closely settled environments and the coastal zone, with particular attention being paid to remnant areas (p14). Action 1.3.1 (Integrated techniques) involves improving integrated land management techniques, with emphasis on research into practical, cost-effective methods for the conservation of natural habitat, including remnant vegetation (p14). Action 1.5.1 (a) (Incentives for conservation) includes ensuring adequate, efficient and cost effective incentives exist to conserve biological diversity, with priority given, *inter alia*, to remnant vegetation (p17). Action 2.2.3 (Improved management) encourages landholders, other land managers, governments and industry organisations to protect biological diversity by identifying and managing critical biological diversity areas, including habitat remnants on farmlands (p27). Action 2.5.2 (e) (Legislative and policy framework) is to protect aquatic ecosystems by introducing effective legislative and policy frameworks incorporating rehabilitation of wetlands and rivers as links between areas of remnant vegetation (p31). Action 3.2.5 (Voluntary protection) is to encourage voluntary management of native vegetation remnants (p37). Action 5.1.2 (Public involvement and participation) is to facilitate greater public involvement in conserving biological diversity, including remnants and particularly activities involving survey, revegetation and rehabilitation. (p50). Action 7.1.1(l) (Priorities and time frames) states that by the year 2000 Australia will have arrested and reversed the decline of remnant native vegetation (p55).

The Tasmanian Salinity Strategy states that salinity can pose a threat to some vegetation communities and habitats, with those considered most at risk found on valley floors and lower slopes, including native grassland remnants (p9). These types of communities have some of the lowest levels of reservation in the State.

The Tasmanian Threatened Species Strategy includes an Action to control clearance of native vegetation, including remnants (p10), and a number of incidental references to importance of remnant vegetation to threatened species.

ATTACHMENT 2. EXAMPLE OF REM SPECIFICATIONS DEVELOPMENT PROCESS[9]

2.2.1.8 Issue: Remnant vegetation

Issue Summary: In heavily cleared landscapes, patches of remnant vegetation can contribute significantly to the maintenance of ecosystem function, while their loss and decline is a major factor in ecosystem collapse. Their smaller size makes them vulnerable to ongoing degradation through various combinations of anthropogenic and natural ecological processes. The nature of ecological processes in remnants varies among species, with small remnants capable of maintaining some species but not others.

Indicator: The indicator for remnant vegetation is the contiguous extent of each patch of native vegetation communities, stratified into size classes. A size threshold of 200ha for remnants is based on Kirkpatrick *et al.* (2007[10]), who found remnants of 2-200ha retain much higher conservation values (for threatened flora) in their centres than on their edges. The emphasis of the indicator is on ecological function rather than on rarer values that have become so as a result of ecological change.

Assumptions: It is assumed that patches of remnant vegetation above a size threshold can be managed to improve their contribution to ecological function. It is also assumed that this can be delivered on a case-by-case basis, though the role of other factors, particularly connectivity, is acknowledged.

Data processing: GIS methods were applied to the integrated vegetation layer for the project to generate a unique ID and area for each patch of contiguous native vegetation in Tasmania. A histogram of patch sizes in the range of 0-200ha (n=29,173 of 29,432 patches) was generated and examined but no disjunction in patch size distribution was evident.

Native vegetation patch size (ha)	Concern – Immediate	Concern – Potential	Opportunity
Not native vegetation	L	L	na
<2ha	M	L	L
2-20ha	VH	VH	H
20-200ha	H	VH	M
>200ha	L	M	L

[9] From Knight and Cullen (2010) *op. cit.* pp13-14, modified since publication with addition of non-native vegetation to prioritisation schema.

[10] Kirkpatrick, J.B., Gilfedder, L., Mendel, L. & Jenkin, E. (2007). Run country on the run. pp161-181 in Kirkpatrick, J. & Bridle, K. (Eds.). People, sheep & nature conservation: the Tasmanian experience. CSIRO Publishing, Melbourne.

Notes: The ranges of patch size classes within the indicator reflect first the range of 2-200ha for remnants nominated by Kirkpatrick *et al.* (2007[11]), with patches >2ha generally retaining much greater conservation values than smaller patches. Remnants <2 ha are considered to be of little importance to landscape function, while those >200 ha are subject to the processes which affect remnants at a significantly diminished intensity and effect. The split in the middle size class in the indicator is based on the RFA assessment of remnant vegetation, which considered patches <20ha, though potentially locally important, as below the threshold for importance in maintaining existing processes or natural systems at the regional scale (Tasmanian Public Land Use Commission 1997[12]). The assessment of Opportunity reflects the difficulty in increasing vegetation patch size for the remnant size classes where it may be important.

[11] Kirkpatrick, J.B., Gilfedder, L., Mendel, L. & Jenkin, E. (2007). Run country on the run. pp161-181 in Kirkpatrick, J. & Bridle, K. (Eds.). People, sheep & nature conservation: the Tasmanian experience. CSIRO Publishing, Melbourne.

[12] Tasmanian Public Land Use Commission (1997). Tasmania-Commonwealth Regional Forest Agreement background report part H: National Estate report. February 1997, Tasmanian Public Land Use Commission, Hobart.

ATTACHMENT 3. DATA SOURCES USED IN CONSTRUCTION OF THE REM

* Custom input source used or developed specifically for this REM

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
APU7_current.shp	Atomic Planning Units, version 724, integrated vegetation and biodiversity polygon layer (n = 617,333)	APUs are an integrated layer of vegetation attributes constructed on atomic principles, i.e. each polygon differs from its neighbours on at least on input attribute. Data stored in the APUs that is used in the REM is: • Desktop (Tasveg 2.0 subject to logical consistency corrections) and field (where available) vegetation mapping; • IBRA bioregions, including 'fuzzy' boundaries allocations[13]; • RFA and field (where available) old growth mapping;	Threatened species; Other priority species; Hollow dwelling species habitat; Native vegetation; Remnant vegetation; Connectivity; Biophysical naturalness	NRP	Layer includes standard inputs plus field mapping collected from NRP and other projects. Vegetation data for the current project were updated by incorporation of FT plantations, old growth and disturbance data (see below), with corrections for logical consistency.

[13] See Knight (2012) *op. cit.*

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
		• RFA and field (where available) biophysical naturalness mapping; • Eucalypt structural dominance from RFA forest resource types map (entered on a project specific basis) and field mapping (where available); • Selected attribution of polygons of species habitat and occurrence.			
CFEV_RWWESK_4.shp	Integrated polygon layer of CFEV themes (n = 576,994)	Layer is an APU-styled integration of the CFEV themes for Waterbodies, Wetlands, Estuaries, Saltmarsh and Karst, with the Rivers theme expressed as the CFEV river section catchments.	Riparian vegetation; Riparian zones; Threatened species models;	NRP	The standard REM is also attributed with CFEV Conservation Management Priority classes. The data layer provides full access to the entire set of CFEV databases from within the REM.

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
CFEVriversectioncatchments.shp	Polygon layer for each CFEV river section (n = 476,857).		Threatened species models	DPIPWE	
CFEVsubcatchments.shp	Polygon layer of CFEV subcatchments (n = 1,160).		Threatened species models	DPIPWE	
Disturbance13.shp *	Polygon layer of forest disturbance classes (n = 22,513)	Layer is a derivative of FT PI-type mapping, with disturbance coded from 0 (no disturbance) to 6 (all native vegetation removed).	Biophysical naturalness	FT	Data has been used to generate an updated Statewide layer of biophysical naturalness.
Forstruct1_attrib.shp	Reconstruction of RFA Forest Resource Types map	Map is a reconstruction of the RFA map of Forest Resource Types, which depicts classes of eucalypt dominance, and various non-eucalypt vegetation.	Hollow dwelling species habitat	na	These data are only used where eucalypt forest is mapped but there are no other data sources on eucalypt dominance

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
FT-REM_wcourse_use.shp *	1:25k watercourses for use in the REM (n = 858,379)	Layer was developed by FT from 1:25k LIST watercourses but modified to include attribution of Forest Practices Authority Stream classes and to correct location of streams where identified from field sources (e.g. Forest Practices Plans).	Riparian vegetation; Species models.	FT	The LIST watercourses used to generate the layer predated the complete Statewide coverage. The data were modified to include current LIST coverage where not in original, and attributed to match the FPC classification.
GFC_pred_hab_singpt.shp *	Species habitat model of the Giant Freshwater Crayfish (n = 9,696)	Provides categories of habitat suitability based on the model of Davies *et al.* (2007[14]) and the FPA Fauna Technical Note 3[15].	Threatened species models	FPA	This model was further refined to derive REM habitat

[14] Davies, P.E., Munks, S.A., Cook, L.J.S., von Minden, P. & Wilson, D. (2007). Mapping suitability of habitat for the Giant Freshwater Crayfish Astacopsis gouldii: background document to GIS mapping layer. Scientific Report 4, Forest Practices Authority, Hobart.

[15] Forest Practices Authority (2013). Assessing juvenile Giant Freshwater Crayfish habitat in Class 4 streams. Draft Fauna Technical Report No. 3 (v0.3, June 2013), Forest Practices Authority, Hobart.

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
Hollowdensity_1km-current.shp	Percentage of land in surrounding 1km with FPA predicted mature eucalypt habitat classes of Medium and High (n = 248,871).	Data is presented in 20 percentile bands (i.e. 0-5, 5-10, etc) and water represented as a null value (-99).	Information	FPA	The data is included as standard reference in the REM but does not form part of the REM structure. Name has been changed from original to provide for capacity to seamlessly switch to future versions.
Hollowdensity_5km-current.shp	Percentage of land in surrounding 5km with FPA predicted mature eucalypt habitat classes of Medium and High (n = 11,634).	Data is presented in 20 percentile bands (i.e. 0-5, 5-10, etc) and water represented as a null value (-99)	Information	FPA	The data is included as standard reference in the REM but does not form part of the REM structure. Name has been changed from original to provide for capacity to seamlessly switch to future versions.
Hydarea.shp	LIST polygon layer of hydrologic areas (n = 141,958).	Polygons of hydrologic features across Tasmania. Those of relevance to the REM are estuaries, floodplains, tidal zones, waterbodies, watercourses (2D, i.e. larger rivers) and wetlands.	Riparian zones; Threatened species models.	LIST	

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
Hydline.shp	LIST polylines layer of linear hydrologic features (n = 994,703).	Watercourses are used in the REM	na	LIST	Data are generally superseded by FT-REM_wcourse_use.shp, which includes some features from this layer.
Lcomps+ten13-1.shp	Integrated layer of automated land system components and 2013 Tas reserve estate layers.	Combines the Statewide mapping of land system components with current reserved areas.	Threatened species reservation index	NRP	Data generated for this version of the REM.
Lcomps_master_current.shp	Desktop and field based mapping of land system components (n = 169,012)	Layer is a partial coverage of Tasmanian land system components, delineated using a range of both desktop and field methods. Attributes follow the land components described in Richley (1978[16]) and subsequent reports.	Clearing bias	NRP	The data covers most of the dry land agricultural areas of Tasmania, plus limited other areas. Only relatively small areas extend into the HAZ. The data are used in combination with the automated land system components to derive Clearing Bias where both layers occur.

[16] Richley, L.R. (1978). Land systems of Tasmania region 3. Tasmanian Department of Agriculture, Hobart.

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
LGA_current.shp	Polygon layer of Tasmanian local government areas (n = 1,081).	Layer codes all Tasmanian local government areas (n = 29)	Information only	LIST	
Lsys_LCTPU29-1.shp	Automated land system components of Tasmania (n = 345,003)	Layer of synthetic land system components of Tasmania, derived from land systems mapping and analysis of Statewide digital elevation model.	Clearing bias; Threatened species models.	NRP	Layer generates a catena of up to 6 landforms within any land system: • Elevated plains; • Crests, ridges and upper slopes; • Steep mid slopes • Gentle lower slopes; • Steep lower slopes; and • Lower plains. Not all landforms are represented in each land system, as this is a function of the topography.
Lsys_merged_GDA.shp	Land system polygons coverage of Tasmania (n = 2,426).	Layer is a GIS representation of land systems mapped in reports by Richley (1978[17]) and subsequent reports.	Threatened species models	DPIPWE	

[17] *op. cit.*

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
Mathab_current.shp	Predicted mature eucalypt habitat map of Tasmania (n = 392,311)	Data is derived from processing of PI-type mapping to produce classes of Low, Medium, High and Negligible mature eucalypt abundance (see Koch 2011[18]).	Hollow dwelling species habitat	FPA	The FPA layer has been renamed so that updates with different names can be used automatically. Version used in REM was May 2013.
Natveg_density_1km-current.shp	Density of native vegetation in surrounding 1km (n = 51,038).	Polygon layer of native vegetation density in 20 percentile bands (0-5, 5-10, etc) and water (-99)	Remnant vegetation index	FPA	The data are one of the inputs to the mature habitat density layers. The data is a standard information component of the REM but is not part of the REM indicators system. It has been used here as one criteria for the HCV remnant vegetation indicator (see Section 3).

[18] Koch, A. (2011). Explanatory notes on the mapping of areas that potentially contain mature forest characteristics (the 'mature habitat availability map'). Fauna Technical Note 2, Forest Practices Authority, Hobart. http://www.fpa.tas.gov.au/__data/assets/pdf_file/0019/68203/Fauna_Tech_Note_2_Mature_habitat_availability_map.pdf

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
Natveg_density_5km-current.shp	Density of native vegetation in surrounding 1km (n = 30,027).	Polygon layer of native vegetation density in 20 percentile bands (0-5, 5-10, etc) and water (-99)	Remnant vegetation index	FPA	The data are one of the inputs to the mature habitat density layers. The data is a standard information component of the REM but is not part of the REM indicators system. It has been used here as one criteria for the HCV remnant vegetation indicator (see Section 3).
NVA_REMuse_current.shp	Subset of NVA records used for REM species modelling.	Layer includes all NVA records of species modelled as part of the REM.	Priority species	Developed by NRP using data from DPIPWE.	Data used for constructing the REM were current as at 7 November 2014.

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
Oldgrowth13.shp *	Old growth map of Tasmania as at 2013 (n = 13,734).	Layer is RFA old growth layer updated by FT to reflect changes due to harvesting.	Old growth forests; Hollow dwelling species habitat; Threatened species models.	FT	Attribution of old growth in the REM is controlled by logical consistency rules. These rules address different mapping inputs and linework (e.g. Tasveg non-forest mapped in the old growth layer).
PI_data_species_modelT.shp *	PI-type data for use in generating REM habitat models (n = 146,469).	Data is an extract of FT's PI-type mapping, with codes for: • Mature eucalypt crown density; • Rainforest; • Regrowth crown density; and • Eucalypt mature/regrowth structural dominance.	Hollow dwelling species habitat; Threatened species models.	FT	

Data source	Brief title	Summary	REM issues/ uses	Custodian	Notes
Spp_special_pgons-1.shp	Species range and habitat polygons for use in REM habitat models (n = 104).	Polygons are drawn from a range of sources, so that only that which is used in the current model is included.	Threatened species models	DPIPWE NRP FPA Others	Majority of polygons are sources from DPIPWE mapping. Some polygons are actual species models from studies (e.g. Masked Owl, Simsons Stag Beetle) or have been developed or refined specifically for the REM (e.g. Swan Galaxias).

ATTACHMENT 4. SUMMARY OF SCRIPTS CONTROLLING REM CONSTRUCTION

Script name	Summary	Notes
1. Add REM fields to points layer	Adds pre-defined fields and field characteristics (field type, length) to the initial points layer.	There are approximately 130 fields involved in the construction of the REM. The script adds them in a single sequence and controls field sizes to limit size of the database.
2. Populate points layer with standard spatial data inputs	Adds data from the following layers: • APU7_current.shp; • CFEV_RWWESK_4.shp; • Lcomps_master_current.shp; • Lsys+LCTPI29-1.shp; • Forstruct1_attrib.shp; • Mathab_current.shp; • FT-REm_wcourse_use.shp; • Hydarea.shp; • LGA_current.shp; • Hollowdensity_1km-current.shp; • Hollowdensity_5km-current.shp; • Natveg_density_1km-current.shp; • Natveg_density_5km-current.shp; • Disturbanc13.shp; • Oldgrowth13.shp; • PI_data_species_modelt.shp.	Content of layers is described in Attachment 3. Data added under this script is either through spatial joins or theme-on-theme selection routines.

Script name	Summary	Notes
3a. Update native riparian vegetation data	Recalculate the percentage of native riparian vegetation in each CFEV river section catchment.	Data on native riparian vegetation in CFEV is out of date. The recalculation uses the most current data available.
3b. Update derived input fields	Updates fields in the REM that are definitive fields for generating REM indicators, but are themselves derived from rules applied to the primary inputs. Includes data hierarchy rules to 'prefer' data of higher reliability, including testing where both field and desktop data exist for the same attribute.	Fields derived using the script are: • Vegetation community; • REM vegetation community (some Tasveg communities are combined in the REM); • Vegetation type (cleared, native, induced, water, rock/sand/mud)' • Old growth forest; • Vegetation community / IBRA bioregion combination; • Biophysical naturalness; • Eucalypt mature/regrowth dominance; • Percentage native riparian vegetation.

Script name	Summary	Notes
4a. Populate REM with point-based priority species models	Runs the default point based models to attribute the REM with species data based on known locations recorded in the NVA. Applies to all REM priority species unless excluded to be attributed using REM habitat-based models only.	Each species is modelled on: • The accuracy of an NVA record needed to trigger the model; • The distance from an NVA record to be included in the model; • Whether the species is only modelled in riparian zones or native vegetation; • Whether the species can be modelled in plantations (raptor nest zones only) or water (mostly fish); • The earliest year of a record that can be included in the model; and • For poorly reserved, non-threatened flora species, the IBRA regions in which they will be assigned as poorly reserved.
4b. Remove a priority species from the REM	Removes the code of a species identified either as not a priority species (e.g. a delisted species) or one for which a revised model is required. Also updates counts of the number of species and the highest species status assigned to affected REM points.	Multiple species are attributed to REM points. The number of species and the highest species status (e.g. endangered, vulnerable, rare) affect indicators in which species are considered. Script corrects the species input to these indicators on a species-by-species basis (i.e. the user enters the species code to remove). Scripts 5, 6 and 7 are likely to need to be rerun when a species is removed.

Script name	Summary	Notes
4c. Check REM species rules table for duplicates	This is a control script to test whether species codes in the REM (typically a 4-7 letter string) are confounded by having part of the code as the unique code of another species.	As species data in the REM change, species names and codes may also be altered. These are done manually. This script ensures that any single character string forming a species code is tested against all other codes to prevent misattribution of species in the modelling process.
4d. Substitute species codes where confounded	Script follows from 4c and attributes the REM with species codes that have changed in order to be unique for each species.	

Script name	Summary	Notes
5a. Populate REM with bird species habitat models	Generates REM habitat for bird species identified as needing habitat-based models rather than defining habitat based on NVA records alone. Each species has modelling rules specific to the species.	Species modelled in this REM script are: • Swift Parrot (*Lathamus discolor*) foraging habitat; • Swift Parrot (*L. discolor*) nesting habitat; • Orange- bellied Parrot (*Neophema chrysogaster*) foraging habitat; • Orange- bellied Parrot (*N. chrysogaster*) breeding habitat; • Masked Owl (*Tyto novaehollandiae* subsp. *castanops*) breeding habitat; • Grey Goshawk (*Accipiter novaehollandiae*) foraging habitat; • King Island Green Rosella (*Platycercus caledonicus brownii*); • Azure Kingfisher (*Ceyx azurea*); • Forty- spotted Pardalote (*Pardalotus quadragintus*) mapped colonies; • Forty- spotted Pardalote (*Pardalotus quadragintus*) habitat.

Script name	Summary	Notes
5b. Populate REM with fish species habitat models	Generates REM habitat for species of fish identified as needing habitat-based models rather than defining habitat based on NVA records alone. Each species has modelling rules specific to the species, except for Arthurs Paragalaxias and the Saddled Galaxias which occupy the same habitat.	Species modelled in this REM script are: • Swan Galaxias (*Galaxias fontanus*); • Shannon Galaxias (*Paragalaxias dissimilis*); • Great Lake Galaxias (*P. eleotroides*); • Golden Galaxias (*G. auratus*); • Clarence Galaxias (*G. johnstoni*); • Australian Grayling (*Prototroctes maraena*); • Arthurs Paragalaxias (*P. mesotes*); • Saddled Galaxias (*G. tanycephalus*); and • Dwarf Galaxias (*Galaxiella pusilla*).
5c. Populate REM with frog and reptile species models	Generates REM habitat for species of frog and reptile species identified as needing habitat-based models rather than defining habitat based on NVA records alone. Each species has modelling rules specific to the species.	Species modelled in this REM script are: • Tussock Skink (*Pseudomeia pagenstecheri*); • Striped Marsh Frog (*Limnodynastes peroni*); • Green and Gold Frog (*Litoria raniformis*); and • Glossy Grass Skink (*P. rawlinsoni*).

Script name	Summary	Notes
5d. Hydrobiid snail models	Generates REM habitat for threatened hydrobiid snail species. Species are classified into 6 groups, each with a modelling process that applies to each species in the group. Groups match those in the FPA/DPIPWE habitat descriptions prepared for the review of the Threatened Fauna Advisor[19].	Species modelled in this script are: • Group 1 – *Beddomeia kershawi, B. krybetes* and *B. launcestonensis;* • Group 2 – *B. averni, B. camensis, B. capensis, B. fromensis,* and *B. fultoni;* • Group 3 – *B. angulata, B. zeehanensis, Phrantela annamurrayae, P., conica* and *P. marginata;* • Group 4 – *B. bowryensis, B. gibba* and *B. salmonis;* • Group 5 –*B. bellii, B. forthensis, B. franklandensis, B. hullii, B. inflata, B. protuberata, B. topsiae,* and *B. trochiformis;* and • Group 6 – *B. fallax, B. mesibovi, B. minima, B. tasmanica, B. turnerae, B. wilmotensis* and *P. pupiformis.*

[19] Forest Practices Authority & Threatened Species Section (2012). Review of Threatened Fauna Adviser: background report 3 – Draft decision pathways & recommended actions for the web-based tool. Forest Practices Authority, Hobart.

Script name	Summary	Notes
5e. Model beetles, spiders, weevils and snails	Generates REM habitat for ground dwelling invertebrates or those with relatively restricted range and/or mobility. Each species has modelling rules specific to the species.	Species modelled under this script are: • Blind Velvet Worm (*Tasmanipatus anopthalmus*); • Bornemisszas Stag Beetle (*Hoplogonus bornemisszai*); • Broad-toothed Stag Beetle (*Lissotes menalcas*); • Burgundy Snail (*Helicarion rubicundus*); • Cataract Gorge Snail (*Pasmaditta jungermanniae*); • Giant Velvet Worm (*Tasmanipatus barretti*); • Keeled Snail (*Tasmaphena lamproides*); • Lake Fenton Trapdoor Spider (*Plesiothele fentoni*); • Miena Jewel Beetle (*Castiarina insculpta*); • Mount Mangana Stag Beetle (*Lissotes latidens*); • Simsons Stag Beetle (*Hoplogonus simsoni*); • Skemps Snail (*Charopidae* sp. Skemps); • Southern Hairy Red Snail (*Chloritobadistes victoriae*); • Vanderschoors Stag Beetle (*Hoplogonus vanderschoori*); and • Weldborough Forest Weevil (*Enchymus* sp. nov.).

Script name	Summary	Notes
5f. Model butterflies and skippers	Generates REM habitat for flying / more mobile invertebrates. Each species has modelling rules specific to the species.	Species modelled under this script are: • Chaostola Skipper (*Antipodia chaostola);* • Marrawah Skipper (*Oreisplanus munionga* subsp. *larana*); and • Ptunarra Brown Butterfly (*Oreixenica ptunarra*).
5g. Model freshwater crayfish	Generates REM for freshwater crayfish species. Each species has modelling rules specific to the species.	Species modelled under this script are: • Burnie Burrowing Crayfish (*Engaeus yabbimunna*); • Central North Burrowing Crayfish (*E. granulatus*); • Giant Freshwater Crayfish (*Astacopsis gouldi*); • Mount Arthur Burrowing Crayfish (*E. orramakunna*); and • Scottsdale Burrowing Crayfish (*E. spinicaudataus*). .
5h. Model mammals habitat	Generates REM habitat for known den sites of some species. Each species uses the same habitat model to generate a zone around known dens. Other mammals species are modelled using the standard REM procedures for modelling using NVA records and other habitat parameters (e.g. native vegetation, currency of records).	Species modelled under this script are: • Spotted-tailed Quoll (*Dasyurus maculatus*); and • Tasmanian Devil (*Sarcophilus harrissi*).

Script name	Summary	Notes
6. Build standard REM indicators	Script builds the standard set of REM indicators using various combinations of lookup tables (see Section 3) and some spatial selections.	Indicators generated by the script are those relating to: • Biophysical naturalness; • Riparian vegetation; • Remnant vegetation; • Connectivity; • Clearing bias; • Overall landscape ecological function; • Native vegetation significance; • Hollow dwelling species habitat; • Threatened and other priority species; • Overall species indicators (priority species and hollow dwelling species habitat combined); • Biological significance (native vegetation and species combined); and • Biodiversity management priority (landscape ecological function and biophysical significance combined).
7. Post-process REM to add HCV indicators	Script post-processes the completed standard REM to add indicators developed during this project to assist in the identification and thresholding of High Conservation Values for Forestry Tasmania. Indicators are generated using various inputs from the primary and derived data in the REM, plus additional data from lookup tables and some spatial selection developed for selected indicators (see Section 3).	Indicators generated by the script are: • Number of endemic priority species; • Threatened flora reservation status; • Fauna reservation status; • Number of poorly reserved, non-threatened flora species;

Script name	Summary	Notes
		• Number of poorly reserved threatened flora species; • Number of poorly reserved threatened fauna species; • Overall species reservation index; • Bioregional conservation status of vegetation communities; • Rare or depleted old growth forests (Type 1[20]); • Reservation status of old growth forests; • Type 2 old growth forests[21] where type 1 is rare or depleted; • Number of landscape dependent fauna species (LDF) with den/nest sites; Number of threatened LDF species; • Number of Rare or Vulnerable species that are not LDF; • Number of Endangered species that are not LDF; • Total number of threatened species that are not LDF; • Number of species classified as having

[20] Type 1 old growth forests are those matching the definition used in development of the Tasmanian Regional Forest Agreement, i.e. ecologically mature forests where the effects of disturbance are now negligile. Details of the old growth mapping methodology are provided in:
Tasmanian Public Land Use Commission (1996). Tasmanian-Commonwealth Regional Forest Agreement background report part C: Environment & Heritage report volume II. November 1996. Tasmanian Public Land Use Commission, Hobart.

[21] Type 2 old growth forests were defined as Mature eucalypt forests with biophysical naturalness classes 4 or 5, that are not Type 1 old growth.

Script name	Summary	Notes
		Critically Limited Locations (CLL); • Number of raptor species with nest sites; • Rainforest index; • Threatened species concentration index; • Species depletion index; • Ecosystem depletion index; • Ecosystem reservation index; • Type 1 old growth reservation index; • Type 2 old growth reservation index; and • Remnant vegetation index.

ATTACHMENT 5. METADATA FOR THE DISSOLVED REM POLYGON LAYER

Key to field ins: HAZ_REMfull_hexdiss-1.shp

Date prepared: 3 February 2014
Date modified: 26 March 2014

Description: Regional Ecosystem Model (REM) for Forestry Tasmanian Forest Management Unit for FSC assessment, dissolved from the point format REM tiles based on their parent hexagons.

Format: ESRI shapefiles, polygon format.

Derivation: The parent data for this layer are the 15 REM tiles covering the FMU plus a buffer, and populated with data and indicators as points. The points generated are the centroids of a set of parent tiles of 0.1ha hexagons, offset by 0.5, non-overlapping and covering the land area of Tasmania, excluding Macquarie Island.

A number of the components of the REM are derived from multiple inputs (e.g. vegetation, biophysical naturalness, vegetation structure, old growth). The scripting process and lookup table impose a reliability hierarchy on the various inputs, along with logical consistency rules, to produce final classes from which REM indicators are generated. Fields of this nature are suffixed in the formats …_useZ, …useX.

The layer has been generated by concatenating the key REM fields in the point tiles, assigning the concatenation to their parent hexagons, and converting to a polygon layer matching the point layers. Each layer was then dissolved to remove polygons of 0.1ha that were identical on the combination of their mapped vegetation community and whether they are part of a riparian zone. Thus there may be some loss of accuracy for other attributes, however that loss is considered below the accuracy of the input data.

The fields used to generate the concatenation for the dissolve function comprise only the definitive fields for input data (e.g. the …useZ fields for each of the vegetation, old growth, vegetation structure and biophysical naturalness) and other fields not required to generate REM indicators. Some data have been omitted from the dissolved version to limit file size and complexity – FPA mature habitat and native vegetation density fields, and CFEV fields. Accessing data from these inputs requires use of the point or 0.1ha hexagon tiles of the data.

Version information: Layers represent a first pass of the standard REM data supplemented with additional information supplied by Forestry Tasmania and indicators developed for the HCV assessment.

21 Feb 2014 – Corrected Type 2 old growth reservation index (field [OG2_resndx]) from reservation table.
24 Feb 2014 – Reversed ranked order of Biodiversity Management Priority (fields [BMP_I_rnk] and [BMP_P_rnk]) to number 1 (highest) to 16 (lowest). This makes it consistent with the other lookup tables that have a ranked order for each combination in their matrix.
27 Feb 2014 – Shading of fields [LF_BN_useZ] and [OG_useZ] removed, along with note identifying REM indicators as highlighted.
28 Feb 2014 – Listed the non-threatened endemic priority fauna species in the description for [Endsp_num].
5 Mar 2014 – Corrected field [OG_statusZ] for old growth tagged as null or "nd". These were checked and found to correspond to Rare/Depleted old growth. Total area of change was 62 ha.
13 Mar 2014 – Corrected the bioregional conservation status of forest communities (field [IBRA_statZ])
Updated 1750, conservation status, reservation targets, shortfalls, etc (see Table AAA_vegcom_dep-res_140313.dbf).
Transferred updated ecosystem depletion index and ecosystem reservation index from table to REM fields [Vegdep_ndx] and [Vegres_ndx].
Added fields for the current Tasveg equivalent of the RFA forest communities [JANIS_comX] and community by bioregion [JANIS_IBRA].
26 March 2014 – Corrected Type 2 old growth reservation index for incorrect calculation of index.

Known Issues:

- There are a number of small gaps distributed across the various tiles, due to gaps in the input vegetation layer. These are generally small in area, or comprise areas where the coverage extends into coastal waterbodies. They will have minimal effect on REM outputs and interpretation.
- The rules for dissolving adjacent polygons do not force hexagons of 0.1ha to an adjoining polygon. Hence there are still polygons of this size in the data.
- Some erroneous mapping from Tasveg is still included in the data (e.g. *E. risdonii* forest in Ben Lomond bioregion) but the areas are generally quite small.

Field types

Control fields: used to control layer integrity and links to sources
Custom fields: non-standard fields used for project specific REM data

Biodiversity Management Priority: fields related to overall Biodiversity Management Priority
Biological Significance Fields: fields forming part of the Biological Significance arm of the REM (these also influence aspects of Landscape Function).
Landscape Function Fields: fields forming part of the Landscape Ecological Function arm of the REM.
Freshwater Fields: fields providing links and/or summary data to the CFEV database.
Incidental fields: Use for aspects of error checking and interrogation. Can be deleted if required.
Miscellaneous: What it says. No particular purpose in relation to the REM but standard inclusions for use if required.

Note: Fields ending in Z or X are identical to a field in the polygon layer of the APUs or other input data layer, except for the last letter. The changed name facilitates populating the field off a table join.

Field	**Type**	**Length*[22]**	**Field type**	**Notes**	**Associated lookup table, more info…**
First_REM_	String	254	Control	Concatenation string of the input data used to generate the data.	String is a concatenation of the fields: [Vegcom_usZ] [IBRA5_useZ] [FPA_holow] [Vstr_useZ] [LF_BN_useZ] [Sp_T_listZ] [Sp_O_listZ] [LF_CB_dlsc] [LF_CB_alsc] [LF_R_rscZ] [LF_R_rzon] [LF_M_haZ] [LF_C_dremZ] [LF_C_dclrZ]

[22] * Decimal fields are expresses as n1.n2, where n1 is the total field length, including decimal point, and n2 the number of decimal places

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
Unique_Id	Integer	7	Control	Unique Id of the polygon in this layer.	
Id	Integer	7	Control	Unique Id of the polygon in the dissolved layer of the tile on which the polygon occurs.	Tiles are listed in field [FT_tile]
Id_ha	Decimal	9.1	Control	Area of the polygon in hectares.	
REM_type	String	2	Control	Code for the basis of inclusion of the point in the layer.	Codes are: H – HAZ area as originally supplied by FT; and S – Special Species areas subsequently supplied by FT.
REM_tile	String	3	Control	Code for the tile in the set of REM layers.	Tiles are coded to indicate broad geographic region, then number of the tile within the region: CN – Central North, CN 1, CN2; E – East, E1, E2; NE – North East, NE1, NE2, NE3, NE4; NW – North West , NW1, NW2; S – South, S1, S2, S3, S4; AND W –West, W1.
Temp_str	String	12	Incidental	na	Currently populated with the concatenation of [Vegcom_usZ] and [LF_R_rzon] used to control the dissolving of small polygons.
LGA_codeZ	String	3	Miscellaneous	String code for the local government area in which the point is located.	

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
BMP_I	Integer	1	Biodiversity Management Priority	Level of Concern (Immediate) for Biodiversity Management, looked up from BMP_LCImat	Biodiv_mgt_priority.dbf. Controlled by REM script 6.
BMP_I_mat	Integer	2	Biodiversity Management Priority	Concatenation of LF_LC_Iz and BS_LC_Iz as input to matrix for generating BMP_LC_I	Biodiv_mgt_priority.dbf
BMP_I_rnk	Integer	2	Biodiversity Management Priority	Ranked order of Biodiversity Management Priority (Immediate)	Biodiv_mgt_priority.dbf. Controlled by REM script 6.
BMP_P	Integer	1	Biodiversity Management Priority	Level of Concern (Potential) for Biodiversity Management, looked up from BMP_LCPmat	Biodiv_mgt_priority.dbf. Controlled by REM script 6.
BMP_P_mat	Integer	2	Biodiversity Management Priority	Concatenation of LF_LC_Pz and BS_LC_Pz as input to matrix for generating BMP_LC_P	Biodiv_mgt_priority.dbf
BMP_P_rnk	Integer	2	Biodiversity Management Priority	Ranked order of Biodiversity Management Priority (Potential)	Biodiv_mgt_priority.dbf. Controlled by REM script 6.
BS_LC_I	Integer	1	Biological Significance	Level of Concern (Immediate) for Biological Significance, based on [BS_LCImat]	Bio_significance_lu_2.dbf. Controlled by REM script 6.
BS_LCImat	Integer	2	Biological Significance	Concatenation of NV_LC_Iz and SpAll_LCI for input to matrix for generating BS_LC_I	Bio_significance_lu_2.dbf
BS_LC_P	Integer	1	Biological Significance	Level of Concern (Potential) for Biological Significance, looked up from [BS_LCPmat]	Bio_significance_lu_2.dbf. Controlled by REM script 6.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
BS_LCPmat	Integer	2	Biological Significance	Concatenation of NV_LC_Pz and SpAll_LCP for input to matrix for generating BS_LC_P	Bio_significance_lu_2.dbf
Apu_og	String	1	BS – Biological Significance	Determination in APUs of old growth. Based on logical consistency of Tasveg and RFA old growth	Values are (Y)es (forest that can be old growth and is old growth), (N)o (forest that can be old growth but isn't, and Z or blank (any vegetation that can't be old growth).
Cpi_commZ	String	3	BS _ Native veg	Vegetation community used for conservation assessment in the REM, from [Vegcom_usZ]	Vegcomms_LU2.dbf
Ibra5_useZ	String	3	BS _ Native veg*	IBRA 5 bioregion accepted for polygon, based on fuzzy bioregion boundary analysis.	Recorded in APU_series7_keys.mdb. Table: Fuzzy boundaries All communities in project area checked and documented prior to data generation.
Nv_extbioZ	Decimal	11.1	BS _ Native veg	Extent (hectares) of the vegetation community-bioregion combination defined in Veg_IBRAz	Res_ibra_current.dbf
Nv_lc_idZ	Integer	1	BS _ Native veg	Display field for NV_LC_Iz. Displays cleared land as 0	Res_ibra_current.dbf. Controlled by REM script 6.
Nv_lc_iZ	Integer	1	BS _ Native veg	Level of Concern (Immediate) for native vegetation	Res_ibra_current.dbf. Controlled by REM script 6.
Nv_lc_pdZ	Integer	1	BS _ Native veg	Display field for NV_PC_PZ. Displays cleared land as 0	Res_ibra_current.dbf. Controlled by REM script 6.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
Nv_lc_pZ	Integer	1	BS _ Native veg	Level of Concern (Potential) for native vegetation	Res_ibra_current.dbf. Controlled by REM script 6. Note: There are two fields with this name in the data (don't' know why). Data is identical in both.
Nv_resbioZ	Decimal	5.1	BS _ Native veg	% of Veg_IBRAz reserved in the bioregion	Res_ibra_current.dbf
Nv_restasZ	Decimal	5.1	BS _ Native veg	% of CPI_commZ reserved in the bioregion	Res_ibra_current.dbf
Nv_threatZ	String	1	BS _ Native veg	(Y)es/(N) no field indicating if CPI_commZ is listed under the EPBC Act or Nature Conservation Act	Res_ibra_current.dbf
Og_canbez	String	1	BS – Biological Significance	Indicates if vegetation defined by Vegcom_usZ can be old growth. Y/N for forest, Z for non-forest	Vegcomms_LU2.dbf
Og_fieldZ	String	1	BS – Biological Significance	Indicates a determination of old growth forest (or potential) based on field or other sources	Values are (Y)es or (N)o. Only populated if forest that can be old growth and confirmed/reliably imputed from field or other sources
Og_point	String	1	BS – Biological Significance	Field for recording point source old growth (NB can't be used for polygons)	Used for rapid survey reliability testing (point sampling). Not populated in this version.
OF_FT	String	1	BS – Biological Significance	FT 2013 data on determination of old growth forest.	Field is tagged (Y)es or is blank.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
Og_sauceZ	String	32	BS – Biological Significance	Text field for recording source of old growth determination. Default is the APU determination (RFA with logical consistency modification to current Tasveg)	Only NRP field survey data included in this set.
Og_useZ	String	1	BS – Biological Significance	Old growth determination, based on OG_canbeZ, APU_OG and OG_fieldZ	Updated by REM script 3. Used as an input to assessment of hollow dwelling species habitat.
Veg_ibraZ	String	7	BS _ Native veg	Concatenation of CPI_commZ and IBRA5_useZ. Used for looking up NV_LC_Iz and NV_LC_Pz	Updated by REM script 3.
Vegcom_tyZ	String	1	BS _ Native veg*	Code indicating broad vegetation groups. (N)ative, (C)leared, (W)ater and (O)ther (sand, rocks, mud)	Vegcomm_lu2.dbf, field [Vegcom_tyX]. Updated by REM script 3.
Vegcom_usZ	String	3	BS _ Native veg	Vegetation community accepted for use. Field Vcomm_fldz overrides TVcomm_usZ	Vegcomms_LU2.dbf. There is also some logical corrections to codes from [Tvcomm_usZ], e.g. FPU -> FPL
Sp_lc_idZ	Integer	1	BS - Biological Significance	Display field for Sp_LC_Iz. Displays absence of any species as 0	Sp_thr+pri_lu.dbf Looks up from link with field [Sp_stmaxZ]
Sp_lc_iZ	Integer	1	BS - Biological Significance	Level of Concern (Immediate) for threatened and other priority species (not hollow dwelling species)	Sp_thr+pri_lu.dbf Looks up from link with field [Sp_stmaxZ]
Sp_lc_pdZ	Integer	1	BS - Biological Significance	Display field for Sp_LC_Pz. Displays absence of any species as 0	Sp_thr+pri_lu.dbf Looks up from link with field [Sp_stmaxZ]
Sp_lc_pZ	Integer	1	BS - Biological Significance	Level of Concern (Immediate) for threatened and other priority species (not hollow dwelling species)	Sp_thr+pri_lu.dbf Looks up from link with field [Sp_stmaxZ]

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
Sp_o_listZ	String	60	BS - Biological Significance	Concatenated list of species codes for 'Other' priority species (currently non-listed RFA priorities, poorly reserved flora species)	See table Consig_spp110513.dbf. Rules as per threatened species but additional 'Bioregional' rule set applies where flora species occur in <2 reserves in the bioregion of the record.
Sp_o_numZ	Integer	2	BS - Biological Significance	Number of Other priority species recorded in Sp_o_listZ	Number of 'Other' priority species identified for the point.
Sp_stmaxZ	Integer	1	BS - Biological Significance	5 class lookup combining for Sp_lc... fields (1 highest, 5 or 0 no priority species). Maximum species status from among Threatened & Other priority species.	See Consig_spp110513.dbf. Field [REM_maxst] identifies maximum value for individual species. REM script 4 controls attribution. 1 is for >1 listed threatened species only.
Sp_st_tmp	Integer	1	BS - Biological Significance	Temporary field used in populating field [Sp_stmaxZ]	Used internally by REM script 4 but not of any meaning otherwise.
Sp_sumallZ	Integer	3	BS - Biological Significance	Sum of all Threatened and Other priority species from Sp_o_numsZ and Sp_t_numZ	
Sp_t_listZ	String	60	BS - Biological Significance	Concatenated list of listed Threatened species codes	See table Consig_spp110513.dbf. Inherits species data set in APUs or attributed by REM scripts 4 (NVA point processing) and 5 (special rules derived for individual species)
Sp_t_numz	Integer	2	BS - Biological Significance	Number of Threatened species recorded in Sp_t_listZ	Number of listed threatened species attributed to the point.
SpA_LCImat	Integer	2	BS - Biological Significance	Concatenation of Sp_LC_Iz and Vstr_LC_Iz. Input to matrix for looking up SpAll_LCI and SpAll_LCId	

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
SpA_LCPmat	Integer	2	BS - Biological Significance	Concatenation of Sp_LC_Pz and Vstr_LC_Pz. Input to matrix for looking up SpAll_LCP and SpAll_LCIP	
SpAll_LCI	Integer	1	BS - Biological Significance	Level of Concern (Immediate) for all priority species. Derived from lookup of [SpA_LCImat]	Pri_spp_LU2.dbf. Updated by REM script 6.
SpAll_LCId	Integer	1	BS - Biological Significance	Display field for SpAll_LCI. Displays lowest LC_I (1) as 0	Pri_spp_LU2.dbf. Updated by REM script 6.
SpAll_LCP	Integer	1	BS - Biological Significance	Level of Concern (Potential) for all priority species. Derived from lookup of SpA_LCPmat	Pri_spp_LU2.dbf. Updated by REM script 6.
SpAll_LCPd	Integer	1	BS - Biological Significance	Display field for SpAll_LCP. Displays lowest LC_P (1) as 0	Pri_spp_LU2.dbf. Updated by REM script 6.
Vstr_clasZ	Integer	1	BS - Biological Significance	Integer class for VStr_useZ.	Hollowspp_7clint_LU.dbf. Updated by REM script 3 but now superseded by integration procedure with [FPA_Holow] to produce LC.. classes.
Vstr_fldZ	String	3	BS - Biological Significance	Forest maturity class from field observations or other polygon sources (e.g. PI-type data)	See Hollow_7cl-int_lu.dbf
Vstr_lc_iZ	Integer	1	BS - Biological Significance	Level of Concern (Immediate) for hollow dwelling species	Hollowspp_7clint_LU.dbf & REM script 6. Logically tests and integrate [Vstr_useZ] and [FPA_Holow] - latter overrides where appropriate.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
Vstr_lc_pZ	Integer	1	BS - Biological Significance	Level of Concern (Potential) for hollow dwelling species	Hollowspp_7clint_LU.dbf & REM script 6. Logically tests and integrate [Vstr_useZ] and [FPA_Holow] - latter overrides where appropriate.
Vstr_lcidZ	Integer	1	BS - Biological Significance	Display field for Vstr_LC_Iz. Displays other than eucalypt forest or old growth as 0	Hollowspp_7clint_LU.dbf & REM script 6. Logically tests and integrate [Vstr_useZ] and [FPA_Holow] - latter overrides where appropriate.
Vstr_lcpdZ	Integer	1	BS - Biological Significance	Display field for Vstr_LC_Pz. Displays other than eucalypt forest or old growth as 0	Hollowspp_7clint_LU.dbf & REM script 6. Logically tests and integrate [Vstr_useZ] and [FPA_Holow] - latter overrides where appropriate.
FPA_Holow	String	1	BS - Biological Significance	Predicted hollow abundance class from FPA data set, derived from PI analysis. Classes are (L)ow, (M)edium and (H)igh.	Data does not apply to all eucalypt forests (coverage is 1.9MHa). REM script 6 integrates with [Vstr_useZ] data. L->M, M->H, H-VH, i.e. FPA classes raised by one.
Vstr_useZ	String	3	BS - Biological Significance	Forest structure accepted. Vstr_fldZ override Vstr_RFAz where available, otherwise Vstr_RFAz	Codes in Hollow_7cl-int_lu.dbf. Logical consistency controlled by REM script 3.
LF_A_ImatZ	Integer	3	Landscape function	Concatenation of fields [LF_CB_Iz], [LF_CRR_Iz] and [LF_BN_Iz] for input to Landscape Function lookup.	LandscapeFunction_LU.dbf. Controlled by REM script 6.
LF_A_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for Landscape function	LandscapeFunction_LU.dbf. Controlled by REM script 6.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LF_A_PdZ	Integer	1	Landscape function	Display field for [LF_A_Pz]. Displays non-native vegetation as 0.	LandscapeFunction_LU.dbf. Controlled by REM script 6.
LF_A_IdZ	Integer	1	Landscape function	Display field for [LF_A_Iz]. Displays non-native vegetation as 0	LandscapeFunction_LU.dbf
LF_A_IrnkZ	Integer	2	Landscape function	Ranked order (1_64) of combinations in [LF_A_ImatZ] (provides expanded scale)	LandscapeFunction_LU.dbf. Controlled by REM script 6.
LF_A_PrnkZ	Integer	2	Landscape function	Ranked order (1_64) of combinations in [LF_A_PmatZ] (provides expanded scale)	LandscapeFunction_LU.dbf. Controlled by REM script 6.
LF_A_PmatZ	Integer	3	Landscape function	Concatenation of fields [LF_CB_Pz], [LF_CRR_Pz] and [LF_BN_Pz[for input to Landscape Function lookup	LandscapeFunction_LU.dbf. Controlled by REM script 6.
LF_A_Pz	Integer	1	Landscape function	Level of Concern (Potential) for Landscape Function	LandscapeFunction_LU.dbf. Controlled by REM script 6.
LF_BN_Idz	Integer	1	Landscape function	Display field for LF_BN_Iz. Displays non-native veg as 0.	BioNat_LU.dbf. Controlled by REM script 6.
LF_BN_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for Biophysical Naturalness. Looked up from LF_BN_useZ	BioNat_LU.dbf. Controlled by REM script 6.
LF_BN_Pdz	Integer	1	Landscape function	Display field for LF_BN_Iz. Displays non-native veg as 0.	BioNat_LU.dbf. Controlled by REM script 6.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LF_BN_useZ	Integer	2	Landscape function	Biophysical Naturalness class to be used. LF_BN_fldZ overrides LF_BN_APU	Checked for logical consistency using Vegcomm_Lu2.dbf (fields [BN_min] and [BN_max]) and REM script 3. NOTE: Updated with rules applied to FT disturbance data in field [LF_FT_Dist] unless logical consistency issue.
LF_CB_ALSC	String	12	Landscape function*	Name of the land system component from the automated land components layer. Format is nnnnnnAA where nnnnnn is the land system number and AA the land component	Lsys+lctpi29_1.shp[23]
LF_CB_ApcZ	Decimal	5.1	Landscape function	Clearing bias percentage from automated Land Components layer	Ls+lc29+vtyp711_clearingbias.dbf
LF_CB_clsZ	Integer	1	Landscape function	Integer class for clearing bias, based on banding of clearing bias of land components (v16 desktop or field where available, v29 Topographic Position Index version where not))	Clbias_lu.dbf

[23] Layer is an automated derivation of 6 landform classes using the DEM and assigned to land systems. Minimum size generally 2ha.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LF_CB_DLSC	String	12	Landscape function*	Name of the land system component from the land components master layer. Format is nnnnnnABC where nnnnnn is the land system number and ABC the land component. (Most are only A for one component but may be ABC etc where merged)	Lcomps_master_current.shp
LF_CB_DpcZ	Decimal	5.1	Landscape function	Clearing bias percentage from land components master layer (Desktop &/or Field	Lcompint_ext.dbf.
LF_CB_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for Clearing Bias	CLBias_LU.dbf. Controlled by REM script 6.
LF_CB_luZ	String	2	Landscape function	Lookup string for Clearing Bias. Concatenation of [Vegcom_tyz] and [LF_CB_clsZ]	CLBias_LU.dbf
LF_CB_pcZ	Decimal	5.1	Landscape function	Adopted Clearing Bias percentage. Default is that [LF_CB_DpcZ] overrides [LF_CB_ApcZ] but an estimate, average or calculation can also be used	Controlled by REM script 6.
LF_CB_Pz	Integer	1	Landscape function	Level of Concern (Potential) for Clearing Bias	CLBias_LU.dbf. Controlled by REM script 6.
LF_C_dclrZ	String	0	Landscape function	Descriptor of the distance of cleared land to the nearest native vegetation	Calculated by REM script 2.
LF_C_clsZ	Integer	1	Landscape function	Integer class of the distance class defined by either LF_C_dclrZ or LF_C_dremZ	Connectivity LU.dbf. Controlled by REM script 6,
LF_C_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for connectivity	Connectivity LU.dbf. Controlled by REM script 6,

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LF_C_Pz	Integer	1	Landscape function	Level of Concern (Potential) for connectivity	Connectivity LU.dbf. Controlled by REM script 6,
LF_C_lustZ	String	2	Landscape function	Lookup string for connectivity. Field is a concatenation of [Vegcom_tyZ] and [LF_C_clsZ]	Connectivity_LU.dbf
LF_C_dremZ	String	5	Landscape function	Descriptor of the distance of a native vegetation patch to the near non-remnant (>200m) patch	Data is calculated by a separate script run over the APUs. Added by REM script 2.
LF_CRR_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for landscape configuration (Connectivity, Remnant Veg and Riparian Veg)	LscapFunction_submat_CRR.dbf. Added by REM script 6.
LF_CRR_Pz	Integer	1	Landscape function	Level of Concern (Potential) for landscape configuration (Connectivity, Remnant Veg and Riparian Veg)	LscapFunction_submat_CRR.dbf. Added by REM script 6.
LF_CRR_ImZ	Integer	3	Landscape function	Concatenation of [LF_C_Iz], [LF_M_Iz] and [LF_R_Iz]. Used for looking up submatrix for input to main Landscape Function lookup	LscapFunction_submat_CRR.dbf. Generated by REM script 6.
LF_CRR_PmZ	Integer	3	Landscape function	Concatenation of [LF_C_Pz], [LF_M_Pz] and [LF_R_Pz]. Used for looking up submatrix for input to main Landscape Function lookup	LscapFunction_submat_CRR.dbf. Generated by REM script 6.
LF_M_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for remnant vegetation	RemnantVeg_LU.dbf. Controlled by REM script 6.
LF_M_Pz	Integer	1	Landscape function	Level of Concern (Potential) for remnant vegetation	RemnantVeg_LU.dbf. Controlled by REM script 6.
LF_M_IdZ	Integer	1	Landscape function	Display field for LF_M_Iz. Displays non-native vegetation as 0.	RemnantVeg_LU.dbf. Controlled by REM script 6.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LF_M_PdZ	Integer	1	Landscape function	Display field for LF_M_Pz. Displays non-native vegetation as 0.	RemnantVeg_LU.dbf. Controlled by REM script 6.
LF_M_clsZ	Integer	1	Landscape function	Patch size class for size in [LF_M_haZ].	RemnantVeg_lu.dbf Added by REM script 6.
LF_M_haZ	Decimal	12.3	Landscape function	Area in hectares of the patch of native vegetation	APU7_current.shp. Added by REM script 2.
LF_R_catZ	Integer	1	Landscape function	Integer category for native riparian vegetation from LF_R_rvpcZ	CFEVRivers_lookup_tables.xls. Modified in ripveg_lu.dbf. Controlled by REM script 6.
LF_R_CFEV	Decimal	4.2	Landscape function	CFEV riparian vegetation proportion (0_1) for the river section in LF_R_rscZ	CFEVRivers_sensible.shp[24]
LF_R_Iz	Integer	1	Landscape function	Level of Concern (Immediate) for native riparian vegetation cover	RipVeg_LU.dbf. Controlled by REM script 6.
LF_R_Pz	Integer	1	Landscape function	Level of Concern (Potential) for native riparian vegetation cover	RipVeg_LU.dbf. Controlled by REM script 6.
LF_R_rvpcZ	Decimal	4.2	Landscape function	Riparian vegetation proportion (0_1) to be used for analysis. [LF_R_revZ] overrides [LF_R_CFEV] where >= 5 points in RSC are in layer.	Controlled by REM script 6.
LF_R_revZ	Decimal	4.2	Landscape function	Revised riparian vegetation proportion (0_1) for the river section in LF_R_rscZ. Recalculate to account for updated vegetation mapping	Calculated by summarising each RSC in the layer on the number of riparian points ([LF_R_rzone]) and [Vegcom_tyZ] and recalculating

[24] NRP's working copy of the CFEV rivers database. Retains all original CFEV data but with additional data and minor modifications to field names and attributes (e.g. # decimal points) to assist in data management.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LF_R_rzon	String	1	Landscape function	(Y)es / (N)o indicating if part of riparian zone as per CFEV definition, i.e. 50m either side of streams, 100m around waterbodies, wetlands	Generated by REM script 2.
LF_R_rscZ	Integer	6	Landscape function	Unique Id of the River Section Catchment from CFEV	
	Integer	2	FT indicators	Number of endemic priority species	Priority species comprise all listed threatened species, poorly reserved flora species, and a small number of non-listed fauna species (Eastern Quoll and Tasmanian Bettong). Data stored in Consig_spp_rules_current.dbf
Flora_poor	Integer	2	FT indicator	Number of non-threatened flora species that are poorly reserved.	Defined as being represented in <2 reserves in the bioregion, except where reserves are very large. Data stored in Consig_spp_rules_current.dbf

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
FlorT_poor	Integer	2	FT indicator	Number of threatened flora species that are poorly reserved.	Defined as: Endangered – reserved in less than 30% of land systems on which species has been recorded (rounded up where <6 land systems); Rare or vulnerable – reserved in <15% of land systems on which species has been recorded (rounded up where <6 land systems). Data stored in Consig_spp_rules_current.dbf
Fauna_poor	Integer	2	FT indicator	Number of poorly reserved threatened fauna species	Defined as: Endangered – reserved in less than 30% of land systems on which species has been recorded (rounded up where <6 land systems); Rare or vulnerable – reserved in <15% of land systems on which species has been recorded (rounded up where <6 land systems). Data stored in Consig_spp_rules_current.dbf

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
IBRA_statZ	String	2	FT indicator	Bioregional conservation status of the vegetation community (field [CPI_comm] for non-forest, RFA equivalent for forest.	Codes are: p – Present, not threatened; R – Rare; V – Vulnerable; RV – Rare and Vulnerable; E – Endangered; and ER – Endangered and Rare. See table Res_IBRA_current.dbf
OG_statusZ	String	2	FT indicator	Bioregional conservation status of old growth forests	Codes are: p – Present, not threatened; R – Rare; D – Depleted; RD – Rare and Depleted. See table VegIB_OG_status.dbf
OGres_targ	String	1	FT indicator	Indicates if the old growth forest of the community is reserved to its JANIS target on a bioregional basis.	Code is (N)o. See table VegIB_OG_status.
OGtyp2_RD	String	1	FT indicator	Indicates if the forest is type 2 old growth of a forest community for which old growth is Rare or Depleted.	Type 2 old growth is mature forest ([Vstr_useZ] = "Mat") and biophysical naturalness (LF_BN_useZ]) >= 4. See table VegIB_OG_status.dbf

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
LDF_denest	Integer	2	FT indicator	Number of Landscape Dependent Fauna that are threatened and which are attributed as den or nest sites.	Species for which the attribute is assigned are: Masked Owl; Wedge-tailed Eagle; White-bellied Sea Eagle; Grey Goshawk; Swift Parrot; Tasmanian Devil; Spotted-tailed Quoll. See table Consig_spp_rules_current.dbf
LDF_RTE	Integer	2	FT indicator	Number of threatened Landscape Dependent Fauna attributed for the polygon.	LDF species are: Masked Owl; Wedge-tailed Eagle; White-bellied Sea Eagle; Swift Parrot; Gray Goshawk; Tasmanian Devil; Spotted-tailed Quoll; Australian Grayling; Azure Kingfisher; Giant Freshwater Crayfish; Swan Galaxias; Clarence Galaxias; Eastern Barred Bandicoot. See table Consig_spp_rules_current.dbf

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
RV_notLDF	Integer	2	FT indicators	Number of Rare or Vulnerable species that are not Landscape Dependent Fauna.	
End_notLDF	Integer	2	FT indicator	Number of Endangered or Critically Endangered species that are not Landscape Dependent Fauna.	
Thr_notLDF	Integer	2	FT indicator	Total number of listed threatened species that are not Landscape Dependent Fauna.	Fields is sum of [RV_notLDF] and [End_notLDF].
CLL_spp	Integer	2	FT indicator	Number of species attributed as having Critically Limited Locations.	CLL species are those occurring in 1 land system or <= 6 land components. See table Consig_spp_rules_current.dbf
Raptor_nst	Integer	2	FT indicator	Count of the number of raptor species nests attributed for the polygon.	Species are: Grey Goshawk; Wedge-tailed Eagle; White-bellied Sea Eagle.
Spp_resndx	Integer	2	FT indicator	Species reservation index, measured as the total number of poorly reserved species	Field is the sum of [Flora_poor], [FlorT_poor] and [Fauna_poor].
Rainft_ndx	Integer	1	FT indicator	Rainforest indicator	Values are 1 (rainforest) or 0 (not rainforest). Rainforest is Tasveg "R" codes, as expressed in the field [Vegcom_usZ].

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
RTEcon_ndx	Integer	5	FT indicator	Indicator of the concentration of threatened species attributed.	See table attached. Indicator is the sum of the scores for each species.
Sppdep_ndx	Integer	2	FT indicator	Indicator of level of depletion of each species attributed for the polygon.	See table attached. Indicator is the sum of the scores for each species.
Vegdep_ndx	Integer	2	FT indicator	Indicator of the depletion of the vegetation community within the bioregion.	Values are: 0 – present (not threatened) or Rare; 1 – Vulnerable; 2 – Rare and Vulnerable; 3 – Endangered; 4 – Rare and Endangered.
Vegres_ndx	Integer	1	FT indicator	Ecosystem reservation index for the vegetation community.	See table attached. Non-forest vegetation is assessed on a separate schema due to the incompleteness of data on pre-1750 extent and reservation targets.
OG1_resndx	Integer	2	FT indicator	Reservation index for type 1 old growth (mapped old growth).	See table attached.
OG2_resndx	Integer	2	FT indicator	Reservation index for type 2 old growth (mature forest, biophysical naturalness 4 and 5).	See table attached. Indicator is based on the percentage of the unreserved area of type 2 old growth that would be needed to meet the reservation target for type 1 old growth which is Rare or Depleted.

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
Remveg_ndx	Integer	2	FT indicator	Index of significance of remnant vegetation patches.	Value of indicator is 1 or 0. Remnant vegetation is contiguous native vegetation of <=200ha. REM landscape function indicators are used to identify important remnants. Patches are attributed if: Landscape function immediate level of concern [LF_A_Iz] is High (3) or Very High (4); Land component has been >90% cleared (field [LF_CB_apcZ], except where [LF_CB_dpcZ] populated); Native vegetation comprises <10% of land in surrounding 1km (external data); Native vegetation comprises <30% of land in surrounding 5km (external data);

Field	Type	Length*[22]	Field type	Notes	Associated lookup table, more info…
JANIS_ComX	String	3	Derived	Vegetation community used for analysis against JANIS criteria.	For forests, the communities are the nearest Tasveg equivalent to the 51 RFA forest communities. Multiple Tasveg forests can go into a single RFA-equivalent community (e.g. WOB, WOR, WOL and WOU all become WOU). For non-forest the JANIS community is one or more Tasveg communities into a community for analysis (e.g. ARS ASS, AUS all become AUS).
JANIS_IBRx	String	7	Derived	JANIS bioregional community used for analysis against JANIS criteria.	Field is a concatnation of [JANIS_com] and [IBRA5_useZ].

Threatened species concentration index (field [RTEcon_ndx])

'Scores' are summed for each species attributed to the polygon to generate the index value.

Species type	Rare / Vulnerable species	Endangered / Critically Endangered species
Landscape Dependent Fauna – den or nest sites	1	100
Landscape Dependent Fauna – habitat	0	10
Other species with Critically Limited Location	1	100
All other species, not as above	1	10

Threatened species depletion index (field [Sppdep_ndx])

'Scores' are summed for each species attributed to the polygon to generate the index value. The rationale for the scoring system is that species depletion is explicitly considered as part of the process of determining listing of threatened species.

Species stats	Critically limited location species	Not critically limited location species
Rare	0	0
Vulnerable	2	1
Endangered, Critically Endangered	3	2

Ecosystem reservation index (field [Vegres_ndx])

Forest and non-forest vegetation are assessed separately due to incompleteness of non-forest data for pre-1750 extent and reservation targets.

Forest reservation schema

IBRA conservation status	Reserved to target	<10% short of target	10-30% short of target	30-50% short of target	>50% short of target
Not threatened	0	1	2	3	3
Vulnerable	0	1	2	3	3
Rare	0	2	3	4	4
Endangered	0	2	3	4	4

Non-forest reservation schema

Status and bioreg. extent	Concern – Immediate & Potential Reservation level (% extent in bioreigon) <10%	10-30%	30-60%	>60%
Threatened				
Any	4	4	3	3
Not threatened Bioregional extent				
<2,000ha	4	4	3	2
2,000-5,500ha	4	4	3	2
5,500-15,000ha	4	3	2	1
15,000-55,000ha	3	2	2	1
>55,000ha	2	2	1	1

Old growth forest (type 1) reservation index (field [OG1_resndx])

IBRA conservation status	**Reserved to target**	**<10% short of target**	**10-30% short of target**	**30-50% short of target**	**>50% short of target**
Not threatened	0	1	2	3	3
Rare	0	1	2	3	3
Depleted	0	2	3	4	4
Rare and Depleted	0	2	3	4	4

Old growth forest (type 2) reservation index (field [OG2_resndx])

IBRA conservation status of type 1 old growth	**Type 1 reserved to target**	**Type 1 <10% short of target**	**Type 1 10-30% short of target**	**Type 1 30-50% short of target**	**Type 1 >50% short of target**
Not threatened	0	0	0	0	0
Rare	0	1	2	3	4
Depleted	0	1	2	3	4
Rare and Depleted	0	2	2	3	4

ATTACHMENT 6. SPECIES HABITAT MODELLING RULES AND INDICATOR ATTRIBUTES

See separate document.

ATTACHMENT 7. MODELLING RULES FOR SPECIES ATTRIBUTED FROM SPECIES-SPECIFIC HABITAT PARAMETERS

See separate document.

ATTACHMENT 8. VEGETATION CLASSIFICATION OF THE REM AND HCV INDICATORS

Key

RFA code – RFA code for forest community mapping.

RFA community – Name of the RFA forest community used for HCV analysis of conservation and reservation status. This code matches to the nearest RFA-equivalent community for forests, and may include a number of Tasveg communities

REM code – Tasveg code used for standard REM indicators.

REM community – Name of the Tasveg community used for the standard REM indicators.

Vegetation type - Vegetation types are: (F)orest, (N)ative non-forest, (I)nduced vegetation types, (C)leared land, (O)ther (rocks, sand, mud) and NA – errors in mapping.

Old growth – Old growth codes are (Y)es for forests that have a recognised old growth form, (N)o for forests without a recognised old growth form, and Z for all non-forest vegetation.

Threatened community – Vegetation communities listed under the *EPBC Act 1999* or *Nature Conservation Act 2002*.

Tasveg code – Tasveg code for the community as mapped. This is the list of codes used in the REM field [Vegcom_usZ].

Tasveg community – Name of the Tasveg community as mapped.

Notes – Additional information on the treatment of the community.

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
na	na	AUS	Saltmarsh (undifferentiated)	N	Z		ARS	Saline grassland	Not systematically mapped
na	na	AUS	Saltmarsh (undifferentiated)	N	Z		ASS	Succulent saline herbland	Not systematically mapped
na	na	AUS	Saltmarsh (undifferentiated)	N	Z		AUS	Saltmarsh (undifferentiated)	
na	na	AWU	Wetland (undifferentiated)	N	Z	NCA	AHF	Fresh water aquatic herbland	Not systematically mapped
na	na	AWU	Wetland (undifferentiated)	N	Z	NCA	AHL	Lacustrine herbland	Not systematically mapped
na	na	AWU	Wetland (undifferentiated)	N	Z	NCA	AHS	Saline aquatic herbland	Not systematically mapped
na	na	AWU	Wetland (undifferentiated)	N	Z	NCA	ASF	Fresh water aquatic sedgeland and rushland	Not systematically mapped
na	na	AWU	Wetland (undifferentiated)	N	Z	NCA	AWU	Wetland (undifferentiated)	
AC	Coastal *E. amygdalina* sclerophyll forest	DAC	*E. amygdalina* coastal forest and woodland	F	Y		DAC	*E. amygdalina* coastal forest and woodland	
AD	*E. amygdalina* forest on dolerite	DAD	*E. amygdalina* forest and woodland on dolerite	F	Y		DAD	*E. amygdalina* forest and woodland on dolerite	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
AM	*E. amygdalina* forest on mudstone	DAM	*E. amygdalina* forest and woodland on mudstone	F	Y		DAM	*E. amygdalina* forest and woodland on mudstone	
AS	*E. amygdalina* forest on sandstone	DAS	*E. amygdalina* forest and woodland on sandstone	F	Y	NCA	DAS	*E. amygdalina* forest and woodland on sandstone	
AIC	*E. amygdalina* forest on Cainozoic sediments	DAZ	*E. amygdalina* inland forest and woodland on Cainozoic deposits	F	Y	NCA	DAZ	*E. amygdalina* inland forest and woodland on Cainozoic deposits	
C	*E. coccifera* forest	DCO	*E. coccifera* forest and woodland (undifferentiated)	F	Y		DCO	*E. coccifera* forest and woodland	
C	*E. coccifera* forest	DCO	*E. coccifera* forest and woodland (undifferentiated)	F	Y		DGW	*E. gunnii* woodland	
D	Dry *E. delegatensis* forest	DDE	*E. delegatensis* dry forest and woodland (undifferentiated)	F	Y		DCR	*E. cordata* forest	Follows RFA classification
D	Dry *E. delegatensis* forest	DDE	*E. delegatensis* dry forest and woodland (undifferentiated)	F	Y		(DDA)	*E. dalrympleana* forest	Not a Tasveg community. Available in NRP mapping in selected areas.
D	Dry *E. delegatensis* forest	DDE	*E. delegatensis* dry forest and woodland (undifferentiated)	F	Y		DDE	*E. delegatensis* dry forest and woodland	
GG	Grassy *E. globulus* forest	DGL	*E. globulus* dry forest and woodland	F	Y		DGL	*E. globulus* dry forest and woodland	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
MO	*E. morrisbyi* forest	DMO	*E. morrisbyi* forest and woodland	F	N	NCA	DMO	*E. morrisbyi* forest and woodland	
NF	Furneaux *E. nitida* forest	DNF	*E. nitida* Furneaux forest	F	N		DNF	*E. nitida* Furneaux forest	
N	*E. nitida* dry forest	DNI	*E. nitida* dry forest and woodland	F	Y		DNI	*E. nitida* dry forest and woodland	
O	*E. obliqua* dry forest	DOB	*E. obliqua* dry forest and woodland	F	Y		DOB	*E. obliqua* dry forest and woodland	
OV	Shrubby *E. ovata – E. viminalis* forest	DOV	*E. ovata* forest and woodland (undifferentiated)	F	Y	NCA	DMW	Midlands woodland complex	
OV	Shrubby *E. ovata – E. viminalis* forest	DOV	*E. ovata* forest and woodland (undifferentiated)	F	Y	NCA	DOV	*E. ovata* forest and woodland	
OV	Shrubby *E. ovata – E. viminalis* forest	DOV	*E. ovata* forest and woodland (undifferentiated)	F	Y	NCA	DOW	*E. ovata* heathy woodland	
PJ	*E. pauciflora* forest on Jurassic dolerite	DPD	*E. pauciflora* forest and woodland on dolerite (undifferentiated)	F	Y		DDP	*E. dalrympleana - E. pauciflora* forest and woodland	
PJ	*E. pauciflora* forest on Jurassic dolerite	DPD	*E. pauciflora* forest and woodland on dolerite (undifferentiated)	F	Y		DPD	*E. pauciflora* forest and woodland on dolerite	
PS	*E. pauciflora* forest on other substrates	DPO	*E. pauciflora* forest and woodland not on dolerite substrates	F	Y		DPO	*E. pauciflora* forest and woodland not on dolerite substrates	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
P	*E. pulchella – E. globulus – E. viminalis* grassy shrubby dry sclerophyll forest	DPU	*E. pulchella* forest and woodland (undifferentiated)	F	Y		DPU	*E. pulchella* forest and woodland	
RI	*E. risdonii* forest	DRI	*E. risdonii* forest and woodland	F	Y	NCA	DRI	*E. risdonii* forest and woodland	
RO	*E. rodwayi* forest	DRO	*E. rodwayi* forest and woodland	F	Y		DRO	*E. rodwayi* forest and woodland	
DSC	*E. viminalis – E. ovata – E. amygdalina – E. obliqua* damp sclerophyll forest	DSC	*E. amygdalina - E. obliqua* damp sclerophyll forest	F	Y		DSC	*E. amygdalina - E. obliqua* damp sclerophyll forest	
SG	*E. sieberi* forest on granite	DSG	*E. sieberi* forest and woodland on granite	F	Y		DSG	*E. sieberi* forest and woodland on granite	
SO	*E. sieberi* forest on other substrates	DSO	*E. sieberi* forest and woodland not on granite substrates	F	Y		DSO	*E. sieberi* forest and woodland not on granite substrates	
TD	*E. tenuiramis* forest on dolerite	DTD	*E. tenuiramis* forest and woodland on dolerite	F	Y		DTD	*E. tenuiramis* forest and woodland on dolerite	
T	*E. tenuiramis* forest on granite	DTG	*E. tenuiramis* forest and woodland on granite	F	Y		DTG	*E. tenuiramis* forest and woodland on granite	
TI	Inland *E. tenuiramis* forest	DTO	*E. tenuiramis* forest and woodland on sediments (undifferentiated)	F	N	NCA	DPE	*E. perriniana* forest and woodland	Follows RFA classification

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
TI	Inland *E. tenuiramis* forest	DTO	*E. tenuiramis* forest and woodland on sediments (undifferentiated)	F	Y	NCA	DTO	*E. tenuiramis* forest and woodland on sediments	
G	*E. viminalis* and/or *E. globulus* coastal shrubby forest	DVC	*E. viminalis - E. globulus* coastal forest and woodland	F	Y	NCA	DVC	*E. viminalis - E. globulus* coastal forest and woodland	
VF	Furneaux *E. viminalis* forest	DVF	*E. viminalis* Furneaux forest and woodland	F	N	NCA	DVF	*E. viminalis* Furneaux forest and woodland	
P	*E. pulchella – E. globulus – E. viminalis* grassy shrubby dry sclerophyll forest	DPU	*E. pulchella* forest and woodland (undifferentiated)	F	N		DBA	*E. barberi* forest and woodland	Follows RFA classification
V	*E. viminalis* grassy forest	DVG	*E. viminalis* grassy forest and woodland (undifferentiated)	F	Y		DVG	*E. viminalis* grassy forest and woodland	
V	*E. viminalis* grassy forest	DVG	*E. viminalis* shrubby/heathy woodland	F	Y		DVS	*E. viminalis* shrubby/heathy woodland	
na	na	GCL	Lowland grassland complex	I	Z		GCL	Lowland grassland complex	Mostly exists as an induced form of degraded woodlands.
na	na	GHC	Coastal grass and herbfield	N	Z		GHC	Coastal grass and herbfield	
na	na	GPH	Highland *Poa* grassland	N	Z		GPH	Highland *Poa* grassland	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
na	na	GPL	Lowland *Poa labillardierei* grassland	N, I	Z	EPBC	GPL	Lowland *Poa labillardierei* grassland	Much of the current extent is induced from degraded woodlands, with pre-European extent largely cleared
na	na	GRP	Rockplate grassland	N	Z		GRP	Rockplate grassland	
na	na	GSL	Lowland sedgy grassland	N	Z		GSL	Lowland sedgy grassland	
na	na	GTL	Lowland *Themeda* grassland	N, I	Z	EPBC	GTL	Lowland *Themeda* grassland	Much of the current extent is induced from degraded woodlands, with pre-European extent largely cleared.
na	na	HCH	Alpine coniferous heathland	N	Z		HCH	Alpine coniferous heathland	
na	na	HCM	Cushion moorland	N	Z	NCA	HCM	Cushion moorland	
na	na	HHE	Eastern alpine heathland	N	Z		HHE	Eastern alpine heathland	
na	na	HHW	Western alpine heathland	N	Z		HHW	Western alpine heathland	
na	na	HSE	Eastern alpine sedgeland	N	Z		HSE	Eastern alpine sedgeland	
na	na	HSW	Western alpine sedgeland/herbland	N	Z		HSW	Western alpine sedgeland/herbland	
na	na	HUE	Eastern alpine vegetation (undifferentiated)	N	Z		HUE	Eastern alpine vegetation (undifferentiated)	
na	na	MAP	Alkaline pans	N	Z	NCA	MAP	Alkaline pans	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
na	na	MBE	Eastern buttongrass moorland	N	Z		MBE	Eastern buttongrass moorland	
na	na	MBP	Pure buttongrass moorland	N	Z		MBP	Pure buttongrass moorland	
na	na	MBR	Sparse buttongrass moorland on slopes	N	Z		MBR	Sparse buttongrass moorland on slopes	
na	na	MBS	Buttongrass moorland with emergent shrubs	N	Z		MBS	Buttongrass moorland with emergent shrubs	
na	na	MBU	Buttongrass moorland (undifferentiated)	N	Z		MBU	Buttongrass moorland (undifferentiated)	
na	na	MBW	Western buttongrass moorland	N	Z		MBW	Western buttongrass moorland	
na	na	MDS	Subalpine *Diplarrena latifolia* rushland	N	Z		MDS	Subalpine *Diplarrena latifolia* rushland	
na	na	MGH	Highland grassy sedgeland	N	Z	NCA	MGH	Highland grassy sedgeland	
na	na	MRR	Restionaceae rushland	N	Z		MRR	Restionaceae rushland	
na	na	MSP	Sphagnum peatland	N	Z	EPBC, NCA	MSP	Sphagnum peatland	
na	na	MSW	Western lowland sedgeland	N	Z		MSW	Western lowland sedgeland	
SI	*Acacia dealbata* forest	NAD	*Acacia dealbata* forest	F	N		NAD	*Acacia dealbata* forest	
BF	*A. melanoxylon* on flats	NAF	*Acacia melanoxylon* swamp forest	F	N		NAF	*Acacia melanoxylon* swamp forest	
na	na	NAL	*Allocasuarina littoralis* forest	N	N	NCA	NAL	*Allocasuarina littoralis* forest	This community does not translate readily to an RFA equivalent

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
BR	*A. melanoxylon* on rises	NAR	*Acacia melanoxylon* on rises	F	N		NAR	*Acacia melanoxylon* on rises	
AV	*Allocasuarina verticillata* forest	NAV	*Allocasuarina verticillata* forest	F	Y		NAV	*Allocasuarina verticillata* forest	
na	na	NBA	*Bursaria - Acacia* woodland and scrub	N, I	N		NBA	*Bursaria - Acacia* woodland and scrub	Much of this community induced from degradation of woodland communities.
BS	*Banksia serrata* woodland	NBS	*Banksia serrata* woodland	F	Y	NCA	NBS	*Banksia serrata* woodland	
CR	*Callitris rhomboidea* forest	NCR	*Callitris rhomboidea* forest	F	Y	NCA	NCR	*Callitris rhomboidea* forest	
na	na	NLA	*Leptospermum scoparium - Acacia mucronata* forest	N	N		NLA	*Leptospermum scoparium - Acacia mucronata* forest	
na	na	NLE	*Leptospermum* forest	N	N		NLE	Leptospermum forest	
L	*Leptospermum lanigerum - Melaleuca squarrosa* swamp forest	NLM	*Leptospermum lanigerum - Melaleuca squarrosa* swamp forest	F	Y		NLM	*Leptospermum lanigerum - Melaleuca squarrosa* swamp forest	
na	na	NLN	Subalpine *Leptospermum nitidum* woodland	N	N		NLN	Subalpine *Leptospermum nitidum* woodland	
ME	*Melaleuca ericifolia* swamp forest	NME	*Melaleuca ericifolia* swamp forest	F	Y	NCA	NME	*Melaleuca ericifolia* swamp forest	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
NP	*Notolaea ligustrina* and/or *Pomaderris apetala* forest	NNP	*Notelaea - Pomaderris - Beyeria* forest	F	Y	NCA	NNP	*Notelaea - Pomaderris - Beyeria* forest	
na	na	RFE	Rainforest fernland	N	N	NCA	RFE	Rainforest fernland	
H	Huon pine	RHP	*Lagarostrobos franklinii* rainforest and scrub	F	Y		RHP	*Lagarostrobos franklinii* rainforest and scrub	
F	King Billy pine with deciduous beech	RKF	*Athrotaxis selaginoides - Nothofagus gunnii* short rainforest	F	Y	NCA	RKF	*Athrotaxis selaginoides - Nothofagus gunnii* short rainforest	
F	King Billy pine with deciduous beech	RKF	*Nothofagus gunnii* rainforest and scrub	F	N		RFS	*Nothofagus gunnii* rainforest and scrub	
X	King Billy pine	RKP	*Athrotaxis selaginoides* rainforest	F	Y	NCA	RKP	*Athrotaxis selaginoides* rainforest	
X	King Billy pine	RKP	*Athrotaxis selaginoides* subalpine scrub	F	Y	NCA	RKS	*Athrotaxis selaginoides* subalpine scrub	
X	King Billy pine	RKP	Highland rainforest scrub with dead *Athrotaxis selaginoides*	F	N		RKX	Highland rainforest scrub with dead *Athrotaxis selaginoides*	
na	na	RLS	*Leptospermum* with rainforest scrub	N	N		RLS	*Leptospermum* with rainforest scrub	
M-	Short rainforest	RMS	*Nothofagus - Leptospermum* short rainforest (undifferentiated)	F	Y		RCO	Coastal rainforest	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
M-	Short rainforest	RMS	*Nothofagus - Leptospermum* short rainforest (undifferentiated)	F	Y		RML	*Nothofagus - Leptospermum* short rainforest	
M-	Short rainforest	RMS	*Nothofagus / Phyllocladus* short rainforest	F	Y		RMS	*Nothofagus / Phyllocladus* short rainforest	
M+	Tall rainforest	RMT	*Nothofagus - Atherosperma* rainforest	F	Y		RMT	*Nothofagus - Atherosperma* rainforest	
PD	Pencil pine with deciduous beech	RPF	*Athrotaxis cupressoides/Nothofagus gunnii* short rainforest	F	Y	NCA	RPF	*Athrotaxis cupressoides/Nothofagus gunnii* short rainforest	
PP	Pencil pine	RPP	*Athrotaxis cupressoides* rainforest (undifferentiated)	F	Y	NCA	RPP	*Athrotaxis cupressoides* rainforest	
PP	Pencil pine	RPP	*Athrotaxis cupressoides* rainforest (undifferentiated)	F	Y	NCA	RPW	*Athrotaxis cupressoides* open woodland	
na	na	RSH	Highland low rainforest and scrub	N	N		RSH	Highland low rainforest and scrub	
na	na	SAC	*Acacia longifolia* coastal scrub	N	Z		SAC	*Acacia longifolia* coastal scrub	
na	na	SBM	*Banksia marginata* wet scrub	N	Z	NCA	SBM	*Banksia marginata* wet scrub	
na	na	SBR	Broadleaf scrub	N	Z		SBR	Broadleaf scrub	
na	na	SCA	Coastal scrub on alkaline sands	N	Z		SCA	Coastal scrub on alkaline sands	
na	na	SCH	Coastal heathland	N	Z		SCH	Coastal heathland	
na	na	SCK	Coastal complex on King Island	N	Z	NCA	SCK	Coastal complex on King Island	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
na	na	SCW	Heathland scrub complex at Wingaroo	N	Z	NCA	SCW	Heathland scrub complex at Wingaroo	
na	na	SDU	Dry scrub	N	Z		SDU	Dry scrub	
na	na	SHC	Heathland on calcarenite	N	Z	NCA	SHC	Heathland on calcarenite	
na	na	SHF	Heathland scrub mosaic on Flinders Island	N	Z		SHF	Heathland scrub mosaic on Flinders Island	
na	na	SHG	Heathland on granite	N	Z		SHG	Heathland on granite	
na	na	SHL	Lowland sedgy heathland	N	Z		SHL	Lowland sedgy heathland	
na	na	SHS	Subalpine heathland	N	Z		SHS	Subalpine heathland	
na	na	SHU	Inland Heathland (undifferentiated)	N	Z		SHU	Inland Heathland (undifferentiated)	
na	na	SHW	Wet heathland	N	Z		SHW	Wet heathland	
na	na	SLW	Wet heathland	N	Z		SLW	Wet heathland	
na	na	SMM	*Melaleuca squamea* heathland	N	Z		SMM	*Melaleuca squamea* heathland	
na	na	SMP	*Melaleuca pustulata* scrub	N	Z	NCA	SMP	*Melaleuca pustulata* scrub	
na	na	SMR	*Melaleuca squarrosa* scrub	N	Z		SMR	*Melaleuca squarrosa* scrub	
na	na	SRC	Seabird rookery complex	N	Z	NCA	SRC	Seabird rookery complex	
na	na	SRI	Riparian scrub	N	Z	NCA	SRI	Riparian scrub	
na	na	SSC	Coastal Scrub	N	Z		SSC	Coastal Scrub	
na	na	SSK	Scrub complex on King Island	N	Z		SSK	Scrub complex on King Island	
na	na	SSW	Western subalpine scrub	N	Z		SSW	Western subalpine scrub	
na	na	SWW	Western wet scrub	N	Z		SWW	Western wet scrub	
BA	*E. brookeriana* forest	WBR	*E. brookeriana* wet forest	F	Y	NCA	WBR	*E. brookeriana* wet forest	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
DT	Tall *E. delegatensis* forest	WDU	*E. delegatensis* wet forest (undifferentiated)	F	Y		WDA	*E. dalrympleana* forest	Not systematically mapped
DT	Tall *E. delegatensis* forest	WDU	*E. delegatensis* wet forest (undifferentiated)	F	Y		WDB	*E. delegatensis* forest with broadleaf shrubs	Not systematically mapped
DT	Tall *E. delegatensis* forest	WDU	*E. delegatensis* wet forest (undifferentiated)	F	Y		WDL	*E. delegatensis* forest over Leptospermum	Not systematically mapped
DT	Tall *E. delegatensis* forest	WDU	*E. delegatensis* wet forest (undifferentiated)	F	Y		WDR	*E. delegatensis* forest over rainforest	Not systematically mapped
DT	Tall *E. delegatensis* forest	WDU	*E. delegatensis* wet forest (undifferentiated)	F	Y		WDU	*E. delegatensis* wet forest (undifferentiated)	
KG	King Island *E. globulus – E. brookeriana – E. viminalis* forest	WGK	King Island Eucalypt woodland	F	N	NCA	DKW	King Island Eucalypt woodland	RFA classified all eucalypt forest on King Island as WGK.
KG	King Island *E. globulus – E. brookeriana – E. viminalis* forest	WGK	*E. globulus* King Island forest	F	N	NCA	WGK	*E. globulus* King Island forest	
NT	*E. nitida* wet forest	WNU	*E. nitida* wet forest (undifferentiated)	F	Y		WNL	*E. nitida* forest over Leptospermum	Not systematically mapped

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
NT	*E. nitida* wet forest	WNU	*E. nitida* wet forest (undifferentiated)	F	Y		WNR	*E. nitida* forest over rainforest	Not systematically mapped
NT	*E. nitida* wet forest	WNU	*E. nitida* wet forest (undifferentiated)	F	Y		WNU	*E. nitida* wet forest (undifferentiated)	
OT	*E. obliqua* tall forest	WOU	*E. obliqua* wet forest (undifferentiated)	F	Y		WOB	*E. obliqua* forest with broadleaf shrubs	Not systematically mapped
OT	*E. obliqua* tall forest	WOU	*E. obliqua* wet forest (undifferentiated)	F	Y		WOL	*E. obliqua* forest over Leptospermum	Not systematically mapped
OT	*E. obliqua* tall forest	WOU	*E. obliqua* wet forest (undifferentiated)	F	Y		WOR	*E. obliqua* forest over rainforest	Not systematically mapped
OT	*E. obliqua* tall forest	WOU	*E. obliqua* wet forest (undifferentiated)	F	Y		WOU	*E. obliqua* wet forest (undifferentiated)	
R	*E. regnans* forest	WRE	*E. regnans* forest (undifferentiated)	F	Y		WGL	*E. globulus* wet forest	Not systematically mapped
R	*E. regnans* forest	WRE	*E. regnans* forest (undifferentiated)	F	Y		WRE	*E. regnans* forest	
SU	*E. subcrenulata* forest	WSU	*E. subcrenulata* forest and woodland	F	Y		WSU	*E. subcrenulata* forest and woodland	
VW	*E. viminalis* wet forest on basalt	WVI	*E. viminalis* wet forest	F	Y		WVI	*E. viminalis* wet forest	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
na	na	ZZZ	Dry eucalypt planting	N	N		DEP	Dry eucalypt planting	DEP is a code used by Natural Resource Planning for mapping areas planted as part of revegetation activities. Only mapped incidentally.
na	na	ZZZ	Error	na	Z		Err	Error	
na	na	ZZZ	Agricultural land	C	Z		FAG	Agricultural land	
na	na	ZZZ	Exotic tree plantings	C	Z		FEP	Exotic tree plantings	FEP is a code use by Natural Resource Planning for mapping areas planted with exotics species but which are not plantations for silviculture. Only mapped incidentally.
na	na	ZZZ	Marram grassland	C	Z		FMG	Marram grassland	
na	na	ZZZ	Permanent easements	C	Z		FPE	Permanent easements	
na	na	ZZZ	*Pteridium esculentum* fernland	C	Z		FPF	*Pteridium esculentum* fernland	
na	na	ZZZ	Plantations for silviculture	C	Z		FPL	Plantations for silviculture	

RFA code	RFA community	REM code	REM community	Vegetation type	Old growth	Threatened community	Tasveg code	Tasveg community	Notes
na	na	ZZZ	Regenerating cleared land	C	Z		FRG	Regenerating cleared land	
na	na	ZZZ	Spartina marshland	C	Z		FSM	Spartina marshland	
na	na	ZZZ	Extra-urban miscellaneous	C	Z		FUM	Extra-urban miscellaneous	
na	na	ZZZ	Urban areas	C	Z		FUR	Urban areas	
na	na	ZZZ	Weed infestation	C	Z		FWU	Weed infestation	
na	na	ZZZ	Water, sea	O	Z		OAQ	Water, sea	
na	na	ZZZ	Rock (lichen lithosere)	O	Z		ORO	Rock (lichen lithosere)	
na	na	ZZZ	Sand, mud	O	Z		OSM	Sand, mud	
na	na	ZZZ	Queenstown regrowth mosaic	I	Z		SQR	Queenstown regrowth mosaic	
na	na	ZZZ	Unresolved sliver polygon	na	Z		ZZZ	Unresolved sliver polygon	

ATTACHMENT 9. VEGETATION COMMUNITIES 'FUZZY' BIOREGIONAL BOUNDARIES AND LOGICAL CONSISTENCY RULES

Notes:
- The term 'as centroid' indicates that the vegetation polygon is assigned to the bioregion in which its centroid is located.
- Vegetation which is retagged as an error ("Err") is assigned a null value and all indicators associated with it are assigned the minimum value for the indicator (1 for REM indicators and 0 for HCV indicators).

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
AUS	Saltmarsh (undifferentiated)	In Central Highlands, Flinders, King, Northern Midlands, Northern Slopes, South East, Southern Ranges and West.	As centroid	No fuzzy bioregion allocations. Saltmarsh may arise due to local conditions and need to be differentiated to assess distribution patterns. Mapping in some regions may be errors.
AWU	Wetland (undifferentiated)	In Ben Lomond, Central Highlands, Flinders, King, Northern Midlands, Northern Slopes, South East, Southern Ranges and West.	As centroid	None. Wetlands may arise due to local conditions and need to be differentiated to assess distribution patterns.
DAC	*Eucalyptus. amygdalina* coastal forest and woodland	In Central Highlands on Devonian sandstone (geology code SDs) on Gormanston map.	Retagged to DAS	Mapping as DAC contradicts the CARSAG (2004) rule for E. *amygdalina* on this geology[26]. May be Tasveg transcription error from old Tasveg code ACs (alpine coniferous heathland).
DAC	*E. amygdalina* coastal forest and woodland	In Northern Midlands on Dilston and Launceston maps.	To Ben Lomond	All are on eastern side of Tamar.

[25] See attachment 7.
[26] Comprehensive, Adequate & Representative Scientific Advisory Group (2004). Interpretation of the RFA community 'Inland E. amygdalina forest': New community definitions & revised reservation status for E. amygdalina–dominated forest communities across Tasmania. Private Forest Reserves Program, Department of Primary Industries, Water & Environment, Hobart.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DAC	*E. amygdalina* coastal forest and woodland	In Northern Midlands on Exeter map.	Retagged to DAD	Is on dolerite.
DAC	*E. amygdalina* coastal forest and woodland	In Central Highlands on Rowallan map.	To Northern Slopes	Located in valley bottom. CARSAG rule for geology code Lt not appropriate in this location.
DAC	*E. amygdalina* coastal forest and woodland	In Central Highlands on Will map.	Retagged to HCH	Probable transposition error from the old Tasveg code of ACS.
DAC	*E. amygdalina* coastal forest and woodland	In Southern Ranges on Tertiary deposits on Strickland map.	Retagged to DAD	These polygons are slope deposits downslope of basalt.
DAC	*E. amygdalina* coastal forest and woodland	In Central Highlands & Northern Midlands on Talus on Millers map.	Retagged to DAD	
DAC	*E. amygdalina* coastal forest and woodland	In Ben Lomond, Flinders, King, Northern Slopes, South East, Southern Ranges (Leprena & Cloudy maps only).	As centroid	
DAC	*E. amygdalina* coastal forest and woodland	In Southern Ranges on dolerite on Lloyd map.	Retagged to DAD	
DAC	*E. amygdalina* coastal forest and woodland	In Central Highlands on Rufus map.	Retagged to DAD	Slivers created by the geology mapping. Corrected to likely parent geology in adjoining polygons.
DAC	*E. amygdalina* coastal forest and woodland	In Southern Ranges on bottom of Bruny Island Neck on Adventure Bay map.	To South East	
DAC	*E. amygdalina* coastal forest and woodland	In Northern Midlands in Fingal Valley.	To Ben Lomond and South East	Allocated on position relative to valley bottom and slopes leading uphill to bioregion proper.
DAD	*E. amygdalina* forest and woodland on dolerite	In Northern Midlands in Fingal Valley.	To Ben Lomond and South East	Allocated on position relative to valley bottom and slopes leading uphill to bioregion proper.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DAD	*E. amygdalina* forest and woodland on dolerite	In Northern Midlands near Ben Lomond.	To Ben Lomond	Boundary approximated by dolerite land systems contiguous with bioregion boundary
DAD	*E. amygdalina* forest and woodland on dolerite	In Central Highlands near Northern Midlands.	To Northern Midlands	
DAD	*E. amygdalina* forest and woodland on dolerite	In West near Southern Ranges on Adamsfield map.	To Southern Ranges	
DAD	*E. amygdalina* coastal forest and woodland	In Ben Lomond, Flinders, Northern Slopes, South East & Southern Ranges.	As centroid	
DAD	*E. amygdalina* forest and woodland on dolerite	In Central Highlands near Northern Slopes.	To Northern Slopes	
DAM	E. *amygdalina* forest & woodland on mudstone	In Northern Midlands near Northern Slopes.	To Northern Slopes	Does not apply to patches on Cluan and Liffey maps.
DAM	E. *amygdalina* forest & woodland on mudstone	In Northern Midlands near Ben Lomond.	To Ben Lomond	
DAM	E. *amygdalina* forest & woodland on mudstone	In Central Highlands.	To nearest adjoining bioregion (Northern Midlands, South East, Southern Ranges)	
DAM	E. *amygdalina* forest & woodland on mudstone	In Ben Lomond, Flinders, Northern Slopes, South East & Southern Ranges.	To centroid	
DAS	E. *amygdalina* forest & woodland on sandstone	In Northern Midlands near South East on Campbell Town and Ross maps.	To South East	
DAS	E. *amygdalina* forest & woodland on sandstone	In Central Highlands on Gormanston map.	To centroid	Possibly E. *nitida* and not E. *amygdalina*, or transposition error from old Tasveg code As.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DAS	E. *amygdalina* forest & woodland on sandstone	In Fingal Valley in Northern Midlands near South East and Ben Lomond.	To Ben Lomond and South East	Allocated on position relative to valley bottom and slopes leading uphill to bioregion proper.
DAS	E. *amygdalina* forest & woodland on sandstone	In Central Highlands near Northern Midlands.	To Northern Midlands	Includes patches in Northern Slopes on Poatina map. Bioregion boundary may need reassessment.
DAS	E. *amygdalina* forest & woodland on sandstone	In Central Highlands near Northern Slopes and Southern Ranges.	To Northern Slopes and Southern Ranges	
DAS	E. *amygdalina* forest & woodland on sandstone	In Northern Midlands near Northern Slopes (Bridgenorth, Exeter and Launceston maps).	To Northern Slopes	Allocated on position relative to valley bottom and slopes leading uphill to bioregion proper.
DAS	E. *amygdalina* forest & woodland on sandstone	In Flinders near Northern Slopes and Ben Lomond.	To nearest adjoining bioregion.	
DAS	E. *amygdalina* forest & woodland on sandstone	In Ben Lomond, Northern Slopes, South East & Southern Ranges.	To centroid	
DAZ	*E. amygdalina* inland forest and woodland on Cainozoic deposits	In Ben Lomond, Northern Midlands, Northern Slopes & South East.	As centroid	
DAZ	*E. amygdalina* inland forest and woodland on Cainozoic deposits	In Flinders near Northern Slopes.	To Northern Slopes	
DAZ	*E. amygdalina* inland forest and woodland on Cainozoic deposits	In Southern Ranges near South East on Ouse map.	To South East	
DBA	*E. barberi* forest and woodland	In South East.	As centroid	
DBA	*E. barberi* forest and woodland	In Ben Lomond on Giblin & Saddleback maps.	Recoded to "Err"	Outside of species range.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DBA	*E. barberi* forest and woodland	In Southern Ranges and West near Lake Pedder on Anna map.	Recoded to "Err"	Probably miscoded Buttongrass communities.
DCO	*E. coccifera* forest and woodland	In Northern Slopes near Central Highlands.	To Central Highlands	
DCO	*E. coccifera* forest and woodland	In South East near Southern Ranges on Wellington Range.	To Southern Ranges	
DCO	*E. coccifera* forest and woodland	In Ben Lomond, Central Highlands, Southern Ranges & West.	As centroid	
DCR	*E. cordata* forest	In South East near Southern Ranges.	To Southern Ranges	
DDE	*E. delegatensis* dry forest and woodland	In South East (Wellington Range; Bushy Park and Lymington maps) near Southern Ranges.	To Southern Ranges	
DDE	*E. delegatensis* dry forest and woodland	In Ben Lomond, Central Highlands, Northern Slopes, Southern Ranges & West.	As centroid	
DDE	*E. delegatensis* dry forest and woodland	In South East near Central Highlands and Southern Ranges.	To Central Highlands or Southern Ranges (nearer of)	Only applied to patches topographically contiguous with main body of Central Plateau and not significantly isolated from other patches of community. Complex around the Southern Ranges but evident when topography and drainage examined.
DDE	*E. delegatensis* dry forest and woodland	In Northern Midlands.	To nearest adjoining bioregion	All occurrences occur around the fringe of the region.
DDP	*E. dalrympleana - E. pauciflora* forest and woodland	In BL & Southern Ranges.	As centroid	
DDP	*E. dalrympleana - E. pauciflora* forest and woodland	In Central Highlands near Northern Slopes.	To Northern Slopes	These are lower altitude frosty locations. More widespread in Central Highlands than mapped.
DDP	*E. dalrympleana - E. pauciflora* forest and woodland	Not in Central Highlands near Northern Slopes.	See note.	Done as part of DPD due to incompleteness of mapped coverage of community

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DGL	*E. globulus* dry forest and woodland	In Flinders & South East.	As centroid	
DGL	*E. globulus* dry forest and woodland	In Southern Ranges near South East on Lloyd and Uxbridge maps.	To South East	Other Southern Ranges patches left as centroid.
DGL	*E. globulus* dry forest and woodland	In Ben Lomond near Flinders on (Dubin Town, Ironhouse and Scamander maps.	To Flinders	Other Ben Lomond patches left unchanged, though possible mapping or coding errors.
DGL	*E. globulus* dry forest and woodland	In Central Highlands and Southern Ranges on Rufus and Ina maps.	Recoded to "Err"	
DGW	*E. gunnii* woodland	In Ben Lomond, Central Highlands and Southern Ranges.	As centroid	
DGW	*E. gunnii* woodland	In Northern Slopes near Central Highlands.	To Central Highlands	
DKW	King Island Eucalypt woodland	In King on King Island	As centroid	
DMO	*E. morrisbyi* forest and woodland	In South East.	As centroid	
DMO	*E. morrisbyi* forest and woodland	In Ben Lomond on Lilydale map.	Recoded to 'Err'	Outside species range.
DMW	Midlands woodland complex	In Flinders , Northern Midlands and Northern Slopes.	As centroid	Distribution patchy over entire range.
DNF	*E. nitida* Furneaux forest	In Flinders in the Furneaux group.	As centroid	
DNF	*E. nitida* Furneaux forest	In Central Highlands on Selina map.	Retagged to "Err"	
DNI	*E. nitida* dry forest and woodland	In Central Highlands, King, Northern Slopes, Southern Ranges and West	As centroid	Distribution shows little correlation to bioregional boundaries.
DOB	*E. obliqua* dry forest and woodland	In Ben Lomond, Flinders, King, Northern Slopes, South East, Southern Ranges and West.	As centroid	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DOB	*E. obliqua* dry forest and woodland	In Central Highlands.	To nearest adjoining bioregion	Patch at 1,040m on Wihareja map sheet (surrounded by DGW and DCO) retagged to error.
DOB	*E. obliqua* dry forest and woodland	In Northern Midlands other than near Central Highlands.	To nearest adjoining bioregion	
DOV	*E. ovata* forest and woodland	In Central Highlands.	To nearest adjoining bioregion	Allocations to Northern Midlands, South East and West.
DOV	*E. ovata* forest and woodland	In Ben Lomond, Flinders, Northern Midlands, Northern Slopes, South East and West.	As centroid	
DOV	*E. ovata* forest and woodland	In Southern Ranges near South East on Uxbridge and Longley maps	To South East	
DOV	*E. ovata* forest and woodland	On King Island	Retagged to WGK	
DOW	*E. ovata* heathy woodland	In Ben Lomond, Flinders, Northern Slopes, South East and West.	As centroid	
DPD	*E. pauciflora* forest and woodland on dolerite	In Ben Lomond, Central Highlands, South East and Southern Ranges.	As centroid	
DPD	*E. pauciflora* forest and woodland on dolerite	In Northern Midlands (Lake River) near Central Highlands	To Central Highlands	
DPD	*E. pauciflora* forest and woodland on dolerite	In Northern Slopes near Central Highlands or Northern Midlands	To Central Highlands or Northern Midlands	
DPD	*E. pauciflora* forest and woodland on dolerite	In West on Algonkian map near Southern Ranges.	To Southern Ranges	Single patch relatively contiguous with Southern Ranges topography.
DPD	*E. pauciflora* forest and woodland on dolerite	In Northern Slopes on Mole Creek map.	Retagged to DPO	On limestone.
DPE	*E. perriniana* forest and woodland	In South East	As centroid	Species locations in the west of bioregion not mapped.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DPE	*E. perriniana* forest and woodland	In Ben Lomond bioregion on Mangana, Saddleback and Spurrs Rivulet maps.	Retagged to "Err"	Outside of species range.
DPO	*E. pauciflora* forest and woodland not on dolerite substrates	In Ben Lomond, Central Highlands, Flinders, Northern Midlands, Northern Slopes, South East and Southern Ranges	As centroid	
DPO	*E. pauciflora* forest and woodland not on dolerite substrates	In Northern Midlands in Fingal Valley near South East	To South East	
DPU	*E. pulchella* forest and woodland	In South East and Southern Ranges (except on Ouse map).	As centroid	
DPU	*E. pulchella* forest and woodland	In Southern Range on Ouse map near South East.	To South East	This patch may be outside of the species range.
DPU	*E. pulchella* forest and woodland	In Flinders on Ironhouse map near Ben Lomond	To Ben Lomond	These polygons have been split in Tasveg 2 by the bioregion boundary.
DPU	*E. pulchella* forest and woodland	In Northern Slopes on Deloraine map.	Retagged to DSC	Outside species range. This is a sliver and an inlier in a plantation. Other forest in vicinity is DSC.
DPU	*E. pulchella* forest and woodland	In Southern Ranges on Echo map.	Retagged to "Err"	Outside of species range.
DRI	*E. risdonii* forest and woodland	In South East.	As centroid	
DRI	*E. risdonii* forest and woodland	In Ben Lomond on Rossarden map.	Retagged to "Err"	Outside of species range.
DRO	*E. rodwayi* forest and woodland	In Ben Lomond, Central Highlands, Northern Midlands, Northern Slopes, South East & Southern Ranges.	As centroid	Patches highly dependent on localised frosty conditions - many patches proximal to bioregion boundaries are at lower altitudes reflecting local forest conditions.
DSC	*E. amygdalina - E. obliqua* damp sclerophyll forest	In Central Highlands near Northern Midlands or Northern Slopes.	To nearest adjoining bioregion	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DSC	*E. amygdalina - E. obliqua* damp sclerophyll forest	In Northern Midlands near Northern Slopes.	To Northern Slopes	
DSC	*E. amygdalina - E. obliqua* damp sclerophyll forest	In Ben Lomond, Flinders, Northern Slopes and South East.	As centroid	
DSG	*E. sieberi* forest and woodland on granite	In Ben Lomond, Flinders and South East.	As centroid	Note: BL-NM IBRA boundary - polygons arbitrarily split by Tasveg so that polygons are DSG on BL side and DSO on Northern Midlands side despite contiguous geology (Dgaf).
DSG	*E. sieberi* forest and woodland on granite	In West on Beryl map.	Retagged to "Err"	Outside species range.
DSO	*E. sieberi* forest and woodland not on granite substrates	In Ben Lomond (but not Lilydale map), Flinders and South East (but not Cawood map).	As centroid	
DSO	*E. sieberi* forest and woodland not on granite substrates	In Northern Midlands in Fingal Valley near Ben Lomond.	To Ben Lomond	
DSO	*E. sieberi* forest and woodland not on granite substrates	In South East (Cawood map), Northern Midlands (Westbury map) and Ben Lomond (Lilydale map).	Retagged to "Err"	Outside of species range.
DTD	*E. tenuiramis* forest and woodland on dolerite	In South East and Southern Ranges (except on Bushy Park, Murdunna and Ouse maps.)	As centroid	
DTD	*E. tenuiramis* forest and woodland on dolerite	In Southern Ranges (Bushy Park and Ouse maps) near South East.	To South East	Rest of Southern Ranges tagged as centroid.
DTG	*E. tenuiramis* forest and woodland on granite	In South East on Murdunna map.	Retagged to DTD	No granite at location - its all dolerite.
DTG	*E. tenuiramis* forest and woodland on granite	In South East on Freycinet Peninsula and East Coast.	As centroid	
DTG	*E. tenuiramis* forest and woodland on granite	In Southern Ranges on Ouse map.	Retagged to "DTO"	Patch contiguous with large patch of DTO on sandstone.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DTG	*E. tenuiramis* forest and woodland on granite	In South East on Lymington map.	Retagged to "DTO"	Patch is sedimentary rocks and associated outwash.
DTO	*E. tenuiramis* forest and woodland on sediments	In South East and West	As centroid	
DTO	*E. tenuiramis* forest and woodland on sediments	In Southern Ranges (Bushy Park, Collinsvale, Dee, Strickland, Ouse, Ellendale, Lloyd and Uxbridge maps) near South East.	To South East	Rest of Southern Ranges tagged to centroid.
DTO	*E. tenuiramis* forest and woodland on sediments	In Central Highlands on Dennistoun, Table and Vincents maps, near South East.	To South East	
DVC	*E. viminalis - E. globulus* coastal forest and woodland	In Ben Lomond on Ironhouse map near Flinders	To Flinders	Polygon arising from Tasveg splitting of mapping using the bioregional boundary line.
DVC	*E. viminalis - E. globulus* coastal forest and woodland	In Flinders, King, Northern Slopes, South East (except Kempton map), Southern Ranges and West.	As centroid	
DVC	*E. viminalis - E. globulus* coastal forest and woodland	On Kempton map.	Retagged to "DVG"	This is a narrow polygon on a steep sheltered slope with DVG either side.
DVC	*E. viminalis - E. globulus* coastal forest and woodland	In Ben Lomond in non-coastal locations (Pioneer, Nunamara, St Marys and Stanhope maps).	Retagged to "Err"	
DVF	*E. viminalis* Furneaux forest and woodland	On Furneaux Islands.	As centroid	
DVG	*E. viminalis* grassy forest and woodland	In Southern Ranges (Dobson, Ellendale, Lloyd, Ouse, Strickland and Uxbridge maps) near South East.	To South East	
DVG	*E. viminalis* grassy forest and woodland	In Ben Lomond, Flinders, King, Northern Midlands, Northern Slopes, South East and West.	As centroid	Some King and Northern Slopes patches may be WVI or DVC (especially Hunter Island patches on Qps).

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
DVG	*E. viminalis* grassy forest and woodland	In Central Highlands on Vincents map near Northern Midlands and South East.	To Northern Midlands and South East (to nearest)	
DVG	*E. viminalis* grassy forest and woodland	In Central Highlands on Liena map near Northern Slopes.	Retagged to "Err"	700m asl on a steep east facing slope down to the Mersey River.
DVG	*E. viminalis* grassy forest and woodland	In West on Stringer map.	Retagged to "Err"	
DVS	*E. viminalis* shrubby/heathy woodland	In Ben Lomond, Northern Midlands and South East on Geology T (Tertiary sediments).	Retagged to "DAZ"	
DVS	*E. viminalis* shrubby/heathy woodland	In Southern Ranges on Leprena map.	Retagged to "DOV"	These are in swampy situations on coastal dolerite along the Ida Bay Railway where there is abundant E. *ovata*.
DVS	*E. viminalis* shrubby/heathy woodland	On coastal sands (Geology Qps) and on Geology Qh on coast at mapped locations on Ulverstone map.	Retagged to "DVC"	
DVS	*E. viminalis* shrubby/heathy woodland	On Furneaux Islands.	Retagged to "DVF"	Consistent with the Tasveg key.
DVS	*E. viminalis* shrubby/heathy woodland	Rest of DVS not covered by other rules	Retagged to "DVG"	Community is problematic in Tasveg 2.
DVS	*E. viminalis* shrubby/heathy woodland	In Ben Lomond, Northern Midlands and South East on Geologies Tb (basalt), R (sandstones) or P (Permian mudstones).	Retagged to "DVG"	
DVS	*E. viminalis* shrubby/heathy woodland	On King Island	Retagged to “DKW”.	Retagging consistent with the Tasveg key.
DVS	*E. viminalis* shrubby/heathy woodland	In Flinders and King on areas of RFA-mapped tall or wet forests (incl. SI and DSC).	Retagged to "WVI"	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
GCL	Lowland grassland complex	In all bioregions.	As centroid	Community should probably not be named 'lowland' as it appears to apply to undifferentiable grasslands wherever they occur. Many will be induced or FRG.
GHC	Coastal grass and herbfield	In Flinders, King, South East, Southern Ranges and West.	As centroid	
GPH	Highland *Poa* grassland	In Ben Lomond, Central Highlands, South East (not Lymington map), Southern Ranges and West.	As centroid	
GPH	Highland *Poa* grassland	In Northern Midlands on Hanleth map.	Retagged to "GPL"	None are above 400m
GPH	Highland *Poa* grassland	On Flinders Island on Palana map,	Retagged to "Err"	Occurrence is coastal.
GPH	Highland *Poa* grassland	In South East on Lymington map,	Retagged to "Err"	Occurrence is coastal.
GPL	Lowland *Poa labillardierei* grassland	In Central Highlands near Northern Midlands (Vincents map) or Northern Slopes (Cethana and Liena maps),	To Northern Midlands or Northern Slopes (to nearest)	
GPL	Lowland *Poa labillardierei* grassland	In Southern Ranges on Strickland map near South East.	To South East	
GPL	Lowland *Poa labillardierei* grassland	In Ben Lomond, Flinders, King, Northern Midlands, Northern Slopes and South East.	As centroid	King patch possibly GSL.
GPL	Lowland *Poa labillardierei* grassland	In West on Hardwick map.	Retagged to "Err"	Possibly coastal scrub.
GRP	Rockplate grassland	All bioregions (currently only SE).	As centroid	Community is a response to local geomorphology rather than bioregional factors. Only 4 polygons mapped - all in Elizabeth River.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
GSL	Lowland sedgy grassland	In Ben Lomond, Flinders, King, Northern Midlands, Northern Slopes, South East and Southern Ranges (not D'Arcys map).	As centroid	
GSL	Lowland sedgy grassland	In Central Highlands and Southern Ranges (D'Arcys map only).	Retagged to "Err"	Not is lowland situation.
GTL	Lowland *Poa* grassland	In Northern Slopes on Bridgenorth map near Northern Midlands.	To Northern Midlands	
GTL	Lowland *Poa* grassland	In Ben Lomond, Flinders, King, Northern Midlands, South East and West.	As centroid	Flinders, King and West possibly incorrect. Ben Lomond patches suggest a fuzzy boundary with Northern Midlands but extensive clearing may have created this.
GTL	Lowland *Poa* grassland	In Southern Ranges near South East on Lloyd and Uxbridge maps.	To South East	
HCH	Alpine coniferous heathland	In Central Highlands, Southern Ranges and West.	As centroid	
HCH	Alpine coniferous heathland	In Northern Slopes on Rowallan map near Central Highlands.	To Central Highlands	
HCM	Cushion moorland	In Ben Lomond, Central Highlands, Southern Ranges & West.	As centroid	
HHE	Eastern alpine heathland	In Northern Slopes near Central Highlands	To Central Highlands	Includes all patches in Northern Slopes
HHE	Eastern alpine heathland	In Ben Lomond, Central Highlands, Southern Ranges, West	As centroid	
HHW	Western alpine heathland	In Central Highlands, Southern Ranges, West	As centroid	
HSE	Western alpine sedgeland/herbland	In Central Highlands, Southern Ranges, West	As centroid	
HSE	Eastern alpine sedgeland	In Northern Slopes, except as noted for Montana map sheet	To Central Highlands	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
HSE	Eastern alpine sedgeland	In Northern Slopes on Montana map sheet, below 400m.	Retagged to "DAS", assigned to Northern Slopes.	Site is at 300m - not alpine. PI type indicates eucalypt regrowth. Former Tasveg code was As - maybe mistagged DAS.
HSW	Western alpine sedgeland/herbland	In Ben Lomond.	Retagged to "Err"	Not western. Some as low as 100m ASL on the Tamar.
HSW	Western alpine sedgeland/herbland	In Central Highlands, Southern Ranges and West.	As centroid	
HUE	Eastern alpine vegetation (undifferentiated)	In Ben Lomond, Central Highlands and Southern Ranges.	As centroid	
HUE	Eastern alpine vegetation (undifferentiated)	In South East near Southern Ranges on Collinsvale and Longley maps.	To Southern Ranges	
HUE	Eastern alpine vegetation (undifferentiated)	In Northern Slopes (Loongana map) near Central Highlands	To Central Highlands	
MAP	Alkaline pans	In Ben Lomond (Lisle map), Southern Ranges and West.	As centroid	Community description has this community restricted to West bioregion.
MBE	Eastern Buttongrass moorland	In Northern Slopes near Central Highlands.	To Central Highlands	
MBE	Eastern Buttongrass moorland	In Ben Lomond, Central Highlands, Southern Ranges and West.	As centroid	
MBP	Pure buttongrass moorland	In Central Highlands, Southern Ranges and West.	As centroid	
MBP	Pure buttongrass moorland	In Northern Slopes near Central Highlands.	To Central Highlands	
MBR	Sparse buttongrass moorland on slopes	In Central Highlands, Southern Ranges and West.	As centroid	
MBR	Sparse buttongrass moorland on slopes	In Ben Lomond.	As centroid.	The location of these polygons is relatively flat - possibly MBE.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
MBS	Buttongrass moorland with emergent shrubs	In Northern Slopes near Central Highlands.	To Central Highlands	
MBS	Buttongrass moorland with emergent shrubs	In Ben Lomond, Central Highlands, King, Southern Ranges and West.	As centroid	
MBU	Buttongrass moorland (undifferentiated)	In Central Highlands, Flinders, King, Northern Slopes, Southern Ranges and West.	As centroid	Absence from Ben Lomond suggests an inconsistent approach to mapping, particularly as polygons in Flinders have been sliced by the IBRA boundary.
MBW	Western buttongrass moorland	In Northern Slopes on Lea map near Central Highlands.	To Central Highlands	
MBW	Western buttongrass moorland	In Central Highlands, Southern Ranges and West	As centroid	Boundary between Southern Ranges and West probably needs review.
MDS	Subalpine Diplarrena latifolia rushland	In Central Highlands and Southern Ranges.	As Centroid	Potential issue in Tasveg key: allows for community below 600m but description says 700-900m.
MGH	Highland grassy sedgeland	In South East on Echo and Steppes maps near Central Highlands.	To Central Highlands	
MGH	Highland grassy sedgeland	In Ben Lomond, Central Highlands and Southern Ranges (not Recherche map).	As centroid	
MGH	Highland grassy sedgeland	In Southern Ranges on Recherche map.	Retagged to "Err"	Areas on coast.
MGH	Highland grassy sedgeland	In West (Anna, Charter, Pearse and Tullah maps) near Southern Ranges.	To Southern Ranges	
MGH	Highland grassy sedgeland	In Northern Slopes on Borradaile and Rowallan maps near Central Highlands	To Central Highlands	
MRR	Restionaceae rushland	In Ben Lomond, Central Highlands, King, Northern Slopes, South East, Southern Ranges and West.	As centroid	Fuzzy bioregional boundaries unlikely to arise in this community - more likely responding to local circumstances.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
MSP	Sphagnum peatland	In Ben Lomond, Central Highlands, Northern Slopes, Southern Ranges and West.	As centroid	
MSW	Western lowland sedgeland	In Ben Lomond.	Retagged to "Err"	Community not identified for bioregion.
MSW	Western lowland sedgeland	In Southern Ranges on Glovers and Razerback maps near West.	To West	Land system makes a better boundary and matches this occurrence.
MSW	Western lowland sedgeland	In West.	As centroid	
NAD	*Acacia dealbata*	All occurrences.	As centroid	Community is readily induced by disturbance in most parts of Tasmania.
NAF	*Acacia melanoxylon* on flats	In Ben Lomond, Flinders, King, Northern Midlands, Northern Slopes, South East, Southern Ranges and West.	As centroid	
NAF	*Acacia melanoxylon* on flats	In Central Highlands on Dundas map.	Retagged to "Err"	Not on flats - possible transcription error from old Tasveg AF.
NAL	*Allocasuarina littoralis* forest	In Ben Lomond, Flinders, Northern Midlands, South East and Southern Ranges	As centroid	Southern Ranges patch (South Bruny) probably needs review.
NAL	*Allocasuarina littoralis* forest	In Northern Slopes on Beaconsfield and Harford maps near Flinders.	To Flinders	
NAR	*Acacia melanoxylon* on rises	In Central Highlands (Cethana, Lea, Pearse and Pencil Pine maps) near Northern Slopes.	To Northern Slopes	Balance in Central Highlands polygons assigned as centroid.
NAR	*Acacia melanoxylon* on rises	In Ben Lomond, King, Northern Slopes, South East, Southern Ranges and West.	As centroid	
NAV	*Allocasuarina verticillata* forest	In Ben Lomond, Flinders, Northern Midlands, Northern Slopes and South East.	As centroid	Difficult to assign on fuzzy boundaries as often occurs on rocky slopes along and near boundaries, i.e. bioregionalisation not really applicable.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
NAV	*Allocasuarina verticillata* forest	In King on Stanley map.	Retagged to "Err"	This is a coastal location. Occurrence in bioregion has been identified as doubtful consistently since appearance on RFA mapping.
NBA	*Bursaria - Acacia* woodland and scrub	In all bioregions where occurs.	As centroid	Community is readily induced by disturbance in most drier parts of Tasmania.
NBS	*Banksia serrata* woodland	In Flinders and King	As centroid	
NBS	*Banksia serrata* woodland	In Central Highlands on Will map	Retagged to "Err"	
NCR	*Callitris rhomboidea* forest	In all bioregions where occurs (Flinders and South East.)	As centroid	
NLA	*Leptospermum scoparium - Acacia mucronata* forest	In Ben Lomond, Central Highlands and West	As centroid	Single patch in Ben Lomond may need assessment.
NLE	*Leptospermum* forest	In Ben Lomond, Central Highlands, Northern Slopes, Southern Ranges and West	As centroid	
NLM	*Leptospermum lanigerum - Melaleuca squarrosa* swamp forest	In all bioregions where occurs.	As centroid	Occurs in all bioregions except Northern Midlands. Possibly fuzzy in Central Highlands.
NLN	Subalpine *Leptospermum nitidum* woodland	In Central Highlands, Southern Ranges and West	As centroid	
NME	*Melaleuca ericifolia* swamp forest	In Ben Lomond, Flinders, King, Northern Midlands, Northern Slopes, South East and West	As centroid	
NNP	*Notelaea - Pomaderris - Beyeria* forest	In Northern Midlands on Dilston map near Ben Lomond.	To Ben Lomond	
NNP	*Notelaea - Pomaderris - Beyeria* forest	In Ben Lomond, King, Northern Slopes, South East, Southern Ranges and West	As centroid	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
RCO	Coastal rainforest	In Ben Lomond (Nunamara map), Central Highlands (Pencil Pine map), Southern Ranges (Burgess map) and West (Strathgordon map)	Retagged to "Err"	Locations montane not coastal - possible DCO but need checking.
RCO	Coastal rainforest	In Southern Ranges and West on coast (where not tagged to error)	As centroid	
RFE	Rainforest fernland	In Northern Slopes on Borradaile, Rowallan and Cathedral maps near Central Highlands	To Central Highlands	
RFE	Rainforest fernland	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
RFS	*Nothofagus gunnii* rainforest and scrub	In Northern Slopes on Will map near Central Highlands	To Central Highlands	
RFS	*Nothofagus gunnii* rainforest and scrub	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	Ben Lomond needs checking - outside species range.
RHP	*Lagarostrobos franklinii* rainforest and scrub	In Ben Lomond	Retagged to "Err"	Outside of species range.
RHP	*Lagarostrobos franklinii* rainforest and scrub	In Central Highlands on Mt Read	As centroid	
RHP	*Lagarostrobos franklinii* rainforest and scrub	In Central Highlands (not Mt Read) near West	To West	
RHP	*Lagarostrobos franklinii* rainforest and scrub	In Southern Ranges and West	As centroid	
RKF	*Athrotaxis selaginoides - Nothofagus gunnii* short rainforest	In Central Highlands, Southern Ranges and West	As centroid	
RKP	*Athrotaxis selaginoides* rainforest	In Northern Slopes (Achilles, Borradaile, Cradle, Rowallan and Will maps) near Central Highlands	To Central Highlands	
RKP	*Athrotaxis selaginoides* rainforest	In Central Highlands, Southern Ranges and West	As centroid	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
RKS	*Athrotaxis selaginoides* subalpine scrub	In Central Highlands, Southern Ranges and West	As centroid	
RKX	Highland rainforest scrub with dead *Athrotaxis selaginoides*	In Central Highlands, Southern Ranges and West	As centroid	
RLS	*Leptospermum* with rainforest scrub	In Flinders on Tomahawk map	Retagged to "Err"	Situated on a swampy coastal plain.
RLS	*Leptospermum* with rainforest scrub	In Ben Lomond, Central Highlands, King, Northern Slopes, South East, Southern Ranges & West	As centroid	
RML	*Nothofagus-Leptospermum* short rainforest	In Northern Slopes on Achilles, Cathedral and Rowallan maps near Central Highlands	To Central Highlands	
RML	*Nothofagus-Leptospermum* short rainforest	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
RMS	*Nothofagus / Phyllocladus* short rainforest	In Ben Lomond, Central Highlands, Flinders, King, Northern Slopes, South East, Southern Ranges & West	As centroid	Flinders patch on Loccota map may be error.
RMT	*Nothofagus - Atherosperma* rainforest	In Flinders (Lanka, Pearly Brook, Pyengana, Scottsdale Spurrs Rivulet and The Gardens maps) near Ben Lomond	To Ben Lomond	
RMT	*Nothofagus - Atherosperma* rainforest	In Ben Lomond, Central Highlands, King, Northern Slopes, South East, Southern Ranges & West	As centroid	
RPF	*Athrotaxis cupressoides*/*Nothofagus gunnii* short rainforest	In Ben Lomond, Central Highlands and West	As centroid	
RPP	*Athrotaxis cupressoides* rainforest	In Central Highlands and Southern Ranges	As centroid	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
RPP	*Athrotaxis cupressoides* rainforest	In West near Southern Ranges	To Southern Ranges	
RPP	*Athrotaxis cupressoides* rainforest	In Northern Slopes on Achilles, Cathedral and Rowallan maps near Central Highlands	To Central Highlands	
RPW	*Athrotaxis cupressoides* open woodland	In West on Gordonvale map near Southern Ranges	To Southern Ranges	
RPW	*Athrotaxis cupressoides* open woodland	In Central Highlands and Southern Ranges	As centroid	
RSH	Highland low rainforest and scrub	In Northern Slopes (Borradaile, Cathedral, Cradle, Lake MacKenzie, Quamby Bluff, Rowallan and Will maps) near Central Highlands	To Central Highlands	
RSH	Highland low rainforest and scrub	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
SAC	*Acacia longifolia* coastal scrub	In Ben Lomond on Oxberry map near Flinders	To Flinders	
SAC	*Acacia longifolia* coastal scrub	In Ben Lomond on Pyengana map	Retagged to "Err"	On the slopes of Mount Young.
SAC	*Acacia longifolia* coastal scrub	In Flinders, King, Northern Slopes, South East, Southern Ranges & West	As centroid	
SBM	*Banksia marginata* wet scrub	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
SBR	Broadleaf scrub	In Ben Lomond, Central Highlands, Flinders, King, Northern Midlands, Northern Slopes, South East, Southern Ranges and West	As centroid	There are weak fuzzy boundaries for this community, but not enough to change bioregions.
SCA	Coastal scrub on alkaline sands	In Flinders, King and West	As centroid	
SCH	Coastal heathland	In Flinders, King, Northern Slopes, South East, Southern Ranges and West	As centroid	Can arise nearly anywhere on the coast. Northern Slopes occurrences may warrant further assessment as close to King and Flinders.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
SCK	Coastal complex on King Island	In King on King Island	As centroid	
SCW	Heathland scrub complex at Wingaroo	On Flinders Island	As centroid	
SDU	Dry scrub	In Ben Lomond, Central Highlands, Flinders, King, Northern Midlands, Northern Slopes, South East, Southern Ranges and West	As centroid	
SHC	Heathland on calcarenite	In Flinders on Furneaux Islands	As centroid	
SHF	Heathland scrub mosaic on Flinders Island	In Flinders on Furneaux Islands	As centroid	
SHG	Heathland on granite	In Ben Lomond, Flinders and South East	As centroid	
SHL	Lowland sedgy heathland	In Ben Lomond, Flinders, King, Northern Slopes, South East, Southern Ranges (not Dee map) and West	As centroid	
SHL	Lowland sedgy heathland	In Southern Ranges on Dee map	Retagged to "Err"	Area at 850m asl.
SHL	Lowland sedgy heathland	In Central Highlands (Cethana, Gog, Loongana and Mole Creek maps) near Northern Slopes	To Northern Slopes	
SHS	Subalpine heathland	In Northern Slopes (Borradaile, Cathedral, Cethana, Lake Mackenzie, Loongana, Parrawe, Poatina, Quamby Bluff and Rowallan maps) near Central Highlands	To Central Highlands	
SHS	Subalpine heathland	In South East on Wellington Range near Southern Ranges	To Southern Ranges	
SHS	Subalpine heathland	In Flinders on Preservation ma and, Clarke Island	Retagged to "Err"	Mapped at sea level.
SHS	Subalpine heathland	In Ben Lomond, Central Highlands, South East (not Wellington Range) Southern Ranges and West	As centroid	Only valid South East occurrence is on Maria Island.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
SHS	Subalpine heathland	In Northern Midlands on Millers map near Central Highlands	To Central Highlands	
SHU	Inland Heathland (undifferentiated)	In Ben Lomond, Central Highlands, Flinders, King, Northern Slopes, South East, Southern Ranges and West	As centroid	
SHU	Inland Heathland (undifferentiated)	In Northern Midlands on Poatina map near Northern Slopes	To Northern Slopes	
SHU	Inland Heathland (undifferentiated)	In Northern Midlands on Nunamara map near Ben Lomond	To Ben Lomond	
SHW	Wet heathland	In Ben Lomond, Central Highlands, Flinders, King, Northern Midlands, Northern Slopes, South East, Southern Ranges and West	As centroid	There are some fuzzy indications around the edges of Northern Midlands, and also occurs in Central Highlands. Possible inconsistency in mapping.
SLW	*Leptospermum* scrub	In Northern Midlands on St Pauls Dome near Ben Lomond	To Ben Lomond	
SLW	*Leptospermum* scrub	In Northern Midlands on Penny map near Central Highlands	To Central Highlands	
SLW	*Leptospermum* scrub	In Northern Midlands (Brady's Lookout, Bridgenorth, Launceston and Poatina maps) near Northern Slopes	To Northern Slopes	
SLW	*Leptospermum* scrub	In Ben Lomond, Central Highlands, Flinders, King, Northern Slopes, South East, Southern Ranges and West	As centroid	
SMM	*Melaleuca squamea* heathland	In Ben Lomond, Central Highlands, King, Southern Ranges and West	As centroid	
SMP	*Melaleuca pustulata* scrub	In South East	As centroid	
SMP	*Melaleuca pustulata* scrub	In Ben Lomond on Victoria map	Retagged to "Err"	Outside species range.

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
SMR	*Melaleuca squarrosa* scrub	In Northern Midlands on Nile map near Ben Lomond	To Ben Lomond	
SMR	*Melaleuca squarrosa* scrub	In Ben Lomond, Central Highlands, Flinders, King, Northern Slopes, South East, Southern Ranges and West	As centroid	
SQR	Queenstown regrowth mosaic	In Central Highlands and West	As centroid	Distribution a function of landuse history.
SRC	Seabird rookery complex	In Flinders, King, South East, Southern Ranges and West	As centroid	
SRI	Riparian scrub	In West on Temma map near King	To King	Possible Tasveg error - identical to a 2D watercourse polygon from the Hydarea layer.
SRI	Riparian scrub	In Ben Lomond, Central Highlands, Flinders, King, Northern Midlands, Northern Slopes, South East and Southern Ranges	As centroid	Has a patchy distribution.
SSC	Coastal Scrub	In Flinders, King, Northern Slopes, South East, Southern Ranges and West	To centroid	
SSC	Coastal Scrub	In Central Highlands	Retagged to "Err"	
SSK	Scrub complex on King Island	In King on King Island	As centroid	
SSW	Western subalpine scrub	In Central Highlands, Southern Ranges and West	As centroid	
SWW	Western wet scrub	In Ben Lomond on Binalong map	Retagged to "Err"	
SWW	Western wet scrub	In South East on Lymington map	Retagged to "Err"	
SWW	Western wet scrub	In Northern Slopes on Montana map	Retagged to "Err"	
SWW	Western wet scrub	In Northern Slopes (Borradaile, Cethana, Lea, Liena, Loyetea and Parrawe maps) near Central Highlands	To Central Highlands	
SWW	Western wet scrub	In Central Highlands, King, Southern Ranges and West	As centroid	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
WBR	*E. brookeriana* wet forest	In Central Highlands (Dundas map) and West (Bowes map) near West	To West	
WBR	*E. brookeriana* wet forest	On King Island	Recorded to WGK.	RFA treated all eucalypt forest on King Island as WGK.
WBR	*E. brookeriana* wet forest	In Ben Lomond, King, South East, Northern Slopes and West	As centroid	Northern Slopes patch is potentially King - bioregional boundary may need reassessment.
WDA	*E. dalrympleana* forest	In Ben Lomond, Central Highlands and Southern Ranges	As centroid	
WDA	*E. dalrympleana* forest	In South East on Echo map near Central Highlands	To Central Highlands	
WDA	*E. dalrympleana* forest	In West on Adamsfield map near Southern Ranges	To Southern Ranges	
WDA	*E. dalrympleana* forest	In Northern Slopes (Borradaile, Cathedral, Lake Mackenzie, Lea, Liena, Loongana and Rowallan maps) near Central Highlands	To Central Highlands	
WDB	*E. delegatensis* forest with broadleaf shrubs	In South East on Longley and Lymington maps near Southern Ranges	To Southern Ranges	
WDB	*E. delegatensis* forest with broadleaf shrubs	In Ben Lomond, Central Highlands and Southern Ranges	As centroid	
WDB	*E. delegatensis* forest with broadleaf shrubs	In Northern Slopes (Borradaile, Cathedral, Lake Mackenzie, Lea, Liena, Liffey, Loongana, Mole Creek, Quamby Bluff, Rowallan and Will maps) near Central Highlands	To Central Highlands	
WDB	*E. delegatensis* forest with broadleaf shrubs	In West (Adamsfield, Strathgordon, Tiger, Wings and Wylds maps) near Southern Ranges	To Southern Ranges	
WDB	*E. delegatensis* forest with broadleaf shrubs	In West on Achilles map near Central Highlands	To Central Highlands	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
WDB	*E. delegatensis* forest with broadleaf shrubs	In Northern Midlands on O'Connors and Millers maps near Central Highlands	To Central Highlands	
WDL	*E. delegatensis* forest over *Leptospermum*	In Northern Slopes (Aichilles, Borradaile, Cathedral, Lake Mackenzie, Lea, Liena, Loongana, Mole Creek, Rowallan and Will maps) near Central Highlands	To Central Highlands	
WDL	*E. delegatensis* forest over *Leptospermum*	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
WDR	*E. delegatensis* forest over rainforest	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
WDR	*E. delegatensis* forest over rainforest	In Northern Slopes (Achilles, Borradaile, Breona, Cathedral, Cradle, Lake Mackenzie, Lea, Liena, Loongana, Quamby Bluff, Rowallan and Will maps) near Central Highlands	To Central Highlands	
WDU	*E. delegatensis* wet forest (undifferentiated)	In Northern Midlands on St John map near South East	To South East	
WDU	*E. delegatensis* wet forest (undifferentiated)	In South East (Cluny, Collinsvale, Dee, Echo and Longley maps) near Southern Ranges	To Southern Ranges	Some patches on Echo map allocated to Central Highlands.
WDU	*E. delegatensis* wet forest (undifferentiated)	In Ben Lomond, Central Highlands, Northern Slopes, Southern Ranges and West	As centroid	
WDU	*E. delegatensis* wet forest (undifferentiated)	In South East (Dennistoun, Echo, Hermitage, Steppes, Table and Vincents maps) near Central Highlands	To Central Highlands	
WDU	*E. delegatensis* wet forest (undifferentiated)	In Northern Midlands on Rossarden and St Pauls maps near Ben Lomond	To Ben Lomond	
WDU	*E. delegatensis* wet forest (undifferentiated)	In Northern Midlands (Bradys Lookout, Ellinthorp, Millers, O'Connors, Penny, Tunbridge and Vincents maps) near Central Highlands	To Central Highlands	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
WGK	*E. globulus* King Island forest	In King on King Island	As centroid	
WGL	*E. globulus* wet forest	In Ben Lomond, South East and Southern Ranges	As centroid	
WNL	*E. nitida* forest over *Leptospermum*	In Central Highlands, Southern Ranges and West	As centroid	
WNL	*E. nitida* forest over *Leptospermum*	In Northern Slopes (Borradaile, Lea, Liena and Loongana maps) near Central Highlands	To Central Highlands	
WNR	*E. nitida* wet forest over rainforest	In Central Highlands, Southern Ranges and West	As centroid	
WNR	*E. nitida* wet forest over rainforest	In Northern Slopes on Borradaile and Lea maps near Central Highlands	To Central Highlands	
WNU	*E. nitida* wet forest (undifferentiated)	In Northern Slopes (Cethana, Loongana, Loyetea and Parrawe maps) near Central Highlands	To Central Highlands	
WNU	*E. nitida* wet forest (undifferentiated)	In Central Highlands, King, Southern Ranges and West	As centroid	
WNU	*E. nitida* wet forest (undifferentiated)	In Northern Slopes (Cethana, Loongana, Loyetea and Parrawe maps) near Central Highlands	To Central Highlands	
WNU	*E. nitida* wet forest (undifferentiated)	In Northern Slopes other than near Central Highlands	As centroid	
WOB	*E. obliqua* forest with broadleaf shrubs	In Ben Lomond, Northern Slopes, Southern Ranges and West	As centroid	
WOL	*Eucalyptus obliqua* wet forest over *Leptospermum*	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
WOL	*Eucalyptus obliqua* wet forest over *Leptospermum*	In South East on Cygnet and Lymington maps near Southern Ranges	To Southern Ranges	
WOR	*E. obliqua* wet forest over rainforest	In Ben Lomond, Northern Slopes, Southern Ranges and West	As centroid	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
WOU	*E. obliqua* wet forest (undifferentiated)	In South East (Adventure Bay, Blackmans Bay, Bushy Park, Cluny, Collinsvale, Cygnet, Dee, Dobson, Hobart, Huonville, Longley, Lymington, New Norfolk, Strickland, Taroona and Uxbridge maps) near Southern Ranges	To Southern ranges	Rest of South East tagged to centroid. Bioregion boundary along d'Entrecasteaux Channel possibly needs reassessment.
WOU	*E. obliqua* wet forest (undifferentiated)	In Central Highlands (Baretop, Block, Charter, Cradle, Dundas, Luina, Roseberry, Selina, Tullah and Waratah maps) near West	To West	
WOU	*E. obliqua* wet forest (undifferentiated)	In Northern Midlands on Rossarden map near Ben Lomond	To Ben Lomond	
WOU	*E. obliqua* wet forest (undifferentiated)	In Northern Midlands on Bridgenorth, Cluan and Liffey maps near Northern Slopes	To Northern Slopes	
WOU	*E. obliqua* wet forest (undifferentiated)	In Ben Lomond, Flinders, King, Northern Slopes, Southern Ranges and West	As centroid	
WOU	*E. obliqua* wet forest (undifferentiated)	In Central Highlands (Baretop, Cethana, Gog, Lea, Liena, Liffey, Mole Creek, Poatina, Quamby Bluff, Sheffield and Wilmot maps) near Northern Slopes	To Northern Slopes	
WRE	*E. regnans* forest	In Central Highlands on Penny map	Retagged to "DRO"	Correct place in landscape and range, and mapped as DRO by RFA and Tasveg 3.0.
WRE	*E. regnans* forest	In South East (Bushy Park, Collinsvale, Dobson, Hobart, Longley, Lymington and Taroona maps) near Southern Ranges	To Southern Ranges	Rest of South East tagged as centroid. Lymington retag doesn't include Port Cygnet patch.
WRE	*E. regnans* forest	In Central Highlands on Cethana and Gog maps near Northern Slope	To Northern Slopes	
WRE	*E. regnans* forest	In Central Highlands on Algonkian map near Southern Ranges	To Southern Ranges	

REM code[25]	Vegetation community	Location &/or bioregion of assessed patches	Allocation	Notes
WRE	*E. regnans* forest	In Flinders on Brilliant, Scottsdale and Spurrs Rivulet maps near Ben Lomond	To Ben Lomond	
WRE	*E. regnans* forest	In West (Adamsfield, Algonkian, Precipitous and Tiger maps) near Southern Ranges	To Southern Ranges	
WRE	*E. regnans* forest	In Ben Lomond, King, Northern Slopes and Southern Ranges	As centroid	
WSU	*E. subcrenulata* forest and woodland	In Ben Lomond, Central Highlands, Southern Ranges and West	As centroid	
WSU	*E. subcrenulata* forest and woodland	In South East on Collinsvale and Longley maps near Southern Ranges	To Southern Ranges	
WSU	*E. subcrenulata* forest and woodland	In Northern Slopes (Achilles, Borradaile, Cathedral, Cradle, Lea, Liena, Loongana, Rowallan and Will maps) near Central Highlands	To Central Highlands	
WVI	*E. viminalis* wet forest	In Flinders on Lanka map near Ben Lomond	To Ben Lomond	
WVI	*E. viminalis* wet forest	In Ben Lomond, King, Northern Slopes, South East, Southern Ranges and West	As centroid	King potentially fuzzy if most westerly patch incorrect.
WVI	*E. viminalis* wet forest	In Northern Midlands on Dilston and Liffey maps near Northern Slopes	To Northern Slopes	Rest of Northern Midlands tagged as centroid.
WVI	*E. viminalis* wet forest	In Ben Lomond on Evandale map near Northern Midlands	To Northern Midlands	This is a riparian patch on the Nile River.
WVI	*E. viminalis* wet forest	In Central Highlands on Cethana, Gog and Liena maps near Northern Slopes	To Northern Slopes	
WVI	*E. viminalis* wet forest	In Flinders on Latrobe and Ulverstone maps near Northern Slopes	To Northern Slopes	

ATTACHMENT 10. CONSERVATION AND RESERVATION STATUS OF OLD GROWTH FORESTS

KEY

Classification

RFA code – RFA code of forest community used for analysis against JANIS.

Tasveg-RFA equiv. – Current Tasveg equivalent of RFA community (see Section 3.2.2 of main report and Attachment 8).

IBRA region – Code for the IBRA bioregion. BL – Ben Lomond, CH – Central Highlands, FL – Flinders, KI - King, NM – Northern Midlands, NS – Northern Slopes, SE – South East, SR – Southern Ranges, WSW – West.

Type 1 old growth

Area (ha) – Current mapped area of the old growth of the forest community.

Comm % - Percentage of the extant area of the forest community that is old growth.

Status – JANIS conservation status of the old growth of the community in the bioregion. p – present but not threatened, D – Depleted, R – Rare, RD – Rare and Depleted.

Target desc. – JANIS descriptor of the reservation target associated with the conservation status. 60% - 60% of the extant area of old growth, 100% - 100% of the extant area of old growth.

Target (ha) – JANIS reservation target for old growth in the bioregion in hectares.

Resv. (ha) – Area of old growth currently in reserves.

Short % - Percentage shortfall of current reservation on the reservation target.

OG1 index – Reservation index for type 1 old growth forest (see section 4.2.3 of main report).

FMU area (ha) – Area of the type 1 old growth of the forest community in the FMU.

Type 2 old growth

Area (ha) – Area of type 2 old growth of the forest community (see section 4.2.2 for definition).

Resv. (ha) – Current reserved area of type 2 old growth of the forest community.

Unres. (ha) – Current area of type 2 old growth that is outside of reserves.

Ha T1 target – The area of type 2 old growth that would be needed to meet the reservation shortfall for type 1 old growth.

% to T1 target – The percentage of the area of type 2 old growth that would be needed to meet the reservation shortfall for type 1 old growth. The percentage is 0 where the area of type 2 in reserves exceeds the reservation shortfall for type 1 old growth.

OG2 index – Reservation index for type 2 old growth forest (see section 4.2.4 of main report).

FMU area (ha) – Area of the type 2 old growth of the forest community in the FMU.

Classification			Type 1 old growth									Type 2 old growth						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
AC	DAC	BL	6,370	13.1	p	60%	3,812	5,620	0.0	0	333	9,227	5,380	3,847	0	0.0	0	2,478
AC	DAC	FL	13,602	16.2	p	60%	7,992	8,838	0.0	0	289	20,740	9,396	11,343	0	0.0	0	463
AC	DAC	KI	52	62.5	R	100%	52	6	89.2	3	0	4	0	4	4	100.0	4	0
AC	DAC	NM	19	15.8	R	100%	19	19	0.0	0	0	3	2	1	0	0.0	0	0
AC	DAC	NS	801	11.0	R	100%	801	650	18.8	2	17	1,854	1,527	328	151	0.0	0	103
AC	DAC	SE	7,149	50.1	p	60%	4,315	5,284	0.0	0	8	1,174	752	423	0	0.0	0	0
AC	DAC	SR	6	6.3	RD	100%	6	3	50.9	4	0	17	4	13	3	0.0	0	0
AD	DAD	BL	1,961	6.0	D	100%	1,961	1,180	39.8	4	114	8,785	2,183	6,602	781	0.0	0	382
AD	DAD	CH	253	6.3	RD	100%	253	93	63.1	4	85	92	13	80	92	100.0	4	17
AD	DAD	FL	207	4.3	RD	100%	207	100	51.8	4	0	952	21	931	107	11.2	2	10
AD	DAD	NM	775	2.9	RD	100%	775	604	22.0	3	59	2,026	182	1,845	170	0.0	0	5
AD	DAD	NS	362	3.6	RD	100%	362	227	37.3	4	96	878	326	552	135	0.0	0	231
AD	DAD	SE	29,044	36.4	p	60%	17,490	21,328	0.0	0	2,328	8,167	1,200	6,967	0	0.0	0	156
AD	DAD	SR	618	18.9	R	100%	618	574	7.1	1	91	156	31	125	44	28.2	2	46
AM	DAM	BL	1,208	6.2	D	100%	1,208	941	22.2	3	216	3,631	1,796	1,835	268	0.0	0	513
AM	DAM	FL	56	2.6	RD	100%	56	39	29.8	3	0	392	225	167	17	0.0	0	9
AM	DAM	NM	308	5.0	RD	100%	308	79	74.3	4	0	597	323	274	229	0.0	0	19
AM	DAM	NS	119	3.1	RD	100%	119	84	29.3	3	5	213	38	174	35	0.0	0	77
AM	DAM	SE	1,777	29.1	p	60%	1,068	790	26.1	2	0	545	301	244	278	0.0	0	0
AM	DAM	SR	72	24.9	R	100%	72	55	23.9	2	0	23	5	18	17	73.6	4	0
AS	DAS	BL	347	6.3	RD	100%	347	293	15.7	3	35	501	119	382	54	0.0	0	20
AS	DAS	NM	168	5.7	RD	100%	168	118	29.8	3	6	688	59	628	50	0.0	0	0
AS	DAS	NS	760	8.9	RD	100%	760	672	11.6	3	64	1,948	1,637	311	88	0.0	0	184
AS	DAS	SE	7,563	25.9	p	60%	4,534	4,585	0.0	0	757	2,378	382	1,995	0	0.0	0	69
AS	DAS	SR	65	9.7	RD	100%	65	47	27.0	3	0	167	9	158	18	10.5	2	0

Classification			*Type 1 old growth*									*Type 2 old growth*						
RFA code	**Tasveg-RFA equiv.**	**IBRA region**	**Area (ha)**	**Comm %**	**Status**	**Target desc.**	**Target (ha)**	**Resv. (ha)**	**Short %**	**OG1 index**	**FMU (ha)**	**Area (ha)**	**Resv. (ha)**	**Unres (ha)**	**Ha T1 target**	**% T1 target**	**OG2 index**	**FMU (ha)**
AIC	DAZ	BL	39	0.8	RD	100%	39	28	26.9	3	0	146	91	55	10	0.0	0	1
AIC	DAZ	NM	2,552	12.0	D	100%	2,552	873	65.8	4	0	1,519	381	1,138	1,519	100.0	4	0
AIC	DAZ	NS	12	0.7	RD	100%	12	0	100.0	4	0	191	27	164	12	0.0	0	17
AIC	DAZ	SE	162	17.5	R	100%	162	50	69.1	3	0	93	5	88	93	100.0	4	0
C	DCO	BL	115	9.8	RD	100%	115	115	0.3	2	0	67	62	5	0	0.0	0	4
C	DCO	CH	24,790	25.9	p	60%	14,872	22,324	0.0	0	447	4,022	2,992	1,030	0	0.0	0	239
C	DCO	SE	73	19.3	R	100%	73	22	69.7	3	56	0	0	0	0	100.0	4	0
C	DCO	SR	6,292	29.0	p	60%	3,776	6,267	0.0	0	60	712	709	3	0	0.0	0	13
C	DCO	WSW	195	8.6	RD	100%	195	195	0.0	0	0	5	5	0	0	0.0	0	0
D	DDE	BL	6,796	14.2	p	60%	4,146	5,771	0.0	0	955	7,380	5,539	1,841	0	0.0	0	1,481
D	DDE	CH	21,667	18.9	p	60%	12,973	16,507	0.0	0	2,359	14,427	6,725	7,702	0	0.0	0	2,156
D	DDE	NS	1,862	21.1	p	60%	1,117	1,607	0.0	0	283	1,107	858	249	0	0.0	0	272
D	DDE	SE	17,948	35.0	p	60%	10,782	9,820	8.9	1	4,607	3,300	392	2,908	962	29.2	0	494
D	DDE	SR	10,435	27.3	p	60%	6,269	8,447	0.0	0	3,449	4,821	3,076	1,745	0	0.0	0	1,635
D	DDE	WSW	819	54.8	R	100%	819	707	13.7	2	56	25	20	4	25	100.0	4	0
GG	DGL	BL	2	0.7	RD	100%	2	2	0.0	0	0	10	10	0	0	0.0	0	0
GG	DGL	FL	1	0.1	RD	100%	1	1	0.0	0	0	189	93	97	0	0.0	0	0
GG	DGL	SE	5,710	22.6	p	60%	3,499	2,240	36.0	3	84	3,064	838	2,226	1,259	41.1	0	0
GG	DGL	SR	18	6.0	RD	100%	18	6	66.2	4	4	49	8	40	12	24.3	2	0
N	DNI	CH	958	27.9	R	100%	958	852	11.1	2	37	102	90	12	102	100.0	4	2
N	DNI	KI	4,906	37.0	p	60%	2,939	2,309	21.4	2	344	1,038	628	410	630	60.7	0	143
N	DNI	NS	930	30.3	R	100%	930	894	3.9	1	83	158	149	8	36	0.0	0	11
N	DNI	SR	2,874	30.0	p	60%	1,724	2,861	0.0	0	3	455	452	3	0	0.0	0	4
N	DNI	WSW	10,766	47.9	p	60%	6,459	10,180	0.0	0	678	679	608	71	0	0.0	0	54
O	DOB	BL	1,848	8.5	D	100%	1,848	1,465	20.7	3	408	4,056	2,329	1,727	383	0.0	0	1,027
O	DOB	FL	1,383	26.2	p	60%	1,000	1,243	0.0	0	82	602	372	230	0	0.0	0	98

Classification			Type 1 old growth									Type 2 old growth						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
O	DOB	KI	2,095	24.2	p	60%	1,266	896	29.2	2	379	807	378	429	370	0.0	0	29
O	DOB	NS	4,250	13.4	p	60%	2,527	3,492	0.0	0	935	4,364	3,425	939	0	0.0	0	555
O	DOB	SE	14,563	27.5	p	60%	8,769	9,258	0.0	0	1,828	3,838	1,586	2,252	0	0.0	0	88
O	DOB	SR	5,988	16.2	p	60%	3,651	4,096	0.0	0	1,291	3,988	1,628	2,360	0	0.0	0	664
O	DOB	WSW	6,941	67.0	p	60%	4,174	6,401	0.0	0	215	568	503	65	0	0.0	0	20
OV	DOV	BL	47	1.7	RD	100%	47	16	65.6	4	12	351	50	300	31	0.0	0	60
OV	DOV	FL	46	3.9	RD	100%	46	41	10.3	3	0	340	224	116	5	0.0	0	0
OV	DOV	KI	58	18.9	R	100%	58	0	99.7	3	0	90	70	20	58	0.0	0	0
OV	DOV	NM	157	1.4	RD	100%	157	47	69.9	4	0	186	29	157	110	59.1	4	1
OV	DOV	NS	140	3.6	RD	100%	140	55	60.8	4	1	167	82	85	85	51.1	4	36
OV	DOV	SE	407	11.3	R	100%	407	299	26.6	2	22	188	43	145	108	57.7	4	8
OV	DOV	SR	71	14.0	R	100%	71	51	28.0	2	0	88	14	74	20	22.5	2	0
OV	DOV	WSW	218	41.7	R	100%	218	218	0.0	0	0	2	1	0	0	0.0	0	0
PJ	DPD	BL	28	6.6	RD	100%	28	27	3.6	2	8	175	55	120	1	0.0	0	52
PJ	DPD	CH	3,156	17.2	p	60%	1,895	2,778	0.0	0	73	2,381	670	1,711	0	0.0	0	169
PJ	DPD	NM	8	0.9	RD	100%	8	1	84.1	4	0	11	0	11	7	61.7	4	0
PJ	DPD	SE	859	16.2	R	100%	859	752	12.4	2	6	495	96	398	107	21.6	2	5
PJ	DPD	SR	3,106	18.2	p	60%	1,867	2,868	0.0	0	788	2,965	1,956	1,009	0	0.0	0	1,385
PS	DPO	BL	3	4.4	RD	100%	3	3	0.0	0	0	141	54	87	0	0.0	0	40
PS	DPO	CH	20	1.8	RD	100%	20	0	100.0	4	0	260	7	253	20	7.8	2	0
PS	DPO	FL	11	40.4	R	100%	11	8	32.1	3	0	0	0	0	0	100.0	4	0
PS	DPO	SE	557	9.8	RD	100%	557	102	81.6	4	4	857	29	828	455	53.1	4	1
PS	DPO	SR	0	25.8	R	100%	0	0	0.0	0	0	139	6	133	0	0.0	0	5
P	DPU	BL	5	3.3	RD	100%	5	1	83.5	4	5	34	9	25	4	0.0	0	2
P	DPU	SE	52,296	40.3	p	60%	31,650	31,754	0.0	0	2,072	11,670	2,750	8,920	0	0.0	0	189
P	DPU	SR	383	3.9	RD	100%	383	94	75.4	4	22	1,524	338	1,186	289	0.0	0	66

Classification			*Type 1 old growth*									*Type 2 old growth*						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
RI	DRI	SE	24	3.1	RD	100%	24	17	27.7	3	0	56	31	25	7	0.0	0	0
RO	DRO	BL	47	5.1	RD	100%	47	33	28.6	3	9	169	87	82	13	0.0	0	41
RO	DRO	CH	217	3.8	RD	100%	217	114	47.1	4	21	641	73	568	102	15.9	2	10
RO	DRO	NM	21	3.3	RD	100%	21	14	35.5	4	0	1	0	1	1	100.0	4	0
RO	DRO	NS	5	2.9	RD	100%	5	1	86.5	4	0	15	7	8	4	0.0	0	0
RO	DRO	SE	875	29.2	R	100%	875	252	71.2	3	111	302	16	286	302	100.0	4	7
RO	DRO	SR	150	6.3	RD	100%	150	123	17.7	3	84	319	216	103	26	0.0	0	120
DSC	DSC	BL	431	9.0	RD	100%	431	305	29.2	3	153	1,591	640	951	126	0.0	0	532
DSC	DSC	FL	14	1.4	RD	100%	14	12	17.3	3	1	68	23	45	2	0.0	0	2
DSC	DSC	NM	88	10.8	R	100%	88	84	4.0	1	1	122	109	13	4	0.0	0	11
DSC	DSC	NS	1,578	4.6	D	100%	1,578	1,309	17.1	3	410	1,596	916	680	269	0.0	0	277
DSC	DSC	SE	17	12.6	R	100%	17	0	99.9	3	18	35	0	35	17	48.7	3	24
SG	DSG	BL	1,069	4.0	D	100%	1,069	963	9.9	2	149	3,701	2,800	901	105	0.0	0	541
SG	DSG	FL	192	2.5	RD	100%	192	158	17.9	3	113	1,472	702	770	34	0.0	0	684
SG	DSG	SE	329	77.7	R	100%	329	321	2.5	1	0	0	0	0	0	0.0	0	0
SO	DSO	BL	1,036	3.4	D	100%	1,036	792	23.6	3	330	5,197	3,832	1,365	244	0.0	0	848
SO	DSO	FL	414	3.8	RD	100%	414	123	70.2	4	60	2,145	1,477	668	290	0.0	0	528
SO	DSO	SE	934	72.9	R	100%	934	854	8.6	1	0	92	66	26	81	87.4	4	0
TD	DTD	SE	5,031	50.1	p	60%	3,018	4,293	0.0	0	372	627	392	236	0	0.0	0	81
TD	DTD	SR	8	39.6	R	100%	8	8	0.9	1	0	111	40	71	0	0.0	0	0
T	DTG	SE	2,964	83.7	p	60%	1,778	2,848	0.0	0	0	90	84	6	0	0.0	0	0
TI	DTO	SE	7,485	15.5	p	60%	4,499	3,305	26.5	2	179	8,064	1,891	6,173	1,194	0.0	0	379
TI	DTO	SR	2	0.6	RD	100%	2	0	100.0	4	0	43	11	32	2	0.0	0	0
TI	DTO	WSW	153	51.8	R	100%	153	153	0.0	0	0	0	0	0	0	0.0	0	0
G	DVC	KI	3	9.6	RD	100%	3	0	100.0	4	0	69	69	0	3	0.0	0	0
G	DVC	SE	378	36.4	R	100%	378	237	37.4	3	0	268	219	48	141	0.0	0	0

Classification			Type 1 old growth									Type 2 old growth						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
G	DVC	WSW	13	25.1	R	100%	13	0	100.0	3	13	0	0	0	0	0.0	0	0
V	DVG	BL	172	1.6	RD	100%	172	37	78.6	4	3	1,299	246	1,053	135	0.0	0	54
V	DVG	KI	1	0.1	RD	100%	1	1	46.7	4	0	7	7	1	0	0.0	0	0
V	DVG	NM	3,024	9.0	D	100%	3,024	982	67.5	4	1	2,560	259	2,301	2,042	79.8	4	0
V	DVG	NS	6	0.4	RD	100%	6	5	22.6	3	0	66	4	62	1	0.0	0	0
V	DVG	SE	6,650	8.8	D	100%	6,650	2,090	68.6	4	164	9,663	1,051	8,612	4,560	47.2	3	101
V	DVG	SR	28	7.3	RD	100%	28	11	59.1	4	2	18	8	10	16	90.5	4	0
AV	NAV	BL	17	1.7	RD	100%	17	3	79.5	4	0	0	0	0	0	0.0	0	0
AV	NAV	FL	322	2.3	RD	100%	322	269	16.4	3	0	0	0	0	0	0.0	0	0
AV	NAV	NM	0	0.0	RD	100%	0	0	0.0	0	0	0	0	0	0	0.0	0	0
AV	NAV	SE	523	27.9	R	100%	523	366	30.1	3	0	0	0	0	0	0.0	0	0
AV	NAV	SR	16	18.3	R	100%	16	1	94.3	3	0	0	0	0	0	0.0	0	0
BS	NBS	KI	85	54.4	R	100%	85	67	21.1	2	0	0	0	0	0	0.0	0	0
CR	NCR	SE	511	77.2	R	100%	511	319	37.5	3	0	0	0	0	0	0.0	0	0
L	NLM	BL	3	23.0	R	100%	3	3	18.0	2	3	0	0	0	0	0.0	0	0
L	NLM	CH	16	13.5	R	100%	16	15	6.0	1	0	0	0	0	0	0.0	0	0
L	NLM	FL	13	37.2	R	100%	13	13	0.0	0	0	0	0	0	0	0.0	0	0
L	NLM	KI	185	4.5	RD	100%	185	133	28.4	3	31	0	0	0	0	0.0	0	0
L	NLM	NS	141	14.4	R	100%	141	80	43.1	3	7	0	0	0	0	0.0	0	0
L	NLM	SE	20	24.9	R	100%	20	18	7.4	1	0	0	0	0	0	0.0	0	0
L	NLM	SR	107	13.9	R	100%	107	102	4.8	1	6	0	0	0	0	0.0	0	0
L	NLM	WSW	2,013	32.8	p	60%	1,212	1,935	0.0	0	86	0	0	0	0	0.0	0	0
ME	NME	BL	3	1.2	RD	100%	3	0	84.2	4	0	0	0	0	0	0.0	0	0
ME	NME	FL	188	6.0	RD	100%	188	115	38.8	4	0	0	0	0	0	0.0	0	0
ME	NME	KI	47	1.2	RD	100%	47	4	91.9	4	0	0	0	0	0	0.0	0	0
ME	NME	NS	0	0.0	RD	100%	0	0	40.0	4	0	0	0	0	0	0.0	0	0

Classification			Type 1 old growth									Type 2 old growth						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
ME	NME	SE	4	11.4	R	100%	4	4	0.0	0	0	0	0	0	0	0.0	0	0
ME	NME	WSW	48	26.5	R	100%	48	38	20.1	2	0	0	0	0	0	0.0	0	0
NP	NNP	BL	2	25.2	R	100%	2	1	37.2	3	0	0	0	0	0	0.0	0	0
NP	NNP	KI	5	67.5	R	100%	5	2	63.1	3	0	0	0	0	0	0.0	0	0
NP	NNP	NS	19	18.5	R	100%	19	5	72.9	3	11	0	0	0	0	0.0	0	0
NP	NNP	SE	2	13.3	R	100%	2	2	0.0	0	0	0	0	0	0	0.0	0	0
NP	NNP	WSW	17	80.0	R	100%	17	16	2.1	1	0	0	0	0	0	0.0	0	0
H	RHP	CH	3	100.0	R	100%	3	3	0.0	0	0	0	0	0	0	0.0	0	0
H	RHP	SR	90	76.1	R	100%	90	90	0.0	0	19	0	0	0	0	0.0	0	0
H	RHP	WSW	12,179	89.4	p	60%	7,308	11,608	0.0	0	499	0	0	0	0	0.0	0	0
F	RKF	CH	2,780	89.2	p	60%	1,668	2,618	3.5	0	168	0	0	0	0	0.0	0	0
F	RKF	SR	100	99.9	R	100%	100	100	0.0	0	0	0	0	0	0	0.0	0	0
X	RKP	CH	13,965	88.7	p	60%	8,379	12,798	0.0	0	479	0	0	0	0	0.0	0	0
X	RKP	SR	9,742	100	p	60%	5,845	9,742	0.0	0	0	0	0	0	0	0.0	0	0
X	RKP	WSW	9,850	92.0	p	60%	5,910	9,436	0.0	0	194	0	0	0	0	0.0	0	0
M-	RMS	BL	4,376	80.8	p	60%	2,265	3,720	0.0	0	539	0	0	0	0	0.0	0	0
M-	RMS	CH	13,157	81.9	p	60%	7,894	11,325	0.0	0	1,580	0	0	0	0	0.0	0	0
M-	RMS	KI	6,835	54.5	p	60%	4,102	2,899	29.3	2	6,278	0	0	0	0	0.0	0	0
M-	RMS	NS	14,299	70.4	p	60%	8,579	11,165	0.0	0	4,809	0	0	0	0	0.0	0	0
M-	RMS	SE	3	42.3	R	100%	3	1	73.3	3	1	0	0	0	0	0.0	0	0
M-	RMS	SR	19,014	95.2	p	60%	11,408	18,101	0.0	0	1,940	0	0	0	0	0.0	0	0
M-	RMS	WSW	122,588	93.9	p	60%	73,553	114,182	0.0	0	8,684	0	0	0	0	0.0	0	0
M+	RMT	BL	24,154	83.9	p	60%	14,492	18,714	0.0	0	6,305	0	0	0	0	0.0	0	0
M+	RMT	CH	48,405	91.3	p	60%	29,043	44,952	0.0	0	3,944	0	0	0	0	0.0	0	0
M+	RMT	KI	7,293	82.6	p	60%	4,376	4,856	0.0	0	3,447	0	0	0	0	0.0	0	0
M+	RMT	NS	20,873	65.0	p	60%	12,524	18,654	0.0	0	3,730	0	0	0	0	0.0	0	0

Classification			Type 1 old growth									Type 2 old growth						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
M+	RMT	SE	505	81.8	R	100%	505	466	7.7	1	29	0	0	0	0	0.0	0	0
M+	RMT	SR	45,325	98.8	p	60%	27,195	44,839	0.0	0	1,126	0	0	0	0	0.0	0	0
M+	RMT	WSW	263,343	98.7	p	60%	158,006	253,919	0.0	0	10,502	0	0	0	0	0.0	0	0
PD	RPF	CH	4,401	100.0	p	60%	2,641	4,401	0.0	0	0	0	0	0	0	0.0	0	0
PD	RPF	SR	34	100	R	100%	34	34	0.0	0	0	0	0	0	0	0.0	0	0
PP	RPP	CH	19,188	99.8	R	60%	11,513	19,186	0.0	0	0	0	0	0	0	0.0	0	0
PP	RPP	SR	615	99.3	R	100%	615	615	0.0	0	5	0	0	0	0	0.0	0	0
BA	WBR	BL	1	9.1	RD	100%	1	1	21.9	3	0	4	1	3	0	0.0	0	2
BA	WBR	KI	659	11.3	R	100%	659	274	58.5	3	29	913	335	578	386	42.2	3	0
BA	WBR	NS	0	1.4	RD	100%	0	0	77.6	4	1	0	0	0	0	0.0	0	0
BA	WBR	SE	44	42.6	R	100%	44	33	26.8	2	0	19	1	18	12	62.4	4	0
BA	WBR	WSW	178	60.3	R	100%	178	176	0.8	1	2	6	6	0	2	0.0	0	0
DT	WDU	BL	7,924	16.6	p	60%	4,754	4,175	12.2	2	2,014	4,013	2,570	1,443	579	0.0	0	1,272
DT	WDU	CH	30,047	36.6	p	60%	18,095	27,613	0.0	0	1,878	5,401	3,528	1,873	0	0.0	0	1,412
DT	WDU	NS	2,208	19.7	p	60%	1,327	1,797	0.0	0	468	1,295	976	320	0	0.0	0	356
DT	WDU	SE	8,766	53.4	p	60%	5,218	6,030	0.0	0	3,407	738	508	231	0	0.0	0	154
DT	WDU	SR	40,792	48.4	p	60%	24,707	37,126	0.0	0	6,291	4,674	3,013	1,661	0	0.0	0	2,014
DT	WDU	WSW	12,658	70.3	p	60%	7,591	12,157	0.0	0	370	277	249	28	0	0.0	0	15
NT	WNU	CH	7,154	35.3	p	60%	4,292	6,878	0.0	0	250	1,355	1,264	91	0	0.0	0	38
NT	WNU	KI	596	14.9	R	100%	596	396	33.6	3	106	632	207	425	200	0.0	0	80
NT	WNU	NS	7,154	35.3	p	100%	7,154	6,878	3.9	1	0	145	142	4	145	100.0	0	0
NT	WNU	SR	11,263	44.7	p	60%	6,758	11,259	0.0	0	5	1,118	1,109	9	0	0.0	0	10
NT	WNU	WSW	75,689	40.1	p	60%	45,410	75,195	0.0	0	506	2,563	2,286	277	0	0.0	0	128
OT	WOU	BL	3,093	6.7	D	100%	3,093	2,152	30.4	4	1,148	4,519	2,660	1,859	942	0.0	0	1,378
OT	WOU	FL	264	42.3	R	100%	264	220	16.5	2	13	325	241	83	44	0.0	0	78
OT	WOU	KI	6,729	12.8	D	100%	6,729	3,347	50.3	4	3,441	4,392	1,760	2,632	3,382	77.0	4	608

Classification			Type 1 old growth									Type 2 old growth						
RFA code	Tasveg-RFA equiv.	IBRA region	Area (ha)	Comm %	Status	Target desc.	Target (ha)	Resv. (ha)	Short %	OG1 index	FMU (ha)	Area (ha)	Resv. (ha)	Unres (ha)	Ha T1 target	% T1 target	OG2 index	FMU (ha)
OT	WOU	NS	7,818	9.4	D	100%	7,818	6,464	17.3	3	2,120	4,512	2,899	1,613	1,354	0.0	0	1,245
OT	WOU	SE	8,020	27.7	p	60%	4,878	6,736	0.0	0	1,287	1,585	1,136	448	0	0.0	0	205
OT	WOU	SR	30,628	22.6	p	60%	18,409	27,503	0.0	0	4,995	9,233	6,178	3,054	0	0.0	0	3,126
OT	WOU	WSW	27,363	52.7	p	60%	16,518	25,448	0.0	0	1,980	6,118	5,197	921	0	0.0	0	496
R	WRE	BL	4,117	12.4	p	60%	2,451	2,934	0.0	0	1,420	2,897	1,477	1,420	0	0.0	0	1,541
R	WRE	CH	1	100.0	R	100%	1	0	100.0	3	0	0	0	0	0	0.0	0	0
R	WRE	NS	98	4.0	RD	100%	98	87	11.5	3	6	326	261	65	11	0.0	0	61
R	WRE	SE	690	14.5	R	100%	690	577	16.3	2	20	544	244	300	113	0.0	0	125
R	WRE	SR	7,349	21.6	p	60%	4,420	6,077	0.0	0	2,040	1,310	791	519	0	0.0	0	397
R	WRE	WSW	550	65.9	R	100%	550	550	0.0	0	0	57	57	0	0	0.0	0	0
SU	WSU	BL	0	33.0	R	100%	0	0	0.0	0	0	0	0	0	0	0.0	0	0
SU	WSU	CH	7,353	42.6	p	60%	4,410	7,315	0.0	0	12	378	359	19	0	0.0	0	10
SU	WSU	SR	4,834	49.3	p	60%	2,888	4,790	0.0	0	130	232	232	0	0	0.0	0	5
SU	WSU	WSW	245	29.5	R	100%	245	245	0.0	0	0	0	0	0	0	0.0	0	0
VW	WVI	BL	53	4.2	RD	100%	53	46	13.8	3	6	138	59	78	7	0.0	0	37
VW	WVI	FL	2	100.0	R	100%	2	0	100.0	3	0	0	0	0	0	0.0	0	0
VW	WVI	NM	46	11.2	R	100%	46	36	21.8	2	0	28	16	12	10	0.0	0	0
VW	WVI	NS	134	2.8	RD	100%	134	71	47.1	4	51	233	91	143	63	0.0	0	66
VW	WVI	SE	83	50.5	R	100%	83	69	16.6	2	1	2	0	2	2	100.0	4	0

ATTACHMENT 11. CONSERVATION AND RESERVATION STATUS OF FOREST COMMUNITIES BY BIOREGION

KEY

RFA code – RFA code of forest community used for analysis against JANIS.

Tasveg-RFA equiv. – Current Tasveg equivalent of RFA community (see Section 3.2.2 of main report and Attachment 8).

IBRA region – Code for the IBRA bioregion. BL – Ben Lomond, CH – Central Highlands, FL – Flinders, KI - King, NM – Northern Midlands, NS – Northern Slopes, SE – South East, SR – Southern Ranges, WSW – West.

1750 (ha) – Estimated area of the forest community in the bioregion in 1750.
Extant (ha) – Current mapped area of the forest community in the bioregion.
Loss (ha) – Estimated loss of area of the community from the bioregion since 1750.
Loss (%) – Estimated percentage loss of the community from the bioregion since 1750.

Status – JANIS conservation status of the community in the bioregion. p – present but not threatened, V – Vulnerable, R – Rare, VR – Vulnerable and Rare, E – Endangered, ER – Endangered and Rare.

Target desc. – Descriptor of the reservation target for the community in the bioregion. 15% 1750 – 15% of the 1750 area, 60% comm.- 60% of the extant area of the community, 100% comm – 100% of the extant area of the community.

Target (ha) – Reservation target for the community in the bioregion.

Resv. (ha) – Current reserved area of the community in the bioregion.

Short (ha) – Shortfall in hectares of current reservation on the reservation target.

Short (%) – Percentage shortfall of the area of current reservation on the reservation target.

Reservation index – Ecosystem reservation index for the forest community in the bioregion (see section 4.3.3 of main report).

Depletion index – Ecosystem depletion index for the forest community in the bioregion (see section 4.3.2 of main report).

FMU (ha) – Area of the forest community by bioregion in the FMU.

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
AC	DAC	BL	65,322	49,100	16,222	24.8	p	15% 1750	7,365	25,989	0	0.0	0	0	14,693
AC	DAC	CH	11	11	0	0.0	R	100% Comm	11	11	0	0.0	0	0	0
AC	DAC	FL	132,446	83,649	48,797	36.8	p	15% 1750	12,547	37,293	0	0.0	0	0	7,823
AC	DAC	KI	86	86	0	0.0	R	100% Comm	86	16	71	82.0	4	0	0
AC	DAC	NM	257	63	194	75.4	VR	100% Comm	63	47	16	25.1	3	2	14
AC	DAC	NS	8,727	7,526	1,201	13.8	p	15% 1750	1,129	4,227	0	0.0	0	0	738
AC	DAC	SE	23,725	13,994	9,731	41.0	p	15% 1750	4,315	8,609	0	0.0	0	0	80
AC	DAC	SR	306	226	80	26.1	R	100% Comm	226	134	92	40.8	4	0	0
AD	DAD	BL	49,757	44,092	5,665	11.4	p	15% 1750	6,614	11,831	0	0.0	0	0	2,087
AD	DAD	CH	2,130	2,057	73	3.4	p	15% 1750	1,000	466	534	53.4	3	0	221
AD	DAD	FL	6,910	5,008	1,902	27.5	p	15% 1750	1,000	412	588	58.8	3	0	29
AD	DAD	NM	40,559	19,600	20,959	51.7	p	15% 1750	2,940	3,520	0	0.0	0	0	296
AD	DAD	NS	13,871	10,796	3,075	22.2	p	15% 1750	1,619	3,118	0	0.0	0	0	2,587
AD	DAD	SE	95,639	83,061	12,578	13.2	p	15% 1750	17,490	33,678	0	0.0	0	0	5,416
AD	DAD	SR	4,108	2,662	1,446	35.2	p	15% 1750	1,000	1,209	0	0.0	0	0	617
AM	DAM	BL	33,126	24,803	8,323	25.1	p	15% 1750	3,720	10,243	0	0.0	0	0	5,363
AM	DAM	FL	3,239	2,123	1,116	34.5	p	15% 1750	1,000	1,249	0	0.0	0	0	20
AM	DAM	NM	9,159	4,335	4,824	52.7	p	15% 1750	1,000	1,490	0	0.0	0	0	54
AM	DAM	NS	4,604	3,808	796	17.3	p	15% 1750	1,000	668	332	33.2	3	0	886
AM	DAM	SE	10,204	5,993	4,211	41.3	p	15% 1750	1,068	1,660	0	0.0	0	0	0
AM	DAM	SR	324	248	76	23.5	R	100% Comm	248	94	153	61.9	4	0	23
AS	DAS	BL	3,402	2,284	1,118	32.9	V	60% Comm	1,371	909	462	33.7	3	1	302
AS	DAS	FL	84	80	4	4.8	VR	100% Comm	80	61	19	23.7	3	2	0
AS	DAS	NM	6,290	2,280	4,010	63.7	V	60% Comm	1,368	471	897	65.6	3	1	13
AS	DAS	NS	11,490	9,192	2,298	20.0	V	60% Comm	5,515	5,173	342	6.2	1	1	1,491
AS	DAS	SE	95,147	28,408	66,739	70.1	V	60% Comm	17,045	8,076	8,969	52.6	3	1	3,026

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
AS	DAS	SR	1,222	887	335	27.4	VR	100% Comm	887	79	808	91.1	4	2	1
AIC	DAZ	BL	9,940	809	9,131	91.9	ER	100% Comm	809	327	482	59.6	4	4	86
AIC	DAZ	NM	119,711	21,221	98,490	82.3	V	60% Comm	12,733	5,660	7,073	55.5	3	1	26
AIC	DAZ	NS	3,684	2,087	1,597	43.3	V	60% Comm	1,252	227	1,025	81.8	3	1	136
AIC	DAZ	SE	2,119	1,195	924	43.6	VR	100% Comm	1,195	462	733	61.4	4	2	0
C	DCO	BL	1,217	1,217	0	0.0	p	15% 1750	1,000	1,187	0	0.0	0	0	25
C	DCO	CH	100,519	96,072	4,447	4.4	p	15% 1750	14,872	85,778	0	0.0	0	0	1,922
C	DCO	SE	536	384	152	28.4	R	100% Comm	384	273	111	29.0	3	0	145
C	DCO	SR	21,961	21,766	195	0.9	p	15% 1750	3,776	21,642	0	0.0	0	0	854
C	DCO	WSW	1,184	1,184	0	0.0	R	100% Comm	1,184	1,184	0	0.0	0	0	0
D	DDE	BL	51,278	50,389	889	1.7	p	15% 1750	7,558	27,723	0	0.0	0	0	19,602
D	DDE	CH	129,106	120,067	9,039	7.0	p	15% 1750	18,010	42,507	0	0.0	0	0	17,967
D	DDE	NM	1,199	70	1,129	94.1	ER	100% Comm	70	66	4	5.9	2	4	0
D	DDE	NS	10,814	9,072	1,742	16.1	p	15% 1750	1,361	4,517	0	0.0	0	0	4,182
D	DDE	SE	67,812	57,392	10,420	15.4	p	15% 1750	10,782	16,187	0	0.0	0	0	21,304
D	DDE	SR	47,247	42,345	4,902	10.4	p	15% 1750	6,352	22,983	0	0.0	0	0	16,398
D	DDE	WSW	1,891	1,508	383	20.3	p	15% 1750	1,000	1,340	0	0.0	0	0	79
GG	DGL	BL	254	250	4	1.6	VR	100% Comm	250	174	76	30.5	4	2	4
GG	DGL	FL	1,256	1,009	247	19.7	VR	100% Comm	1,009	384	625	62.0	4	2	0
GG	DGL	SE	44,454	24,794	19,660	44.2	V	60% Comm	14,877	6,252	8,625	58.0	3	1	362
GG	DGL	SR	1,101	716	385	35.0	VR	100% Comm	716	121	596	83.1	4	2	69
MO	DMO	SE	227	6	221	97.5	ER	100% Comm	6	4	1	24.3	3	4	0
NF	DNF	FL	49,964	9,686	40,278	80.6	V	60% Comm	5,811	5,976	0	0.0	0	1	0
N	DNI	CH	3,370	3,259	111	3.3	p	15% 1750	1,000	2,879	0	0.0	0	0	240
N	DNI	KI	16,231	13,278	2,953	18.2	p	15% 1750	2,939	6,214	0	0.0	0	0	1,224
N	DNI	NS	3,463	3,118	345	10.0	p	15% 1750	1,000	2,338	0	0.0	0	0	794
N	DNI	SE	8	5	3	36.0	R	100% Comm	5	0	5	100.0	4	0	0

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
N	DNI	SR	9,496	9,408	88	0.9	p	15% 1750	1,724	9,216	0	0.0	0	0	126
N	DNI	WSW	30,135	23,119	7,016	23.3	p	15% 1750	6,459	20,798	0	0.0	0	0	1,919
O	DOB	BL	41,682	28,497	13,185	31.6	p	15% 1750	4,275	12,467	0	0.0	0	0	11,019
O	DOB	FL	7,875	5,988	1,887	24.0	p	15% 1750	1,000	3,596	0	0.0	0	0	1,523
O	DOB	KI	22,362	9,139	13,223	59.1	p	15% 1750	1,371	2,673	0	0.0	0	0	3,152
O	DOB	NM	1,828	84	1,744	95.4	ER	100% Comm	84	3	81	96.2	4	4	5
O	DOB	NS	47,483	32,763	14,720	31.0	p	15% 1750	4,915	16,604	0	0.0	0	0	9,790
O	DOB	SE	62,008	52,559	9,449	15.2	p	15% 1750	8,769	20,098	0	0.0	0	0	8,631
O	DOB	SR	66,280	37,537	28,743	43.4	p	15% 1750	5,631	13,899	0	0.0	0	0	6,203
O	DOB	WSW	11,659	10,764	895	7.7	p	15% 1750	4,174	9,564	0	0.0	0	0	770
OV	DOV	BL	18,105	2,661	15,444	85.3	E	100% Comm	2,661	528	2,133	80.1	4	3	405
OV	DOV	FL	21,624	1,247	20,377	94.2	E	100% Comm	1,247	621	625	50.2	4	3	0
OV	DOV	KI	5,873	1,173	4,700	80.0	ER	100% Comm	1,173	426	747	63.6	4	4	0
OV	DOV	NM	57,933	2,240	55,693	96.1	E	100% Comm	2,240	234	2,006	89.6	4	3	10
OV	DOV	NS	28,743	3,945	24,798	86.3	E	100% Comm	3,945	877	3,068	77.8	4	3	249
OV	DOV	SE	47,386	4,296	43,090	90.9	E	100% Comm	4,296	973	3,324	77.4	4	3	46
OV	DOV	SR	6,458	1,675	4,783	74.1	V	60% Comm	1,005	380	625	62.2	3	1	1
OV	DOV	WSW	539	539	0	0.0	ER	100% Comm	539	508	31	5.7	2	4	0
PJ	DPD	BL	1,713	1,690	23	1.3	p	15% 1750	1,000	427	573	57.3	3	0	606
PJ	DPD	CH	20,656	19,503	1,153	5.6	p	15% 1750	2,926	6,461	0	0.0	0	0	960
PJ	DPD	NM	1,501	701	800	53.3	R	100% Comm	701	86	615	87.8	4	0	2
PJ	DPD	NS	20	20	0	0.0	R	100% Comm	20	20	0	0.0	0	0	0
PJ	DPD	SE	7,070	5,362	1,708	24.2	p	15% 1750	1,000	1,216	0	0.0	0	0	27
PJ	DPD	SR	15,121	15,094	27	0.2	p	15% 1750	2,264	7,725	0	0.0	0	0	4,146
PS	DPO	BL	3,051	1,033	2,018	66.1	V	60% Comm	620	218	401	64.8	3	1	269
PS	DPO	CH	1,662	1,631	31	1.9	p	15% 1750	1,000	87	913	91.3	3	0	0
PS	DPO	FL	1,922	29	1,893	98.5	ER	100% Comm	29	16	13	44.1	4	4	0

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
PS	DPO	NM	5,043	370	4,673	92.7	ER	100% Comm	370	47	323	87.4	4	4	0
PS	DPO	NS	331	8	323	97.7	ER	100% Comm	8	4	3	42.3	4	4	0
PS	DPO	SE	11,763	5,266	6,497	55.2	V	60% Comm	3,159	520	2,639	83.5	3	1	10
PS	DPO	SR	1,720	612	1,108	64.4	VR	100% Comm	612	33	579	94.5	4	2	71
P	DPU	BL	176	175	1	0.6	R	100% Comm	175	31	144	82.3	4	0	39
P	DPU	SE	173,365	130,841	42,524	24.5	p	15% 1750	31,650	48,736	0	0.0	0	0	5,901
P	DPU	SR	12,255	8,449	3,806	31.1	p	15% 1750	1,267	1,603	0	0.0	0	0	980
RI	DRI	SE	877	795	82	9.4	R	100% Comm	795	364	431	54.2	4	0	0
RO	DRO	BL	1,968	1,714	254	12.9	R	100% Comm	1,714	698	1,015	59.3	4	0	503
RO	DRO	CH	5,530	5,486	44	0.8	p	15% 1750	1,000	819	181	18.1	2	0	178
RO	DRO	NM	1,483	642	841	56.7	R	100% Comm	642	242	401	62.4	4	0	0
RO	DRO	NS	1,174	163	1,011	86.1	ER	100% Comm	163	85	77	47.6	4	4	15
RO	DRO	SE	3,802	3,291	511	13.4	p	15% 1750	1,000	404	596	59.6	3	0	219
RO	DRO	SR	2,078	2,015	63	3.0	p	15% 1750	1,000	824	176	17.6	2	0	567
DSC	DSC	BL	12,011	11,249	762	6.3	p	15% 1750	1,687	3,368	0	0.0	0	0	4,811
DSC	DSC	FL	3,254	1,018	2,236	68.7	R	100% Comm	1,018	195	823	80.9	4	0	113
DSC	DSC	NM	6,124	523	5,601	91.5	ER	100% Comm	523	368	155	29.7	3	4	128
DSC	DSC	NS	65,534	37,023	28,511	43.5	p	15% 1750	5,553	14,071	0	0.0	0	0	8,483
DSC	DSC	SE	176	124	52	29.5	R	100% Comm	124	23	101	81.4	4	0	50
SG	DSG	BL	19,038	18,309	729	3.8	p	15% 1750	2,746	12,402	0	0.0	0	0	4,881
SG	DSG	FL	8,501	7,984	517	6.1	p	15% 1750	1,198	3,579	0	0.0	0	0	3,069
SG	DSG	SE	520	416	104	20.0	R	100% Comm	416	329	86	20.8	3	0	0
SG	DSG	WSW	8	8	0	0.0	R	100% Comm	8	0	8	100.0	4	0	0
SO	DSO	BL	25,657	23,372	2,285	8.9	p	15% 1750	3,506	15,994	0	0.0	0	0	5,904
SO	DSO	FL	12,573	10,716	1,857	14.8	p	15% 1750	1,607	5,018	0	0.0	0	0	4,053
SO	DSO	NM	267	27	240	90.0	p	15% 1750	27	0	27	100.0	3	0	0
SO	DSO	SE	2,065	1,415	650	31.5	p	15% 1750	1,000	1,066	0	0.0	0	0	0

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
TD	DTD	SE	10,416	10,221	195	1.9	p	15% 1750	3,018	6,445	0	0.0	0	0	1,056
TD	DTD	SR	709	389	320	45.1	R	100% Comm	389	132	257	66.1	4	0	0
T	DTG	SE	3,701	3,575	126	3.4	p	15% 1750	1,778	3,402	0	0.0	0	0	0
TI	DTO	SE	104,824	47,456	57,368	54.7	V	60% Comm	28,474	22,576	5,898	20.7	2	1	1,085
TI	DTO	SR	414	414	0	0.0	R	100% Comm	414	52	362	87.4	4	0	0
TI	DTO	WSW	293	293	0	0.0	R	100% Comm	293	293	0	0.0	0	0	0
G	DVC	FL	2,802	1,431	1,371	48.9	V	60% Comm	859	494	365	42.4	3	1	0
G	DVC	KI	483	366	117	24.2	VR	100% Comm	366	354	12	3.3	2	2	0
G	DVC	NS	796	33	763	95.8	ER	100% Comm	33	5	28	84.3	4	4	0
G	DVC	SE	4,011	1,041	2,970	74.1	VR	100% Comm	1,041	722	318	30.6	4	2	3
G	DVC	SR	37	3	34	90.9	ER	100% Comm	3	3	1	16.7	3	4	0
G	DVC	WSW	52	52	0	0.0	VR	100% Comm	52	37	14	27.4	3	2	13
VF	DVF	FL	13,190	957	12,233	92.7	ER	100% Comm	957	369	588	61.5	4	4	0
V	DVG	BL	16,727	12,267	4,460	26.7	p	15% 1750	1,840	1,887	0	0.0	0	0	314
V	DVG	FL	1,643	405	1,238	75.3	VR	100% Comm	405	89	317	78.2	4	2	0
V	DVG	KI	673	653	20	3.0	R	100% Comm	653	557	96	14.7	3	0	7
V	DVG	NM	99,340	27,418	71,922	72.4	V	60% Comm	16,451	4,285	12,166	74.0	3	1	1
V	DVG	NS	2,069	1,036	1,033	49.9	R	100% Comm	1,036	120	916	88.4	4	0	4
V	DVG	SE	127,072	67,848	59,224	46.6	p	15% 1750	10,177	8,480	1,697	16.7	2	0	1,110
V	DVG	SR	2,304	241	2,063	89.6	VR	100% Comm	241	63	178	73.8	4	2	12
SI	NAD	BL	13,038	10,360	2,678	20.5	p	15% 1750	1,554	4,275	0	0.0	0	0	3,046
SI	NAD	CH	3,612	3,611	1	0.0	p	15% 1750	1,000	2,468	0	0.0	0	0	717
SI	NAD	FL	1,887	188	1,699	90.0	p	15% 1750	188	85	103	54.9	3	0	22
SI	NAD	KI	35	28	7	20.1	p	15% 1750	28	5	23	83.1	3	0	2
SI	NAD	NM	243	164	79	32.6	p	15% 1750	164	41	123	75.1	3	0	0
SI	NAD	NS	21,251	19,372	1,879	8.8	p	15% 1750	2,906	7,077	0	0.0	0	0	6,630
SI	NAD	SE	2,032	1,916	116	5.7	p	15% 1750	1,000	759	241	24.1	2	0	190

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
SI	NAD	SR	5,081	4,692	389	7.7	p	15% 1750	1,000	1,201	0	0.0	0	0	1,660
SI	NAD	WSW	897	882	15	1.7	R	100% Comm	882	630	252	28.6	3	0	131
BF	NAF	BL	503	503	0	0.0	R	100% Comm	503	232	271	53.8	4	0	156
BF	NAF	FL	790	370	420	53.2	R	100% Comm	370	318	52	14.1	3	0	0
BF	NAF	KI	14,121	8,667	5,454	38.6	p	15% 1750	1,300	2,844	0	0.0	0	0	4,597
BF	NAF	NM	22	22	0	0.0	R	100% Comm	22	0	22	100.0	4	0	0
BF	NAF	NS	2,364	79	2,285	96.6	ER	100% Comm	79	13	66	83.3	4	4	0
BF	NAF	SE	24	15	9	37.5	R	100% Comm	15	5	10	66.6	4	0	0
BF	NAF	SR	16	16	0	0.0	R	100% Comm	16	13	3	19.7	3	0	0
BF	NAF	WSW	1,362	1,053	309	22.7	p	15% 1750	1,000	551	449	44.9	3	0	445
BR	NAR	BL	794	324	470	59.2	VR	100% Comm	324	171	154	47.4	4	2	79
BR	NAR	CH	2,402	2,402	0	0.0	p	15% 1750	1,000	1,860	0	0.0	0	0	206
BR	NAR	KI	6,898	4,680	2,218	32.2	p	15% 1750	1,000	874	126	12.6	2	0	2,214
BR	NAR	NS	7,409	5,049	2,360	31.9	p	15% 1750	1,000	1,584	0	0.0	0	0	862
BR	NAR	SE	2	2	0	0.0	R	100% Comm	2	0	2	100.0	4	0	2
BR	NAR	SR	47	47	0	0.0	R	100% Comm	47	44	3	6.6	2	0	0
BR	NAR	WSW	6,612	6,511	101	1.5	p	15% 1750	1,000	4,876	0	0.0	0	0	1,259
AV	NAV	BL	705	705	0	0.0	R	100% Comm	705	170	534	75.8	4	0	4
AV	NAV	FL	15,729	14,145	1,584	10.1	p	15% 1750	2,122	4,211	0	0.0	0	0	0
AV	NAV	KI	1	1	0	0.0	R	100% Comm	1	0	1	100.0	4	0	0
AV	NAV	NM	198	157	41	20.7	R	100% Comm	157	82	75	47.8	4	0	0
AV	NAV	NS	3	2	1	36.0	R	100% Comm	2	0	2	100.0	4	0	0
AV	NAV	SE	3,733	2,166	1,567	42.0	p	15% 1750	1,000	1,253	0	0.0	0	0	0
AV	NAV	SR	124	92	32	25.8	R	100% Comm	92	39	53	57.6	4	0	17
BS	NBS	FL	10	10	0	0.0	ER	100% Comm	10	10	0	0.0	0	4	0
BS	NBS	KI	222	158	64	28.9	ER	100% Comm	158	128	30	19.1	3	4	0
CR	NCR	FL	1,000	164	836	83.6	VR	100% Comm	164	128	36	21.9	3	2	0

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
CR	NCR	SE	1,214	651	563	46.4	R	100% Comm	651	417	234	35.9	4	0	0
L	NLM	BL	385	64	321	83.5	VR	100% Comm	64	38	26	40.3	4	2	17
L	NLM	CH	115	115	0	0.0	R	100% Comm	115	84	31	27.2	3	0	2
L	NLM	FL	1,174	36	1,138	97.0	ER	100% Comm	36	25	10	29.1	3	4	0
L	NLM	KI	22,493	4,701	17,792	79.1	V	60% Comm	2,820	1,266	1,554	55.1	3	1	1,290
L	NLM	NS	4,631	966	3,665	79.1	VR	100% Comm	966	281	685	70.9	4	2	196
L	NLM	SE	437	88	349	79.9	VR	100% Comm	88	43	45	51.0	4	2	20
L	NLM	SR	773	773	0	0.0	R	100% Comm	773	599	174	22.5	3	0	168
L	NLM	WSW	7,881	6,874	1,007	12.8	p	15% 1750	1,212	6,373	0	0.0	0	0	572
ME	NME	BL	880	192	688	78.2	ER	100% Comm	192	43	149	77.6	4	4	6
ME	NME	FL	8,328	3,278	5,050	60.6	E	100% Comm	3,278	1,223	2,055	62.7	4	3	1
ME	NME	KI	19,096	3,942	15,154	79.4	E	100% Comm	3,942	1,266	2,676	67.9	4	3	2
ME	NME	NM	1,233	96	1,137	92.2	ER	100% Comm	96	14	82	85.3	4	4	0
ME	NME	NS	1,129	138	991	87.8	ER	100% Comm	138	28	109	79.6	4	4	2
ME	NME	SE	81	30	51	62.7	ER	100% Comm	30	19	11	36.9	4	4	0
ME	NME	WSW	193	193	0	0.0	ER	100% Comm	193	152	41	21.2	3	4	0
NP	NNP	BL	597	140	457	76.6	ER	100% Comm	140	65	74	53.1	4	4	61
NP	NNP	KI	8	8	0	0.0	ER	100% Comm	8	3	4	58.4	4	4	0
NP	NNP	NS	352	105	247	70.2	ER	100% Comm	105	65	40	38.3	4	4	15
NP	NNP	SE	47	12	35	74.6	ER	100% Comm	12	9	3	21.0	3	4	0
NP	NNP	SR	2	2	0	0.0	ER	100% Comm	2	1	1	57.6	4	4	2
NP	NNP	WSW	21	21	0	0.0	ER	100% Comm	21	17	4	17.6	3	4	0
H	RHP	CH	3	3	0	0.0	R	100% Comm	3	3	0	0.0	0	0	0
H	RHP	SR	119	119	0	0.0	R	100% Comm	119	118	1	0.6	2	0	18
H	RHP	WSW	13,618	13,618	0	0.0	p	15% 1750	4,562	11,965	0	0.0	0	0	1,600
F	RKF	CH	3,115	3,115	0	0.0	V	60% Comm	1,869	2,944	0	0.0	0	1	175
F	RKF	SR	100	100	0	0.0	VR	100% Comm	100	100	0	0.1	2	2	0

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
X	RKP	CH	15,739	15,739	0	0.0	V	60% Comm	9,443	14,112	0	0.0	0	1	572
X	RKP	SR	9,743	9,743	0	0.0	V	60% Comm	5,846	9,743	0	0.0	0	1	0
X	RKP	WSW	10,709	10,709	0	0.0	V	60% Comm	6,425	9,501	0	0.0	0	1	838
M-	RMS	BL	5,431	5,416	15	0.3	p	15% 1750	1,000	4,552	0	0.0	0	0	630
M-	RMS	CH	19,078	16,061	3,017	15.8	p	15% 1750	5,255	13,163	0	0.0	0	0	1,807
M-	RMS	FL	5	5	0	0.0	R	100% Comm	5	5	0	0.0	0	0	0
M-	RMS	KI	12,685	12,535	150	1.2	p	15% 1750	3,609	3,821	0	0.0	0	0	9,410
M-	RMS	NS	26,297	20,321	5,976	22.7	p	15% 1750	7,570	14,281	0	0.0	0	0	6,484
M-	RMS	SE	3	3	0	0.0	R	100% Comm	3	1	3	73.4	4	0	1
M-	RMS	SR	20,351	19,978	373	1.8	p	15% 1750	7,952	18,542	0	0.0	0	0	2,233
M-	RMS	WSW	142,057	130,620	11,437	8.1	p	15% 1750	56,418	117,641	0	0.0	0	0	12,976
M+	RMT	BL	35,190	28,792	6,398	18.2	p	15% 1750	8,345	21,547	0	0.0	0	0	6,954
M+	RMT	CH	56,799	53,026	3,773	6.6	p	15% 1750	22,645	47,748	0	0.0	0	0	4,516
M+	RMT	KI	8,901	8,832	69	0.8	p	15% 1750	4,010	5,404	0	0.0	0	0	3,806
M+	RMT	NS	49,163	32,088	17,075	34.7	p	15% 1750	10,963	23,827	0	0.0	0	0	7,693
M+	RMT	SE	693	618	75	10.8	R	100% Comm	618	575	43	7.0	2	0	26
M+	RMT	SR	46,122	45,884	238	0.5	p	15% 1750	22,107	45,159	0	0.0	0	0	1,197
M+	RMT	WSW	267,394	266,762	632	0.2	p	15% 1750	122,083	255,561	0	0.0	0	0	11,546
PD	RPF	CH	4,403	4,403	0	0.0	V	60% Comm	2,642	4,403	0	0.0	0	1	0
PD	RPF	SR	34	34	0	0.0	VR	100% Comm	34	34	0	0.0	0	0	0
PP	RPP	CH	19,219	19,219	0	0.0	V	60% Comm	11,531	19,217	0	0.0	0	1	0
PP	RPP	SR	619	619	0	0.0	VR	100% Comm	619	619	0	0.0	0	2	9
BA	WBR	BL	289	95	194	67.2	VR	100% Comm	95	42	53	56.0	4	2	20
BA	WBR	KI	12,679	5,866	6,813	53.7	V	60% Comm	3,520	1,806	1,714	48.7	3	1	1,224
BA	WBR	NS	37	36	1	2.7	R	100% Comm	36	20	16	45.0	4	0	10
BA	WBR	SE	160	102	58	36.3	R	100% Comm	102	41	61	60.1	4	0	0
BA	WBR	WSW	293	293	0	0.0	VR	100% Comm	293	259	34	11.5	3	2	34

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
DT	WDU	BL	43,026	39,288	3,738	8.7	p	15% 1750	5,893	19,646	0	0.0	0	0	18,368
DT	WDU	CH	92,748	82,729	10,019	10.8	p	15% 1750	18,095	51,188	0	0.0	0	0	17,367
DT	WDU	NS	30,758	20,976	9,782	31.8	p	15% 1750	3,146	10,545	0	0.0	0	0	8,557
DT	WDU	SE	21,310	19,874	1,436	6.7	p	15% 1750	5,218	10,320	0	0.0	0	0	8,305
DT	WDU	SR	102,245	94,152	8,093	7.9	p	15% 1750	24,707	63,041	0	0.0	0	0	32,308
DT	WDU	WSW	19,302	17,730	1,572	8.1	p	15% 1750	7,591	16,637	0	0.0	0	0	716
KG	WGK	KI	32,435	1,618	30,817	95.0	ER	100% Comm	1,618	1,017	600	37.1	4	4	272
NT	WNU	CH	20,523	20,472	51	0.2	p	15% 1750	4,292	19,116	0	0.0	0	0	954
NT	WNU	KI	4,656	4,493	163	3.5	p	15% 1750	1,000	1,735	0	0.0	0	0	1,240
NT	WNU	SR	25,819	25,809	10	0.0	p	15% 1750	6,758	25,206	0	0.0	0	0	599
NT	WNU	WSW	199,483	189,948	9,535	4.8	p	15% 1750	45,410	184,092	0	0.0	0	0	3,938
OT	WOU	BL	55,590	35,635	19,955	35.9	p	15% 1750	5,345	16,742	0	0.0	0	0	13,559
OT	WOU	FL	2,493	2,250	243	9.7	p	15% 1750	1,000	1,185	0	0.0	0	0	682
OT	WOU	KI	73,507	61,541	11,966	16.3	p	15% 1750	9,231	14,306	0	0.0	0	0	42,961
OT	WOU	NS	177,718	112,280	65,438	36.8	p	15% 1750	16,842	34,474	0	0.0	0	0	32,175
OT	WOU	SE	34,794	30,263	4,531	13.0	p	15% 1750	4,878	15,899	0	0.0	0	0	8,154
OT	WOU	SR	171,528	139,551	31,977	18.6	p	15% 1750	20,933	74,042	0	0.0	0	0	52,331
OT	WOU	WSW	54,778	53,295	1,483	2.7	p	15% 1750	16,518	45,310	0	0.0	0	0	8,889
R	WRE	BL	45,699	30,483	15,216	33.3	p	15% 1750	4,572	15,384	0	0.0	0	0	13,388
R	WRE	KI	23	23	0	0.0	R	100% Comm	23	0	23	100.0	4	0	0
R	WRE	NS	9,113	2,395	6,718	73.7	V	60% Comm	1,437	1,225	212	14.8	2	1	644
R	WRE	SE	5,975	5,436	539	9.0	p	15% 1750	1,000	1,921	0	0.0	0	0	1,273
R	WRE	SR	47,182	42,111	5,071	10.7	p	15% 1750	6,317	15,736	0	0.0	0	0	24,849
SU	WSU	BL	4	4	0	0.0	VR	100% Comm	4	1	3	72.5	4	2	2
SU	WSU	CH	17,317	17,317	0	0.0	p	15% 1750	4,410	17,169	0	0.0	0	0	34
SU	WSU	SR	10,183	9,859	324	3.2	p	15% 1750	2,888	9,717	0	0.0	0	0	318
SU	WSU	WSW	835	835	0	0.0	R	100% Comm	835	835	0	0.0	0	0	0

RFA code	Tasveg-RFA equiv	IBRA region	1750 (ha)	Extant (ha)	Loss (ha)	Loss (%)	Status	Target desc.	Target (ha)	Resv. (ha)	Short (ha)	Short (%)	Reservation index	Depletion index	FMU (ha)
VW	WVI	BL	11,964	1,659	10,305	86.1	E	100% Comm	1,659	445	1,214	73.2	4	3	356
VW	WVI	FL	5,591	2	5,589	100.0	ER	100% Comm	2	0	2	100.0	4	4	0
VW	WVI	KI	377	47	330	87.5	ER	100% Comm	47	10	37	78.8	4	4	0
VW	WVI	NM	2,297	182	2,115	92.1	ER	100% Comm	182	104	78	42.8	4	4	0
VW	WVI	NS	55,475	5,328	50,147	90.4	E	100% Comm	5,328	1,670	3,658	68.7	4	3	1,018
VW	WVI	SE	701	177	524	74.7	ER	100% Comm	177	127	50	28.5	3	4	1
VW	WVI	SR	433	228	205	47.3	ER	100% Comm	228	21	207	90.6	4	4	0
VW	WVI	WSW	11	11	0	0.0	ER	100% Comm	11	0	11	95.9	4	4	0

Biodiversity data, models and indicators for Forestry Tasmania's Forest Management Unit: Attachment 6 – Species habitat modelling rules and HCV indicator attributes

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March 2014

Report to Forestry Tasmania

natural resource planning

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ATTACHMENT 6. SPECIES HABITAT MODELLING RULES AND HCV INDICATOR ATTRIBUTES

KEY

Species – Species scientific name as recorded in the NVA. Suffixes in brackets are additional descriptors for the modelling process.
Code – Code for the species used in the REM.
EPBC – EPBC Act threat status, from NVA. CR = Critically Endangered, E = Endangered, V = Vulnerable. Prefix of P denotes status when corrected for taxonomic differences between Acts.
TPSA – TSP Act threat status, from NVA. e = Endangered, r = Rare, v = Vulnerable. Prefix of p denotes status when corrected for taxonomic differences between Acts.
Model type – Modelling process used for the species. P = Point, using NVA records only, S = Special, using species-specific model, B = Bioregional, poorly reserved flora species using NVA records only. Special models are more detailed habitat-based models developed for each species and described in Attachment 7.

NVA modelling rules
Bioregions – Bioregions in which the species is potentially poorly reserved. BL = Ben Lomond, CH = Central Highlands, FL = Flinders, KI = King, NM = Northern Midlands, NS = Northern Slopes, SE = South East, SR = Southern Ranges, WSW = West.
Accuracy – Minimum accuracy for an NVA records to be used in a Point or Bioregional model.
Distance – Maximum distance from an NVA records in which habitat can be attributed in a Point or Bioregional model.
Year – The earliest year for an NVA record to be used in a Point or Bioregional model.
Riparian – Y = Yes. Restricts habitat of Point or Bioregional models to riparian zones (except where record not in or adjoining a riparian zone).
Water – Y = Yes. Relaxes a Point or Bioregional model to permit habitat to be attributed in water.
Native – Y = Yes. Restricts habitat of Point or Bioregional models to native vegetation.
Plantation – Y = Yes. Relaxes a Point or Bioregional model to permit habitat to be attributed in water.

HCV indicator attributes
Land systems – The number of land systems on which NVA records of the species (accuracy <500m) are located.
Land sys. – reserved – The proportion of land systems on which NVA records of the species are located in reserves.
Land comps. – The number of land system components on which NVA records of the species are located.
Land comps. – reserved – The proportion of land system components on which NVA records are located in reserves.
Note: Negative values in any of the above fields indicate insufficient reliable data for analysis.
Reserve status – Reservation status of threatened flora and fauna species. P = Poorly reserved.
Fauna type – Fauna type attribute of the species or species life cycle attribute. CLL = Critically Limited Location, LDF = Landscape Dependent Fauna, DN = Den or nest sites.
Endemic – Indicates a species is endemic in Tasmania. Includes species which are endemic in Tasmania as a result of extirpation on mainland Australia since European settlement.

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Fauna																			
Acanthiza pusilla subsp. *archibaldi*	KIBT;	EN	e	S		0	0	0			Y		1	0.00	2	0.00	P	CLL;	Y
Acanthornis magna subsp. *greeniana*	KIST;	CR	e	S		0	0	0			Y		4	0.75	6	0.67		CLL;	
Acanthornis magnus subsp. *greeniana*	KIST;	CR	e	S		0	0	0			Y		4	0.75	6	0.67		CLL;	Y
Accipiter novaehollandiae (foraging habitat)	GG_f;		e	S		0	0	0					31	0.45	39	0.44		LDF;	
Accipiter novaehollandiae (nests)	GG_n;		e	P		200	500	0				Y	31	0.45	39	0.44		LDF;DN;	
Alcedo azurea subsp. *diemenensis*	AzK;	EN	e	P, S		1000	1000	0	Y		Y		36	0.67	57	0.68		LDF;	
Allanaspides hickmani	AlHi;		r	P		200	200	0					3	1.00	10	1.00			Y
Amelora acontistica	CLM;		v	P,S		200	500	0			Y		2	0.00	4	0.00	P	CLL;	Y
Antipodia chaostola	CSk;	EN	e	P,S		200	1000	0			Y		7	0.43	13	0.54			
Antipodia chaostola subsp. *leucophaea*	CSk;	EN	e	P,S		200	500	0			Y		7	0.43	13	0.54			
Aquila audax (nests)	WtEn;	PEN	pe	P		200	500	0				Y	184	0.68	365	0.67		LDF;DN;	
Aquila audax subsp. *fleayi* (nests)	WtEn;	EN	e	P		200	500	0				Y	184	0.68	365	0.67		LDF;DN;	
Astacopsis gouldi (confirmed locations)	GFC_c;	VU	v	P		200	1000	0	Y				57	0.49	143	0.43		LDF;	Y
Astacopsis gouldi (habitat)	GFC_h;	VU	v	S		0	0	0					57	0.49	143	0.43		LDF;	Y
Beddomeia angulata	BdAn;		r	P, S		200	200	0	Y		Y		1	1.00	1	1.00	P	CLL;	Y
Beddomeia averni	BdAv;		e	P, S		200	500	0	Y				1	0.00	2	0.00	P	CLL;	Y

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Beddomeia bellii	BdBe;		r	P, S		200	500	0	Y				2	1.00	5	1.00		CLL;	Y
Beddomeia bowryensis	BdBo;		r	P, S		200	500	0	Y				4	1.00	5	1.00		CLL;	Y
Beddomeia briansmithi	BdBr;		v	P, S		200	500	0	Y				5	0.40	8	0.38	P		Y
Beddomeia camensis	BdCam;		e	P, S		200	500	0	Y				2	0.50	4	0.25	P	CLL;	Y
Beddomeia capensis	BdCap;		e	P, S		200	500	0	Y				2	0.50	4	0.25	P	CLL;	Y
Beddomeia fallax	BdFa;		r	P, S		200	500	0	Y				1	1.00	1	1.00	P	CLL;	Y
Beddomeia forthensis	BdFor;		r	P, S		200	500	0	Y				2	0.00	2	0.00	P	CLL;	Y
Beddomeia franklandensis	BdFra;		r	P, S		200	500	0	Y				-1	1.00	-1	1.00	P	CLL;	Y
Beddomeia fromensis	BdFro;		e	P, S		200	500	0	Y				2	0.50	5	0.40	P	CLL;	Y
Beddomeia fultoni	BdFu;		e	P, S		200	500	0	Y				3	0.33	5	0.40	P	CLL;	Y
Beddomeia gibba	BdGi;		r	P, S		200	500	0	Y				3	0.00	5	0.00	P	CLL;	Y
Beddomeia hallae	BdHa;		e	P, S		200	500	0	Y				1	0.00	1	0.00	P	CLL;	Y
Beddomeia hermansi	BdHe;		e	P, S		200	500	0	Y				1	0.00	1	0.00	P	CLL;	Y
Beddomeia hullii	BdHu;		r	P, S		200	500	0	Y				3	1.00	5	1.00		CLL;	Y
Beddomeia inflata	BdIn;		r	P, S		200	500	0	Y				-1	1.00	-1	1.00	P	CLL;	Y
Beddomeia kershawi	BdKer;		e	P, S		200	500	0	Y				1	0.00	1	0.00	P	CLL;	Y
Beddomeia krybetes	BdKr;		v	P, S		200	500	0	Y				1	1.00	1	1.00	P	CLL;	Y
Beddomeia launcestonensis	BdLa;		e	P, S		200	500	0	Y				1	0.00	1	0.00	P	CLL;	Y
Beddomeia lodderae	BdLo;		v	P, S		200	500	0	Y				1	0.00	1	0.00	P	CLL;	Y
Beddomeia mesibovi	BdMe;		r	P, S		200	500	0	Y				4	0.25	9	0.44	P		Y
Beddomeia minima	BdMi;		r	P, S		200	500	0	Y				4	0.00	9	0.11	P		Y
Beddomeia petterdi	BdPe;		e	P, S		200	500	0	Y				-1	1.00	-1	1.00	P	CLL;	Y
Beddomeia phasianella	BdPh;		v	P, S		200	500	0	Y				1	0.00	3	0.00	P	CLL;	Y

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Beddomeia protuberata	BdPr;		r	P, S		200	500	0	Y				1	1.00	3	1.00	P	CLL;	Y
Beddomeia ronaldi	BdRo;		e	P, S		200	500	0	Y				4	0.00	5	0.00	P	CLL;	Y
Beddomeia salmonis	BdSa;		r	P, S		200	500	0	Y				3	0.00	4	0.00	P	CLL;	Y
Beddomeia tasmanica	BdTa;		r	P, S		200	500	0	Y				4	1.00	9	1.00			Y
Beddomeia topsiae	BdTo;		r	P, S		200	500	0	Y				6	0.17	9	0.22	P		Y
Beddomeia trochiformis	BdTr;		r	P, S		200	500	0	Y				3	1.00	6	1.00		CLL;	Y
Beddomeia tumida	BdTum;		e	P, S		200	500	0	Y				0	-1.00	0	-1.00	P	CLL;	Y
Beddomeia turnerae	BdTur;		r	P, S		200	500	0	Y				6	0.50	10	0.30			Y
Beddomeia waterhouseae	BdWa;		e	P, S		200	500	0	Y				1	0.00	2	0.00	P	CLL;	Y
Beddomeia wilmotensis	BdWil;		r	P, S		200	500	0	Y				2	0.50	3	0.67	P	CLL;	Y
Beddomeia wiseae	BdWis;		v	P, S		200	500	0	Y				3	0.00	3	0.00	P	CLL;	Y
Beddomeia zeehanensis	BdZe;		r	P, S		200	500	0	Y				3	0.67	3	0.67		CLL;	Y
Benthodorbis pawpela	GlPa;		r	P		200	500	0	Y	Y			0	-1.00	0	-1.00	P	CLL;	Y
Bettongia gaimardi	TB;			P		500	2000	0			Y		65	0.28	110	0.25		LDF;	Y
Botaurus poiciloptilus	BoPo;	EN		S		200	500	0			Y		18	0.22	19	0.21	P		
Castiarina insculpta	MJB;		e	P,S		200	200	0					4	0.50	8	0.50	P		Y
Catadromus lacordairei	GLGB;		v	P,S		200	200	0					10	0.20	11	0.18			
Cavernotettix craggiensis	CICC;		r	P		200	200	0					1	1.00	1	1.00	P	CLL;	Y
Ceyx azureus subsp. *diemenensis*	AzK;	EN	e	P		1000	1000	0	Y		Y		36	0.67	57	0.68		LDF;	
Charopidae sp Skemps	ChSk;		r	P,S		200	500	0	Y				6	0.33	12	0.42			Y
Chloritobadistes victoriae	SHRS;		v	P,S		200	200	0			Y		4	0.75	13	0.69			
Chrysolarentia decisaria	TLM;		e	S		200	500	0			Y		2	0.50	2	0.50	P	CLL;	
Dasybela achroa	SLM;		v	P		200	500	0			Y		2	0.00	3	0.00	P	CLL;	Y

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Dasyurus maculatus subsp. *maculatus* (dens)		VY	r	S		200	500	0					212	0.38	450	0.38		LDF;DN;	
Dasyurus maculatus subsp. *maculatus* (habitat)	STQ_h;	VU	r	P		200	2500	0			Y		212	0.38	450	0.38		LDF;	
Dasyurus viverrinus	EQol;			P		500	2500	0			Y		175	0.28	340	0.29		LDF;	Y
Discocharopa vigens	DiVi;	CR	e	P		200	200	0					2	0.00	2	0.00	P	CLL;	Y
Echinodillo cavaticus	EcCa;		r	P		200	100	0					-1	1.00	-1	1.00	P	CLL;	Y
Ecnomina vega	EcVe;		r	P		200	500	0					1	0.00	1	0.00	P	CLL;	Y
Enchymus sp. nov	WFW;		r	P,S		200	200	0			Y		1	1.00	1	1.00		CLL;	
Engaeus granulatus	EG;	EN	e	P,S		200	500	0	Y				12	0.33	31	0.23	P		Y
Engaeus martigener	FBC;	EN	v	P,S		200	200	0					2	1.00	3	1.00		CLL;	Y
Engaeus orramakunna	EO;	VU	v	P,S		200	200	0	Y				15	0.13	37	0.30	P		Y
Engaeus spinicaudatus	SBC;	EN	e	P,S		200	200	0	Y				4	0.25	13	0.69	P		Y
Engaeus yabbimunna	BBC;	VU	v	P,S		200	200	0	Y				4	0.00	13	0.08	P		Y
Galaxias auratus	GGx;	EN	r	S		200	500	0	Y	Y			6	0.00	10	0.00			Y
Galaxias fontanus	SwnG;	EN	e	S		200	500	0	Y				11	0.09	25	0.32		LDF;	Y
Galaxias johnstoni	ClG;	EN	e	S		200	500	0	Y	Y			6	0.67	18	0.72		LDF;	Y
Galaxias parvus	SwpG;	VU	v	S		200	500	0	Y	Y			4	1.00	10	0.90			Y
Galaxias pedderensis	GaPe;	EX	e	S		200	200	1980	Y	Y			3	1.00	7	1.00			Y
Galaxias tanycephalus	SaG;	VU	v	S		200	500	0	Y	Y			5	0.20	9	0.11			Y
Galaxiella pusilla	DwG;	VU	v	S		200	500	0	Y	Y			12	0.50	18	0.50			
Glacidorbis pawpela	GlPa;		pr	P		200	500	0	Y	Y			0	-1.00	0	-1.00	P	CLL;	Y
Goedetrechus mendumae	GoMe;		v	P		200	500	0			Y		1	1.00	3	1.00	P	CLL;	Y
Goedetrechus parallelus	GoPa;		v	P		200	500	0			Y		5	1.00	8	1.00			Y

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Haliaeetus leucogaster	WBSE;		v	P		200	200	0				Y	74	0.55	111	0.52		LDF;DN;	
Haloniscus searlei	SLS;		e	P,S		200	200	0		Y	Y		2	0.50	2	0.50	P	CLL;	
Helicarion rubicundus	HR;		r	P,S		200	200	0			Y		5	0.40	16	0.38	P		Y
Hickmanoxyomma cavaticum	HiCar;		r	S		200	200	0			Y		4	0.75	5	0.80		CLL;	Y
Hickmanoxyomma gibbergunyar	HiGi;		r	S		200	200	0			Y		5	0.80	12	0.92			Y
Hoplogonus bornemisszai	HBmz;	CR	e	S		200	200	0			Y		2	0.50	6	0.67	P	CLL;	Y
Hoplogonus simsoni	HS;	VU	v	P,S		200	200	0			Y		6	0.67	15	0.60			Y
Hoplogonus vanderschoori	HV;	VU	v	P,S		200	200	0			Y		5	0.40	10	0.30	P		Y
Hydrobiosella sagitta	HySa;		r	S		200	200	0	Y		Y		1	1.00	1	1.00	P	CLL;	Y
Hydroptila scamandra	HySc;		r	P		200	200	0	Y		Y		2	0.00	2	0.00	P	CLL;	
Idacarabus cordicollis	IdCo;		r	P		200	100	0			Y		3	1.00	4	1.00		CLL;	Y
Idacarabus troglodytes	IdTr;		r	S		200	100	0			Y		3	0.67	5	0.80		CLL;	Y
Lathamus discolor	SP_n;	EN	e	S		200	300	0					40	0.55	104	0.51		LDF;DN;	
Lathamus discolor (breeding)	SP_f;	EN	e	S		0	0	0					-1	1.00	-1	1.00		LDF;	
Lathamus discolor (foraging)	SP_b;	EN	e	S		0	0	0					-1	1.00	-1	1.00		LDF;	
Limnodynastes peroni	SMF;		e	S		200	200	0					17	0.41	28	0.39			
Lissotes latidens	BTSB;	EN	e	P,S		200	200	0			Y		5	0.80	15	0.53			Y
Lissotes menalcas (recorded locations)	LM_l;		v	P,S		200	200	0			Y		24	0.25	49	0.22			Y
Lissotes menalcas (habitat)	LM_h;		v	S		0	0	0					-1	1.00	-1	1.00			Y

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Litoria raniformis	GGF;	VU	v	P,S		200	200	0					49	0.22	79	0.23			
Mesacanthotelson setosus	MeSe;		r	S		200	200	0		Y			1	0.00	1	0.00	P	CLL;	Y
Mesacanthotelson tasmaniae	MeTa;		r	S		200	200	0		Y			1	0.00	1	0.00	P	CLL;	Y
Micropathus kiernani	SSCC;	CR	e	P,S		200	100	0					1	0.00	1	0.00	P	CLL;	Y
Migas plomleyi	PTS;		e	P,S		200	200	0	Y		Y		1	1.00	2	1.00	P	CLL;	Y
Miselaoma weldii	MiWe;		e	P		200	200	0					1	1.00	2	1.00	P	CLL;	
Neophema chrysogaster (breeding habitat)	OBP_b;	CR	e	S		500	1000	0			Y		23	0.52	42	0.67			
Neophema chrysogaster (foraging habitat)	OBP_f;	CR	e	S		500	1000	0			Y		23	0.52	42	0.67			
Numenius madagascariensis	EClw;		e	S		200	500	0	Y		Y		4	0.50	4	0.50	P	CLL;	
Oecetis gilva	OeGi;		r	P		200	200	0			Y		1	0.00	1	0.00	P	CLL;	
Olgania excavata	OlEx;		r	P		200	100	0			Y		4	1.00	4	1.00		CLL;	Y
Onchotelson brevicaudatus	OnBr;		r	S		200	200	0	Y	Y			2	0.00	2	0.00	P	CLL;	Y
Onchotelson spatulatus	OnSp;		e	S		200	200	0	Y	Y			0	-1.00	0	-1.00	P	CLL;	Y
Oreisplanus munionga subsp. *larana*	MSk;	VU	e	P,S		200	500	0			Y		7	0.29	15	0.27	P		Y
Oreixenica ptunarra	PBB;	EN	v	P,S		1000	500	0			Y		34	0.26	62	0.18			
Oreixenica ptunarra subsp. *angeli*	PBB;	EN	pv	P,S		1000	500	0			Y		34	0.26	62	0.18			Y
Oreixenica ptunarra subsp. *ptunarra*	PBB;	EN	pv	P,S		1000	500	0			Y		34	0.26	62	0.18			
Oreixenica ptunarra subsp. *roonina*	PBB;	EN	pv	P,S		1000	500	0			Y		34	0.26	62	0.18			Y

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Orphninotrichia maculata	OrMa;		r	P		200	200	0	Y		Y		2	0.50	3	0.67	P	CLL;	
Orthotrichia adornata	OrAd;		r	P		200	200	0	Y		Y		1	0.00	1	0.00	P	CLL;	
Oxyethira mienica	OxMi;		r	P		200	200	0	Y		Y		10	0.70	15	0.73			Y
Paragalaxias dissimilis	ShG;	VU	v	S		200	500	0	Y	Y			5	0.00	7	0.00			Y
Paragalaxias eleotroides	GLG;	VU	v	S		200	500	0	Y	Y			5	0.00	6	0.00		CLL;	Y
Paragalaxias julianus	PaJu;		r	P		200	500	0	Y	Y			5	1.00	8	1.00			Y
Paragalaxias mesotes	APgx;	EN	e	S		200	200	0	Y				3	0.00	4	0.00		CLL;	Y
Pardalotus quadragintus	P40_c;	EN	e	S		200	200	0					21	0.62	62	0.61			Y
Pardalotus quadragintus (habitat)	P40_h;	EN	e	S		0	0	0					-1	1.00	-1	1.00			Y
Parvotettix rangaensis	PRCC;		r	P		200	200	0					-1	1.00	-1	1.00	P	CLL;	Y
Parvotettix whinrayi	WCC;		r	P		200	200	0					1	0.00	1	0.00	P	CLL;	Y
Pasmaditta jungermanniae	CGS;		v	P,S		200	200	0	Y		Y		1	1.00	2	0.50	P	CLL;	Y
Perameles gunnii	EBB;	VU		P		500	2000	1980			Y		107	0.07	216	0.07	P	LDF;	
Perameles gunnii subsp. *gunnii*	EBB;	VU		P		500	2000	1980			Y		107	0.07	216	0.07	P	LDF;	
Phrantela annamurrayae	PhAn;		r	P, S		200	200	0	Y				-1	1.00	-1	1.00	P	CLL;	Y
Phrantela conica	PhCo;		r	P, S		200	200	0	Y				1	0.00	1	0.00	P	CLL;	Y
Phrantela marginata	PhMa;		r	P, S		200	200	0	Y				2	1.00	2	1.00		CLL;	Y
Phrantela pupiformis	PhPu;		r	P, S		200	200	0	Y				5	0.40	10	0.30	P		Y
Platycercus caledonicus brownii	KIGR;		v	S		200	2000	0			Y		2	0.50	3	0.33		CLL;	Y
Plesiothele fentoni	LFTS;		e	P		200	200	0					1	1.00	2	1.00	P	CLL;	Y
Podiceps cristatus	GCB;		v	S		0	0	0					9	0.11	10	0.10	P		

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Poliocephalus cristatus subsp. *australis*	GCB;		pv	S		0	0	0					9	0.11	10	0.10	P		
Prototroctes maraena	AGrl;	VU	v	S		200	500	0	Y	Y			36	0.33	50	0.28		LDF;	
Pseudalmenus chlorinda tax myrsilus	THB;		r	P,S		200	200	0			Y		2	1.00	3	1.00		CLL;	Y
Pseudemoia pagenstecheri	TSk;		v	S		200	500	0			Y		11	0.27	15	0.33			
Pseudemoia rawlinsoni	GGS;		r	S		200	500	0			Y		8	0.38	9	0.44			
Pseudomys novaehollandiae	PsNo;	VU	e	P		200	500	0			Y		9	0.89	16	0.94			
Pseudotyrannochthonius typhlus	PsTy;		r	P		200	100	0			Y		4	1.00	5	0.80		CLL;	Y
Ramiheithrus kocinus	RaKo;		r	P		200	200	0	Y		Y		-1	1.00	-1	1.00	P	CLL;	Y
Roblinella agnewi	RoAg;		r	P		200	500	0			Y		2	1.00	3	1.00		CLL;	Y
Sarcophilus harrisii (dens)	TD_d;	EN	e	S		0	0	0					286	0.37	804	0.36		LDF;DN;	Y
Sarcophilus harrisii (post 2005)	TD_h;	EN	e	P		200	2000	2005			Y		286	0.37	804	0.36		LDF;	Y
Schayera baiulus	SG;		e	P,S		200	500	0			Y		-1	1.00	-1	1.00	P	CLL;	Y
Stenopsychodes lineata	StLin;		r	P		200	200	0	Y		Y		1	1.00	1	1.00	P	CLL;	Y
Sterna albifrons subsp. *sinensisi*			pe	S		0	0	0					-1	-1.00	-1	-1.00			
Sterna nereis subsp. *nereis*		VU	v	S		0	0	0					-1	-1.00	-1	-1.00			
Sterna striata			v	S		0	0	0					-1	-1.00	-1	-1.00			
Sternula albifrons subsp. *sinensisi*			e	S		0	0	0					-1	-1.00	-1	-1.00			
Sternula nereis		PVU	pv	S		200	200	0					-1	-1.00	-1	-1.00			

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Tasimia drepana	TaDr;		r	P		200	500	0	Y		Y		1	1.00	1	1.00	P	CLL;	Y
Taskiria mccubbini			e	S		0	0	0					-1	-1.00	-1	-1.00			Y
Taskiropsyche lacustris			e	S		0	0	0					-1	-1.00	-1	-1.00			Y
Tasmanipatus anophthalmus	BVW;	EN	e	S		200	200	0			Y		10	0.60	23	0.57			Y
Tasmanipatus barretti	GVW;		r	S		200	200	0			Y		15	0.53	42	0.57			Y
Tasmanotrechus cockerilli	TaCo;		r	P		200	200	0			Y		4	0.75	8	0.88			Y
Tasmaphena lamproides	KS;		r	P,S		200	200	0			Y		12	0.33	26	0.27			Y
Tasniphargus tyleri	TaTy;		r	S		200	200	0	Y	Y			1	0.00	1	0.00	P	CLL;	Y
Tyto castanops (nests + roosts)	MO_n;	PVU	pe	P		200	100	0					17	0.47	17	0.47		LDF;DN;	
Tyto novaehollandiae (breeding habitat)	MO_b;	VU	e	S		200	100	0					16	0.50	16	0.50		LDF;	
Tyto novaehollandiae (nests & roosts)	MO_n;	PVU	pe	P		200	100	0					17	0.47	17	0.47		LDF;DN;	
Tyto novaehollandiae subsp. *castanops (nests & roosts)*	MO_n;	VU	e	P		200	100	0					17	0.47	17	0.47		LDF;DN;	
Uramphisopus pearsoni	UrPe;		r	P		200	200	0	Y	Y			0	-1.00	0	-1.00	P	CLL;	Y
Vombatus ursinus subsp. *ursinus*	VoUU;	VU		P		500	1000	0			N		2	1.00	2	1.00		LDF;	Y
Fungi																			
Bunodophoron notatum	BuNo;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Calycidium cuneatum	CaCu;		r	P		200	100	0					-1	-1.00	-1	-1.00			
Calycidium polycarpum	CaPol;		r	P		200	100	0					-1	-1.00	-1	-1.00			

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Erioderma sorediatum	ErSo;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Hypotrachyna immaculata	HyIm;		r	P		200	100	0					-1	-1.00	-1	-1.00			
Hypotrachyna laevigata	HyLae;		v	P		200	100	0					-1	-1.00	-1	-1.00			
Melanelia piliferella	MePi;		v	P		200	100	0					-1	-1.00	-1	-1.00			
Menegazzia minuta	MeMi;		e	P		200	100	0					-1	-1.00	-1	-1.00			Y
Parmelina pallida	PaPal;		e	P		200	100	0					-1	-1.00	-1	-1.00			Y
Parmelina whinrayi	PaWh;		r	P		200	100	0					-1	-1.00	-1	-1.00			Y
Parmeliopsis ambigua	ParAm;		r	P		200	100	0					-1	-1.00	-1	-1.00			
Parmeliopsis hyperopta	PaHy;		r	P		200	100	0					-1	-1.00	-1	-1.00			
Parmotrema crinitum	PaCr;		r	P		200	100	0					-1	-1.00	-1	-1.00			
Roccellinastrum neglectum	RoNe;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Telochistes flavicans	TeFl;		r	P		200	100	0					-1	-1.00	-1	-1.00			
Xanthoparmelia amphixantha	XaAm;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Xanthoparmelia graniticola	XaGr;		r	P		200	100	0					-1	-1.00	-1	-1.00			Y
Xanthoparmelia jarmaniae	XaJa;		v	P		200	100	0					-1	-1.00	-1	-1.00			Y
Xanthoparmelia mannumensis	XaMa;		v	P		200	100	0					-1	-1.00	-1	-1.00			
Xanthoparmelia microphyllizans	XaMi;		r	P		200	100	0					-1	-1.00	-1	-1.00			Y
Xanthoparmelia molliuscula	XaMo;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Xanthoparmelia oleosa	XaOl;		r	P		200	100	0					-1	-1.00	-1	-1.00			

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Xanthoparmelia subloxodella	XaSu;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Xanthoparmelia vicaria	XaVic;		r	P		200	100	0					-1	-1.00	-1	-1.00			Y
Xanthoparmelia vicariella	XaVi;		r	P		200	100	0					-1	-1.00	-1	-1.00			Y
Xanthoparmelia willisii	XaWi;		e	P		200	100	0					-1	-1.00	-1	-1.00			
Flora																			
Abrotanella scapigera	AbSc;			B	NS;SE;	200	100	0					16	1.00	28	1.00			Y
Acacia axillaris	AcAx;	VU	v	P		200	500	0	Y				21	0.19	52	0.19			
Acacia derwentiana	AcDe;			B	SE;	200	200	0	Y				12	0.17	23	0.13			Y
Acacia implexa	AcIm;			B	FL;	200	200	0					-1	-1.00	-1	-1.00	P		
Acacia leprosa var. *graveolens*	AcVe;			B	CH;KI;NM;	200	100	0					90	0.49	212	0.53			
Acacia longifolia subsp. *sophorae*	AcLS;			B	NM;NS;	200	100	0					84	0.55	175	0.59			
Acacia mearnsii	AcMe;			B	CH;SR;WSW;	200	100	0					91	0.27	201	0.24			
Acacia mucronata subsp. *dependens*	AcMD;			B	NM;	200	100	0					70	0.67	111	0.69			Y
Acacia myrtifolia	AcMy;			B	CH;	200	100	0					113	0.51	245	0.50			
Acacia pataczekii	AcPa;		r	P		200	500	0					7	0.71	16	0.75			Y
Acacia riceana	AcRi;			B	BL;NS;WSW;	200	100	0					35	0.40	79	0.51			Y
Acacia siculiformis	AcSi;		r	P		200	100	0					20	0.35	32	0.34			
Acacia stricta	AcSt;			B	CH;KI;NM;	200	100	0					67	0.46	150	0.42			
Acacia suaveolens	AcSua;			B	NM;WSW	200	100	0					72	0.50	146	0.53			
Acacia ulicifolia	AcUl;		r	P	BL;NS;SR;	200	100	0					37	0.43	71	0.41			

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Acacia uncifolia	AcUn;		r	P		200	500	0					3	0.33	5	0.20	P		
Acaena montana	AcMo;			B	NM;SE;WSW;	200	100	0					37	0.76	63	0.79			Y
Acaena pallida	AcPal;			B	SE;SR;	200	100	0					14	0.71	20	0.80			
Acianthus caudatus	AcCa;			B	NM;WSW;	200	100	0					71	0.44	120	0.47			
Acradenia frankliniae	AcFr;			B	KI;	200	100	0					11	0.91	23	0.96			Y
Acrotriche affinis	AcAf;			B	KI;WSW;	200	100	0					4	0.75	7	0.71			
Acrotriche cordata	AcCo;		v	P		200	200	0					-1	-1.00	-1	-1.00	P		
Actinotus bellidioides	AcBe;			B	NS;SE;	200	100	0					41	0.98	72	0.97			
Actinotus moorei	AcMoo;			B	NS;SE;	200	100	0					22	0.95	36	0.94			Y
Actinotus suffocatus	AcSuf;			B	NS;	200	100	0					26	1.00	58	1.00			Y
Agastachys odorata	AgOd;			B	NS;	200	100	0					54	0.89	109	0.90			Y
Agrostis aemula	AgAe;			B	KI;NS;BL;	200	100	0					79	0.33	129	0.30			
Agrostis australiensis	LaSS;		r	P		200	100	0					20	0.65	33	0.67			
Agrostis diemenica	AgDi;		r	P		200	100	0					7	0.71	9	0.78			Y
Agrostis muelleriana	AgMu;			B	WSW;NM;SR;	200	100	0					3	0.67	3	0.67			
Agrostis propinqua	AgPr;			B	BL;NM;	200	100	0					25	0.56	34	0.56			
Agrostis thompsoniae	AgTh;			B	NS;WSW;	200	100	0					9	0.89	12	0.92			
Agrostis venusta	AgVe;			B	KI;	200	100	0					74	0.65	112	0.67			
Allittia cardiocarpa	AlCar;			B	NS;BL;SR;	200	100	0					27	0.44	29	0.45			
Allocasuarina crassa	AlCr;		r	P		200	100	0					3	1.00	8	1.00			Y
Allocasuarina duncanii	AlDu;		r	P	SR;	200	100	0					10	0.80	20	0.85			Y
Allocasuarina littoralis	AlLi;			B	CH;KI;	200	100	0					146	0.41	399	0.44			
Allocasuarina verticillata	AlVe;			B	WSW;	200	100	0					107	0.38	247	0.43			
Allocasuarina zephyrea	AlZe;			B	NS;SE;	200	100	0					25	0.76	38	0.82			Y

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Alternanthera denticulata	AlDe;		e	P		200	100	0					5	0.40	10	0.40	P		
Alyxia buxifolia	AlBu;			B	NS;	200	100	0					18	0.83	28	0.86			
Ambuchanania leucobryoides	AmLe;		r	P		200	100	0					3	1.00	6	1.00			Y
Amphibromus archeri	AmpAr;			B	NS;SR;	200	100	0					10	0.50	11	0.55			
Amphibromus fluitans	AmFl;	VU		P		200	100	0					1	0.00	1	0.00	P		
Amphibromus macrorhinus	AmMa;		e	P		200	500	0	Y				8	0.50	13	0.54			
Amphibromus neesii	AmNe;		r	P		200	100	0					15	0.33	17	0.29			
Amphibromus recurvatus	AmRe;			B	NM;	200	100	0					33	0.70	43	0.70			
Amphibromus sinuatus	AmSi;			B	BL;FL;NM;SE;	200	100	0					12	0.17	12	0.17			
Androstoma verticillata	AnVe;			B	NS;SR;	200	100	0					11	0.91	18	0.94			Y
Anemone crassifolia	AnCr;			B	NS;	200	100	0					11	1.00	17	1.00			Y
Angianthus preissianus	AnPre;			B	KI;NM;	200	100	0					21	0.57	30	0.57			
Anisotome procumbens	AnPro;			B	CH;SE;	200	100	0					15	0.87	21	0.86			Y
Anodopetalum biglandulosum	AnBi;			B	SE;SR;	200	100	0					110	0.79	277	0.82			Y
Anogramma leptophylla	AnLe;		v	P	BL;NM;	200	100	0					6	0.67	8	0.63			
Aphanes australiana	AphAu;			B	BL;FL;NM;SE;SR;	200	100	0					8	0.38	8	0.38			
Aphelia gracilis	ApAg;		r	P	BL;NM;NS;SE;SR;	200	100	0					20	0.40	34	0.44			
Aphelia pumilio	ApPu;		r	P		200	100	0					18	0.39	34	0.53			
Apium annuum	ApAn;			B	FL;NM;	200	100	0					4	0.50	4	0.50			
Apium prostratum subsp. *prostratum*	ApPP;			B	NM;NS;	200	100	0					54	0.57	94	0.64			

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Apium prostratum subsp. *prostratum* var *filiforme*	ApPF;			B	CH;NM;NS;	200	100	0					16	0.63	20	0.65			
Apodasmia brownii	ApBr;			B	BL;CH;NS;	200	100	0					55	0.51	78	0.51			
Archeria hirtella	ArHi;			B	KI;	200	100	0					21	0.86	33	0.91			Y
Archeria serpyllifolia	ArSe;			B	NS;	200	100	0					23	0.96	36	0.97			
Argentipallium dealbatum	ArDe;			B	NM;	200	100	0					97	0.57	153	0.57			
Argentipallium obtusifolium	ArOb;			B	FL;	200	100	0					1	1.00	1	1.00	P		
Argentipallium Xspiceri	ArSp;	CR		P	SE;SR;	200	100	0					4	0.00	4	0.00	P		Y
Argyrotegium fordianum	ArFo;		r	P	BL;CH;	200	200	0					1	1.00	1	1.00	P		
Argyrotegium mackayi	ArMa;			B	KI;FL;NM;	200	100	0					11	0.73	14	0.79			
Argyrotegium nitidulum	ArNi;	VU		P	BL;CH;	200	200	0					-1	-1.00	-1	-1.00	P		
Argyrotegium poliochlorum	ArPo;		r	P		200	100	0					4	1.00	10	1.00			
Aristotelia peduncularis	ArPe;			B	NM;FL;	200	100	0					155	0.67	330	0.69			Y
Arthropodium minus	ArMi;			B	CH;KI;NS;SE;	200	100	0					29	0.31	45	0.29			
Arthropodium pendulum	ArPe;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					155	0.67	330	0.69			Y
Arthropodium strictum	ArSt;		r	P	BL;CH;	200	100	0					51	0.22	113	0.23			
Asperula gunnii	AsGu;			B	FL;NM;WSW;	200	100	0					63	0.68	116	0.66			
Asperula minima	AsMi;		r	P		200	100	0					11	0.36	16	0.25			
Asperula pusilla	AsPu;			B	KI;NS;FL;NM;SE;	200	100	0					29	0.62	51	0.65			
Asperula scoparia subsp. *scoparia*	AsSS;		r	P	NR;SR;	200	100	0					25	0.28	45	0.22			

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Asperula subsimplex	AsSu;		r	P	FL;KI;NM;SE;SR;	200	500	0	Y				18	0.50	22	0.45			
Asplenium hookerianum	AsHo;	VU	e	P		200	100	0					3	0.67	3	0.67			
Asplenium obtusatum subsp. *northlandicum*	AspON;			B	BL;	200	100	0					21	0.95	29	0.97			
Asplenium trichomanes	AsTU;			B	KI;FL;BL;SE;	200	100	0					6	1.00	6	1.00			
Asplenium trichomanes subsp. *quadrivalens*	AsTQ;			B	KI;FL;BL;SE;	200	100	0					21	0.81	26	0.85			
Asplenium trichomanes subsp. *trichomanes*	AsTT;		v	P		200	100	0					2	1.00	3	1.00			
Astelia alpina var *alpina*	AsAA;			B	NM;SE;	200	100	0					60	0.97	151	0.96			Y
Asterotrichion discolor	AsDi;			B	NM;	200	100	0					42	0.40	86	0.36			Y
Astroloma pinifolium	AsPi;			B	CH;KI;SR;WSW;	200	100	0					33	0.70	66	0.67			
Atriplex australasica	AtAu;			B	SE;	200	100	0					1	0.00	1	0.00	P		
Atriplex billardierei	AtBi;			B	SR;	200	100	0					12	0.83	17	0.88			
Atriplex paludosa subsp. *paludosa*	AtPP;			B	KI;NS;FL;SE;	200	100	0					3	0.33	3	0.33	P		
Atriplex suberecta	AtSu;		v	P		200	200	0					2	0.50	2	0.50	P		
Australina pusilla subsp. *muelleri*	AuPM;		r	P	SE;SR;	200	100	0					2	0.50	2	0.50	P		
Australopyrum pectinatum	AuPe;			B	NM;	200	100	0					59	0.63	120	0.69			Y
Australopyrum velutinum	AuVe;		r	P		200	100	0					3	0.33	6	0.33	P		
Austrocynoglossum latifolium	AuLat;		r	P		200	100	0					7	0.43	12	0.33			
Austrostipa aphylla	AuAp;			B	FL;NM;	200	100	0					43	0.44	83	0.46			Y

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Austrostipa bigeniculata	AuBi;		r	P	SE;NS;FL;CH; NM;	200	500	0					13	0.08	20	0.05	P		
Austrostipa blackii	AuBl;		r	P	FL;NS;SE;	200	500	0					8	0.25	10	0.20			
Austrostipa flavescens	AuFl;			B	NM;NS;WSW;	200	100	0					57	0.39	95	0.47			
Austrostipa mollis	AuMo;			B	CH;KI;	200	100	0					72	0.36	121	0.34			
Austrostipa nodosa	AuNo;		r	P	BL;CH;SR;	200	500	0					48	0.21	118	0.17			
Austrostipa pubinodis	AuPu;			B	CH;KI;NS;	200	100	0					93	0.16	171	0.19			
Austrostipa rudis subsp. *australis*	AuRA;			B	CH;NM;NS;	200	100	0					48	0.21	82	0.23			
Austrostipa scabra	AuSc;		r	P	NM;	200	200	0					27	0.41	51	0.35			
Austrostipa scabra subsp. *falcata*	AuSF;		pr	P	NM;	200	200	0					27	0.04	67	0.09	P		
Austrostipa scabra subsp. *scabra*	AuSS;		pr	P	NM;	200	200	0					13	0.08	21	0.10	P		
Austrostipa semibarbata	AuSe;			B	BL;CH;NS;	200	100	0					58	0.22	99	0.24			
Austrostipa stipoides	AuSti;			B	NM;NS;	200	100	0					68	0.66	112	0.68			
Austrostipa stuposa	AuStu;			B	BL;CH;	200	100	0					95	0.20	182	0.19			
Azolla filiculoides	AzFi;			B	FL;NM;SR;	200	100	0					21	0.29	27	0.26			
Baeckea gunniana	BaGun;			B	NM;	200	100	0					56	0.84	129	0.88			
Baeckea leptocaulis	BaLe;			B	NS;	200	100	0					46	0.91	96	0.96			Y
Baloskion australe	BalAu;			B	NM;	200	100	0					111	0.68	220	0.73			
Baloskion tetraphyllum subsp. *tetraphyllum*	BaTT;			B	NM;SE;	200	100	0					80	0.74	155	0.74			
Banksia serrata	BaSe;		r	P		200	100	0					5	0.60	11	0.45			
Barbarea australis	BaAu;	EN	e	P		200	500	0	Y				16	0.44	34	0.38			Y
Baumea acuta	BaAc;			B	BL;CH;NS;	200	100	0					57	0.51	81	0.48			

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Baumea articulata	BaAr;		r	P	SE;	200	100	0	Y				4	0.75	5	0.80			
Baumea gunnii	BaGu;		r	P		200	500	0	Y				23	0.43	37	0.49			
Baumea juncea	BaJu;			B	NM;NS;	200	100	0					68	0.49	115	0.56			
Baumea rubiginosa	BaRu;			B	KI;NS;CH;NM;BL;	200	100	0					17	0.47	21	0.48			
Bedfordia arborescens	BeAr;		v	P	FL;	200	500	0					2	0.00	5	0.00	P		
Bedfordia salicina	BeSa;			B	KI;WSW;	200	100	0					156	0.48	387	0.50			Y
Bertya tasmanica subsp. *tasmanica*	BeTaT;	EN	e	P		200	100	0					8	0.50	11	0.36			Y
Beyeria viscosa	BeVi;			B	KI;	200	100	0					112	0.54	226	0.53			
Billardiera macrantha	BiMa;			B	NS;WSW;CH;	200	100	0					37	0.70	54	0.74			
Billardiera mutabilis	BiMu;			B	KI;WSW;CH;	200	100	0					67	0.42	136	0.41			
Billardiera nesophila	BiNe;			B	KI;CH;BL;SR;	200	100	0					6	0.50	8	0.50			Y
Billardiera ovalis	BiOv;			B	KI;	200	100	0					11	0.82	12	0.83			Y
Billardiera viridiflora	BiVi;			B	WSW;	200	100	0					1	1.00	1	1.00	P		Y
Blechnum cartilagineum	BlCa;		v	P		200	100	0					10	0.50	18	0.50			
Blechnum minus	BlMi;			B	NM;	200	100	0					68	0.43	100	0.41			
Blechnum patersonii subsp. *patersonii*	BlPP;			B	KI;FL;SR;	200	100	0					10	0.80	14	0.86			
Blechnum penna-marina subsp. *alpina*	BlPA;			B	KI;NM;	200	100	0					81	0.68	167	0.70			
Blechnum vulcanicum	BlVu;			B	KI;	200	100	0					14	0.64	16	0.63			
Bolboschoenus caldwellii	BoCa;		r	P	FL;WSW;	200	100	0					17	0.29	27	0.30			
Bolboschoenus medianus	BoMe;		r	P		200	100	0					2	1.00	2	1.00			
Boronia citriodora	BoCi;			B	FL;NM;SE;	200	100	0					40	0.92	69	0.94			Y

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Boronia citriodora subsp. *citriodora*	BoCC;			B	FL;NM;SE;	200	100	0					23	0.87	34	0.91			Y
Boronia citriodora subsp. *orientalis*	BoCO;			B	FL;NM;SE;	200	100	0					1	1.00	3	1.00	P		Y
Boronia citriodora subsp. *paulwilsonii*	BoCP;			B	FL;NM;SE;	200	100	0					9	0.78	17	0.88			Y
Boronia elisabethiae	BoEl;			B	SR;	200	100	0					20	0.85	24	0.88			Y
Boronia gunnii	BoGu;	VU	v	P		200	500	0	Y				3	1.00	6	0.83			Y
Boronia hemichiton	BoHe;	VU	e	P		200	100	0					2	1.00	4	1.00			Y
Boronia hippopala	BoHi;	VU	v	P		200	100	0					2	0.00	10	0.30	P		Y
Boronia nana	BoNU;			B	BL;KI;NM;SR; WSW;	0	0	0					25	0.48	30	0.53			
Boronia nana var. *hyssopifolia*	BoNH;			B	BL;KI;NM;SR; WSW;	200	100	0					9	0.22	9	0.22			
Boronia nana var. *nana*	BoNN;			B	KI;NS;	200	100	0					2	1.00	3	1.00			
Boronia rhomboidea	BoRh;			B	BL; SE;SR;	200	100	0					13	0.85	19	0.89			
Bossiaea cordigera	BoCo;			B	NM;	200	100	0					86	0.36	151	0.37			
Bossiaea obcordata	BoTa;		r	P	FL;SE;	200	100	0					8	0.38	13	0.46			Y
Bossiaea riparia	BoRi;			B	NM;	200	100	0					65	0.48	107	0.51			
Bossiaea tasmanica	BoTa;		r	P	FL;SE;	200	100	0					8	0.38	13	0.46			Y
Botrychium lunaria	BoLu;			B	WSW;NM;SR; SE;	200	100	0					17	0.35	25	0.36			
Brachyglottis brunonis	BrBr;		r	P		200	100	0					3	1.00	9	1.00			Y
Brachyloma ciliatum	BrCi;			B	CH;NM;	200	100	0					53	0.49	99	0.47			
Brachyloma depressum	BrDe;		r	P		200	100	0					13	0.62	16	0.56			
Brachyscome aculeata	BrAc;			B	BL;KI;NS;	200	100	0					71	0.42	121	0.40			

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Brachyscome decipiens	BrDec;			B	BL;NM;WSW;	200	100	0					28	0.39	45	0.49			
Brachyscome diversifolia	BrDU;			B	SR;WSW;	200	100	0					4	0.75	8	0.88			
Brachyscome diversifolia var. *diversifolia*	BrDD;			B	WSW;SR;	200	100	0					10	0.80	15	0.80			
Brachyscome parvula	BrPa;			B	NM;	200	100	0					8	0.75	10	0.80			
Brachyscome perpusilla	BrPe;		r	P		200	100	0					6	1.00	10	1.00			
Brachyscome radicans	BrRad;			B	NM;SE;	200	100	0					18	0.72	26	0.73			
Brachyscome radicata	BrRa;		r	P		200	100	0					3	0.67	5	0.80			
Brachyscome rigidula	BrRi;		v	P		200	100	0					18	0.44	27	0.48			
Brachyscome spathulata	BrSU;			B	KI;NS;	200	100	0					25	0.52	34	0.62			
Brachyscome spathulata subsp. *spathulata*	BrSS;			B	BL;FL;KI;NM; NS;	200	100	0					22	0.91	31	0.94			
Brunonia australis	BrAu;		r	P		200	500	0					30	0.30	69	0.28			
Bulbine bulbosa	BuBu;			B	BL;KI;NS;SR;	200	100	0					36	0.53	51	0.51			
Bulbine glauca	BuGl;			B	BL;KI;NM;NS; SR;	200	100	0					37	0.24	63	0.21			
Bulbine semibarbata	BuSe;			B	CH;KI;NM;	200	100	0					18	0.50	24	0.54			
Burchardia umbellata	BuUm;			B	KI;NS;	200	100	0					48	0.38	86	0.33			
Caesia alpina	CaAl;			B	BL;SE;WSW;	200	100	0					4	0.50	4	0.50			
Caesia calliantha	CaCal;		r	P		200	100	0					28	0.29	61	0.31			
Caesia parviflora	CaPU;			B	BL;FL;NM;	200	100	0					17	0.29	22	0.41			
Caesia parviflora var *minor*	CaPM;			B	NM;BL;	200	100	0					2	1.00	3	0.67			
Caesia parviflora var *parviflora*	CaPP;			B	BL;NM;SE;	200	100	0					13	0.31	17	0.35			

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Caesia parviflora var *vittata*	CaPV;			B	NS;FL;NM;BL; SE;	200	100	0					11	0.18	15	0.13			
Caladenia alata	CaAla;			B	BL;FL;WSW;	200	100	0					29	0.34	39	0.38			
Caladenia alpina	CaAlp;			B	FL;NM;	200	100	0					57	0.63	80	0.63			
Caladenia angustata	CaAng;			B	CH;FL;NM;	200	100	0					12	0.33	17	0.41			Y
Caladenia anthracina	ArAn;	CR	e	P		200	100	0					8	0.63	13	0.54			Y
Caladenia atrata	CaAt;			B	FL;NS;	200	100	0					13	0.31	21	0.33			Y
Caladenia atrochila	CaAtc;			B	KI;	200	100	0					4	0.75	8	0.88			Y
Caladenia aurantiaca	CaAur;		e	P		200	200	0					-1	-1.00	-1	-1.00	P		
Caladenia australis	CaAus;		e	P		200	100	0					0		0		P		
Caladenia brachyscapa	CaBl;	EX	e	P		200	100	0					-1	-1.00	-1	-1.00	P		
Caladenia campbellii	CaCpb;	CR	e	P		200	100	0					5	0.40	6	0.33	P		Y
Caladenia caudata	ArCau;	VU	v	P		200	100	0					29	0.38	50	0.40			Y
Caladenia clavigera	CaCl;			B	BL;NS;	200	100	0					30	0.37	41	0.34			
Caladenia congesta	CaCo;		e	P		200	100	0					14	0.43	18	0.50			
Caladenia cracens	CaCr;			B	BL;CH;FL;WS W;	200	100	0					25	0.56	33	0.58			Y
Caladenia dienema	CaDi;	EN	e	P		200	100	0					3	1.00	10	0.80			Y
Caladenia dilatata	CaDil;			B	BL;CH;NM;	200	100	0					40	0.38	53	0.32			
Caladenia echidnachila	CaEc;			B	FL;	200	100	0					23	0.30	41	0.39			
Caladenia filamentosa	CaFi;		r	P		200	100	0					10	0.10	16	0.06	P		
Caladenia fuscata	CaFu;			B	NM;NS;SR;	200	100	0					46	0.50	76	0.54			
Caladenia gracilis	CaGra;			B	KI;	200	100	0					54	0.41	77	0.45			
Caladenia helvina	CaHe;			B	FL;SR;	200	100	0					11	0.64	15	0.60			Y

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Caladenia lindleyana	ArLi;	CR	e	P		200	100	0					3	0.33	4	0.25	P		Y
Caladenia mentiens	CaMe;			B	BL;NM;SR;	200	100	0					16	0.69	21	0.62			
Caladenia pallida	ArPal;	CR	e	P		200	100	0					1	0.00	1	0.00	P		Y
Caladenia patersonii	ArPat;		v	P		200	100	0					15	0.20	25	0.28			
Caladenia prolata	CaPr;		e	P		200	100	0					-1	-1.00	-1	-1.00	P		
Caladenia pusilla	CaPu;		r	P		200	100	0					18	0.61	28	0.61			
Caladenia saggicola	ArSa;	CR	e	P		200	100	0					2	0.00	2	0.00	P		Y
Caladenia sylvicola	CaSy;	CR	e	P		200	100	0					1	1.00	2	1.00	P		Y
Caladenia tonellii	CaTo;	CR	e	P		200	100	0					6	0.33	8	0.50	P		Y
Caladenia transitoria	CalTr;			B	FL;NM;	200	100	0					24	0.63	27	0.63			
Caladenia vulgaris	CaVu;			B	BL;FL;KI;NS;	0	0	0					25	0.40	34	0.50			
Calandrinia calyptrata	CalCa;			B	BL;NM;WSW;	200	100	0					27	0.48	37	0.59			
Calandrinia eremaea	CaEre;			B	SE;	200	100	0					4	0.50	4	0.50			
Calandrinia granulifera	CaGr;		r	P		200	100	0					5	1.00	9	1.00			
Caleana major	CaMa;			B	BL;CH;NM;NS ;	200	100	0					43	0.42	59	0.42			
Callitriche brachycarpa	CaBr;			B	KI;NS;CH;SR;	200	100	0					5	0.60	6	0.67			
Callitriche sonderi	CaSon;		r	P		200	100	0					2	0.00	2	0.00	P		
Callitriche umbonata	CaUm;		r	P		200	100	0					4	0.00	4	0.00	P		
Callitris oblonga subsp. *oblonga*	CaOb;	EN	v	P		200	500	0	Y				15	0.20	44	0.20	P		Y
Callitris rhomboidea	CaRh;			B	BL;KI;NM;	200	100	0					44	0.48	102	0.45			
Calocephalus citreus	CaCi;		r	P		200	100	0					9	0.00	25	0.04	P		
Calocephalus lacteus	CaLa;		r	P		200	100	0					31	0.35	56	0.39			

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Calochilus campestris	CaCpe;		e	P		200	100	0					2	0.50	2	0.50	P		Y
Calochilus herbaceus	CaHer;			B	BL;CH;NM;NS ;	200	100	0					57	0.72	82	0.76			Y
Calochilus imberbis	CaIm;			B	BL;CH;FL;SE; WSW;	200	100	0					5	0.40	7	0.43			
Calochilus paludosus	CaPa;			B	BL;	200	100	0					32	0.69	47	0.74			
Calochlaena dubia	CaDu;			B	CH;NM;WSW ;	200	100	0					54	0.44	99	0.47			
Calorophus elongatus	CaEl;			B	BL;NS;	200	100	0					55	0.73	84	0.76			
Calorophus erostris	CaEro;			B	NS;SR;	200	100	0					11	1.00	16	1.00			Y
Calystegia marginata	CaMar;		e	P		200	100	0					1	0.00	3	0.00	P		
Calystegia sepium	CaSe;		r	P		200	100	0					5	0.60	10	0.50			
Calystegia soldanella	CaSol;		r	P	KI;	200	100	0					4	0.50	8	0.50			
Calytrix tetragona	CaTet;			B	SR;	200	100	0					28	0.68	52	0.73			
Cardamine astoniae	CaAs;			B	CH;	200	100	0					1	0.00	1	0.00	P		
Cardamine gunnii	CaGun;			B	FL;NM;WSW;	200	100	0					43	0.53	56	0.59			
Cardamine lilacina	CaLi;			B	KI;	200	100	0					32	0.66	42	0.62			
Cardamine papillata	CaPap;			B	KI;FL;WSW;N M;BL;	200	100	0					11	0.55	14	0.64			
Cardamine paucijuga	CaPau;			B	FL;KI;NM;NS; WSW;	200	100	0					24	0.79	33	0.82			
Cardamine tenuifolia	CaTe;			B	NM;NS;SR;	200	100	0					9	0.44	10	0.50			
Carex barbata	CaBa;			B	BL;CH;NS;SE; SR;	200	100	0					2	0.50	2	0.50	P		Y
Carex bichenoviana	CaBi;			B	NS;CH;BL;SR; SE;	200	100	0					-1	-1.00	-1	-1.00	P		

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Carex capillacea	CaCap;		r	P		200	100	0					4	0.50	4	0.50			
Carex cataractae	CaCat;			B	NM;BL;SR;SE;	200	100	0					6	0.17	8	0.38	P		Y
Carex cephalotes	CaCe;		r	P		200	100	0					-1	-1.00	-1	-1.00	P		
Carex chlorantha	CaCh;			B	FL;NM;BL;	200	100	0					7	0.43	9	0.33			
Carex fascicularis	CaFa;			B	BL;NM;SR;	200	100	0					30	0.37	39	0.38			
Carex flaviformis	CaFl;			B	NM;	200	100	0					11	0.64	14	0.71			
Carex gaudichaudiana	CaGa;			B	NM;	200	100	0					94	0.49	159	0.55			
Carex gunniana	CaGu;		r	P		200	500	0	Y				29	0.31	37	0.35			
Carex hypandra;	CaHy;		r	P	CH;WSW;	200	100	0	Y				-1	-1.00	-1	-1.00	P		
Carex inversa	CaIn;			B	BL;KI;SR;	200	100	0					56	0.34	86	0.33			
Carex iynx	CaIy;			B	SR;	200	100	0					80	0.16	143	0.14			
Carex longebrachiata	CaLo;		r	P		200	500	0	Y				34	0.24	60	0.28			
Carex polyantha	CaPo;			B	BL;NM;WSW;	200	100	0					16	0.44	23	0.43			
Carex pumila	CaPum;			B	BL;NM;	200	100	0					11	0.82	17	0.76			
Carex raleighii	CaRa;			B	NM;SR;	200	100	0					29	0.66	50	0.74			
Carex tasmanica	CaTa;	VU		P		200	200	0	Y				39	0.31	71	0.27			
Carex tereticaulis	CaTer;			B	CH;NM;	200	100	0					22	0.23	24	0.21			
Carpha alpina	CarAl;			B	NM;	200	100	0					55	0.84	122	0.89			
Carpha curvata	CaCur;			B	NS;SR;	200	100	0					18	0.94	27	0.96			Y
Carpobrotus rossii	CaRo;			B	NM;	200	100	0					72	0.64	142	0.72			
Cassinia rugata	CaRu;	VU	e	P		200	100	0					1	1.00	2	0.50	P		
Cassinia trinerva	CasTr;			B	SR;	200	100	0					20	0.45	33	0.52			
Cassytha glabella	CaGl;			B	CH;NM;	200	100	0					101	0.64	185	0.61			
Cassytha pedicellosa	CaPe;			B	FL;SE;	200	100	0					7	0.71	11	0.73			Y

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Caustis pentandra	CaPen;		r	P		200	100	0					11	0.91	46	0.74			
Cenarrhenes nitida	CeNi;			B	NM;SE;	200	100	0					105	0.78	271	0.81			Y
Centella cordifolia	CeCo;			B	NM;	200	100	0					81	0.48	134	0.51			
Centipeda cunninghamii	CeCu;		r	P		200	100	0					7	0.29	8	0.38			
Centipeda elatinoides	CeEl;			B	NS;CH;BL;SR; SE;	200	100	0					33	0.24	41	0.22			
Centrolepis aristata	CeAr;			B	BL;CH;KI;NS;S R;	200	100	0					45	0.40	70	0.40			
Centrolepis fascicularis	CeFa;			B	BL;SH;NS;	200	100	0					36	0.58	44	0.57			
Centrolepis glabra	CeGl;			B	WSW;CH;NM ;SE;	200	100	0					4	0.25	4	0.25	P		
Centrolepis monogyna	CeMo;			B	KI;NS;BL;SE;	200	100	0					51	0.88	89	0.87			Y
Centrolepis muscoides	CeMu;			B	SE;	200	100	0					6	0.83	7	0.86			Y
Centrolepis pedderensis	CePe;	EN	e	P		200	100	0					2	1.00	4	1.00			Y
Centrolepis polygyna	CePo;			B	NM;	200	100	0					14	0.86	19	0.79			
Centrolepis strigosa subsp. *pulvinata*	CeStP;		r	P		200	100	0					4	0.75	4	0.75			Y
Centrolepis strigosa subsp. *strigosa*	CeSS;			B	CH;NS;	200	100	0					88	0.49	139	0.50			
Chamaescilla corymbosa var *corymbosa*	ChCC;			B	BL;KI;NM;NS; SR;	200	100	0					23	0.48	31	0.45			
Chamaesyce drummondii	ChDr;			B	FL;SE;	200	100	0					-1	-1.00	-1	-1.00	P		
Cheilanthes austrotenuifolia	ChAu;			B	CH;SR;	200	100	0					63	0.44	122	0.46			
Cheilanthes distans	ChDi;		e	P		200	100	0					3	0.33	3	0.33	P		
Cheilanthes sieberi subsp. *sieberi*	ChSS;			B	CH;NM;NS;SR ;	200	100	0					23	0.26	28	0.29			

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Chiloglottis gunnii	ChGu;			B	FL;NM;	200	100	0					41	0.66	56	0.64			Y
Chiloglottis trapeziformis	ChTr;		e	P		200	500	0					5	0.60	5	0.60			
Chiloglottis triceratops	ChTri;			B	BL;FL;WSW;	200	100	0					46	0.39	63	0.40			Y
Chiloglottis valida	ChVa;			P		200	100	0					2	0.00	3	0.00	P		
Chordifex hookeri	ChHo;			B	NS;	200	100	0					48	0.79	97	0.81			Y
Chordifex monocephalus	CoMon;			B	BL;	200	100	0					43	0.84	73	0.82			Y
Chorizandra australis	ChoAu;			B	CH;	200	100	0					16	0.56	22	0.59			
Chorizandra enodis	ChEn;		e	P		200	100	0					5	0.00	8	0.00	P		
Chrysocephalum apiculatum	ChAp;			B	NS;	200	100	0					99	0.41	198	0.41			
Chrysocephalum baxteri	ChBa;		r	P		200	100	0					5	0.20	9	0.11	P		
Chrysocephalum semipapposum	ChSe;			B	BL;CH;SR;	200	100	0					37	0.24	58	0.19			
Clematis gentianoides	ClGe;			B	BL;CH;SR;	200	100	0					35	0.66	67	0.54			Y
Colobanthus affinis	CoAf;			B	NS;SE;	200	100	0					10	0.90	10	0.90			
Colobanthus apetalus var *apetalus*	CoApA;			B	CH;NM;NS;SE;	200	100	0					36	0.67	52	0.73			
Colobanthus curtisiae	CoCu;	VU	r	P		200	100	0					38	0.29	71	0.21			
Colobanthus pulvinata	CoPuL;		r	P		200	200	0					3	1.00	3	1.00			
Comesperma calymega	CoCa;			B	BL;CH;NS;	200	100	0					35	0.74	46	0.80			
Comesperma defoliatum	CoDe;		r	P		200	100	0					8	0.88	8	0.88			
Comesperma ericinum	CoEr;			B	NS;SR;	200	100	0					12	0.67	14	0.64			
Conospermum hookeri	CoHo;	VU	v	P		200	100	0					15	0.47	33	0.52			Y
Convolvulus angustissimus subsp. *angustissimus*	CoAnA;			B	BL;CH;NS;SR;	200	100	0					65	0.25	131	0.19			

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Coprosma nitida	CoNi;			B	FL;NM;	200	100	0					121	0.74	255	0.76			
Correa lawrenceana var *lawrenceana*	CoLL;			B	FL;NM;	200	100	0					56	0.64	122	0.66			Y
Corunastylis archeri	CoAr;			B	BL;CH;KI;NM;NS;	200	100	0					28	0.50	36	0.47			
Corunastylis brachystachya	CoBr;	EN	e	P		200	100	0					4	0.75	8	0.88			Y
Corunastylis despectans	CoDes;			B	FL;NS;	200	100	0					20	0.45	27	0.44			
Corunastylis morrisii	CoMo;		e	P		200	100	0					6	0.67	6	0.67			
Corunastylis nuda	CoNu;		r	P		200	100	0					18	0.44	24	0.42			
Corunastylis nudiscapa	CoNui;		e	P		200	100	0					2	0.50	5	0.20	P		Y
Corunastylis pumila	CoPum;			B	SR;	200	100	0					12	0.75	14	0.79			
Corunastylis tasmanica	CoTas;			B	BL;FL;KI;NS;SR;	200	100	0					26	0.35	31	0.32			Y
Corybas aconitiflorus	CoAc;			B	WSW;CH;NM;SR;	200	100	0					34	0.68	45	0.76			
Corybas diemenicus	CoDi;			B	NM;	200	100	0					68	0.65	100	0.61			
Corybas fimbriatus	CoFim;			B	KI;NS;NM;BL;	200	100	0					16	0.50	21	0.48			
Corybas fordhamii	CoFo;		e	P		200	100	0					-1	-1.00	-1	-1.00	P		
Corybas unguiculatus	CoUn;			B	NS;NM;BL;SR;	200	100	0					19	0.58	23	0.57			
Cotula alpina	CoAl;			B	KI;NM;	200	100	0					83	0.57	165	0.64			
Cotula vulgaris var. *australasica*	CoVu;		r	P	KI;SE;	200	500	0					11	0.73	17	0.76			
Craspedia glabrata	CrGl;			B	BL;SR;	200	100	0					14	0.79	16	0.75			Y
Craspedia macrocephala	CrMa;			B	BL;NS;SE;SR;	200	100	0					22	0.86	34	0.88			Y
Craspedia paludicola	CrPa;			B	NM;SE;	200	100	0					6	0.67	8	0.75			

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Craspedia preminghana	CrPr;	EN	e	P		200	100	0					1	1.00	3	1.00	P		Y
Crassula decumbens var. *decumbens*	CrDD;			B	NM;	200	100	0					33	0.48	42	0.50			
Crassula exserta	CrEx;			B	CH;FL;	200	100	0					1	0.00	1	0.00	P		
Crassula helmsii	CrHe;			B	BL;NM;NS;	200	100	0					49	0.47	64	0.48			
Crassula moschata	CrMo;		r	P		200	100	0					4	0.50	4	0.50			
Crassula peduncularis	CrPe;			B	BL;KI;NM;WSW;	200	100	0					17	0.53	17	0.53			
Cryptandra amara	CrAm;		e	P		200	100	0					16	0.31	27	0.37			
Cryptostylis leptochila	CrLe;		e	P		200	100	0					3	0.33	6	0.67	P		
Cryptostylis subulata	CrSu;			B	CH;	200	100	0					52	0.62	76	0.67			
Ctenopteris heterophylla	CtHe;			B	NM;	200	100	0					97	0.73	185	0.74			
Cullen microcephalum	CuMi;		r	P	KI;WSW;	200	100	0					2	1.00	5	1.00			
Cuscuta tasmanica	CuTa;		r	P		200	100	0					5	0.60	6	0.67			
Cyathea australis subsp. *australis*	CyAA;			B	NM;	200	100	0					70	0.59	146	0.61			
Cyathea cunninghamii	CyCu;		e	P		200	100	0					17	0.76	27	0.74			
Cyathea Xmarcescens	CyX;		e	P		200	100	0					5	0.40	8	0.50	P		
Cyathodes glauca	CyGl;			B	FL;KI;NM;	200	100	0					105	0.75	243	0.67			Y
Cyathodes platystoma	CyPl;		r	P		200	100	0					8	0.88	21	0.76			Y
Cyathodes straminea	CySt;			B	NS;	200	100	0					32	0.97	52	0.98			Y
Cymbonotus preissianus	CyPr;			B	CH;KI;NM;	200	100	0					24	0.42	33	0.45			
Cynoglossum australe	CyAu;		r	P		200	100	0					40	0.32	91	0.32			
Cynoglossum suaveolens	CySua;			B	BL;CH;FL;NS;	200	100	0					74	0.30	132	0.29			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Cyperus gunnii	CyGu;			B	NS;FL;NM;BL; SE;	200	100	0					14	0.07	15	0.07	P		
Cyperus lucidus	CyLu;			B	BL;CH;KI;NM; SE;	200	100	0					34	0.24	48	0.25			
Cyphanthera tasmanica	CyTa;		r	P		200	500	0	Y				8	0.50	19	0.63			Y
Cyrtostylis robusta	CyRo;		r	P		200	100	0					25	0.72	38	0.61			
Cystopteris tasmanica	CyTas;			B	BL;SE;	200	100	0					11	0.73	12	0.75			
Damasonium minus	DaMi;		r	P		200	100	0					3	0.33	3	0.33	P		
Dampiera stricta	DaSt;			B	NS;	200	100	0					19	0.68	27	0.67			
Daviesia latifolia	DaLa;			B	CH;	200	100	0					99	0.44	177	0.46			
Daviesia sejugata	DaSe;			B	BL;KI;NM;NS; SR;WSW;	200	100	0					18	0.06	23	0.09	P		
Daviesia ulicifolia subsp. *ruscifolia*	DaUR;			B	BL;FL;NS;SR;	200	100	0					17	0.29	19	0.32			
Daviesia ulicifolia subsp. *ulicifolia*	DaUU;			B	FL;NS;SR;	200	100	0					32	0.81	54	0.85			
Deschampsia gracillima	DeGr;		r	P		200	100	0					2	1.00	2	1.00			
Desmodium gunnii	DeGu;		v	P		200	500	0					22	0.41	39	0.44			
Desmodium varians	DeVa;		e	P		200	100	0					5	0.20	11	0.18	P		
Deyeuxia apsleyensis	DeAp;		r	P		200	100	0					5	1.00	8	1.00			Y
Deyeuxia brachyathera	DeBr;		r	P		200	100	0					4	1.00	4	1.00			
Deyeuxia contracta	DeCo;			B	KI;WSW;	200	100	0					44	0.59	54	0.61			
Deyeuxia decipiens	DeDec;		r	P		200	100	0					1	1.00	1	1.00	P		
Deyeuxia densa	DeDen;		r	P	KI;	200	100	0					35	0.71	43	0.74			
Deyeuxia frigida	DeFr;			B	NM;	200	100	0					21	0.57	26	0.62			
Deyeuxia minor	DeMi;		r	P		200	100	0					14	0.79	16	0.75			

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Deyeuxia rodwayi	DeRo;			B	NS;FL;WSW;BN;BL;	200	100	0					25	0.76	34	0.76			
Deyeuxia scaberula	DeSc;			B	NS;SE;SR;	200	100	0					9	1.00	11	1.00			
Dianella amoena	DiAm;	EN	r	P		200	100	0					29	0.17	65	0.22	P		
Dianella brevicaulis	DiBr;			B	KI;NS;WSW;BL;SR;	200	100	0					31	0.29	51	0.29			
Dichelachne crinita	DiCr;			B	NS;BL;	200	100	0					98	0.38	171	0.36			
Dichelachne micrantha	DiMi;			B	FL;	200	100	0					33	0.82	48	0.83			
Dichelachne sieberiana	DiSi;			B	BL;	200	100	0					4	0.75	5	0.60			
Dichosciadium ranunculaceum var *tasmanicum*	DiRT;			B	SR;SE;	200	100	0					13	0.92	15	0.93			Y
Dillwynia cinerascens	DiCi;			B	NS;WSW;CH;SR;	200	100	0					51	0.29	80	0.27			
Diplarrena latifolia	DiLat;			B	KI;FL;BL;SE;	200	100	0					72	0.78	123	0.82			Y
Diplarrena moraea	DipMo;			B	KI;	200	100	0					213	0.47	469	0.46			
Diplaspis cordifolia	DiCo;			B	NS;	200	100	0					29	0.97	49	0.98			Y
Diplazium australe	DiAu;			B	CH;SR;	200	100	0					27	0.74	33	0.76			
Discaria pubescens	DiPu;		e	P		200	100	0					13	0.00	29	0.03	P		
Diselma archeri	DiAr;			B	NM;	200	100	0					31	0.84	64	0.89			Y
Distichlis distichophylla	DiDi;			B	NS;CH;BL;	200	100	0					70	0.39	108	0.44			
Diuris chryseopsis	DiCh;			B	KI;SR;	200	100	0					34	0.44	44	0.41			
Diuris lanceolata	DiLan;	EN	e	P		200	100	0					2	0.50	5	0.60	P		Y
Diuris monticola	DiMo;			B	NS;WSW;SE;	200	100	0					19	0.42	24	0.50			
Diuris orientis	DiOr;			B	NM;	200	100	0					24	0.42	46	0.46			

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Diuris palustris	DiPa;		e	P	BL;SR;	200	100	0					15	0.47	20	0.60			
Diuris pardina	DiPar;			B	SR;	200	100	0					41	0.37	75	0.40			
Diuris sulphurea	DiSu;			B	KI;SR;	200	100	0					59	0.47	95	0.44			
Dockrillia striolata subsp. *striolata*	DoSS;			B	SE;	200	100	0					5	0.80	6	0.67			
Dodonaea filiformis	DoFi;			B	FL;WSW;CH;	200	100	0					20	0.50	39	0.44			Y
Donatia novae-zelandiae	DoNz;			B	NS;	200	100	0					26	1.00	46	1.00			
Doodia australis	DoAu;			B	NS;	200	100	0					13	0.85	15	0.87			
Doodia caudata	DoCa;		e	P		200	100	0					4	0.25	10	0.40	P		
Dracophyllum milliganii	DrMi;			B	NS;	200	100	0					17	1.00	34	1.00			Y
Dracophyllum minimum	DrMin;			B	CH;SE;	200	100	0					15	0.93	24	0.96			Y
Drosera arcturi	DrAc;			B	BL;NS;	200	100	0					45	0.93	85	0.96			
Drosera binata	DrBi;			B	NM;NS;	200	100	0					52	0.75	83	0.81			
Drosera glanduligera	DrGl;		r	P		200	100	0					5	0.80	9	0.89			
Drosera macrantha	DrMa;			B	NS;	200	100	0					14	0.50	18	0.56			
Drosera peltata	DrPP;			B	BL;FL;NS;SR;	200	100	0					120	0.60	241	0.55			
Drosera spatulata	DrSp;			B	KI;FL;BL;	200	100	0					11	0.82	11	0.82			
Drosera spatulata var *spatulata*	DrSp;			B	BL;FL;KI;	200	100	0					11	0.82	11	0.82			
Dryopoa dives	DrDi;		r	P		200	500	0					2	1.00	9	1.00			
Einadia nutans subsp. *nutans*	EiNN;			B	KI;NS;FL;CH;BL;	200	100	0					46	0.30	84	0.27			
Elaeocarpus reticulatus	ElRe;		r	P		200	100	0					6	0.50	24	0.63			
Elatine gratioloides	ElGr;			B	KI;FL;NM;BL;SR;SE;	200	100	0					10	0.30	13	0.31			

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Eleocharis acuta	ElAc;			B	NS;	200	100	0					116	0.36	182	0.29			
Eleocharis gracilis	ElGra;			B	NS;FL;NM;	200	100	0					27	0.59	38	0.53			
Eleocharis pusilla	ElPu;			B	KI;WSW;CH;NM;BL;SR;SE;	200	100	0					22	0.32	30	0.37			
Eleocharis sphacelata	ElSp;			B	KI;NM;BL;	200	100	0					53	0.36	71	0.35			
Epacris acuminata	EpAc;	VU		P		200	500	0	Y				36	0.36	75	0.35			Y
Epacris apsleyensis	EpAps;	EN	e	P		200	500	0					6	0.33	18	0.33	P		Y
Epacris barbata	EpBa;	EN	e	P		200	500	0					1	1.00	1	1.00	P		Y
Epacris corymbiflora	EpCo;			B	CH;NS;	200	100	0					22	0.91	45	0.96			Y
Epacris curtisiae	EpCu;		r	P		200	100	0					8	0.75	20	0.90			Y
Epacris exserta	EpEx;	EN	e	P		200	500	0	Y				4	0.50	9	0.44	P		Y
Epacris franklinii	EpFr;			P	BL;CH;NM;	200	100	0					13	0.54	33	0.55			Y
Epacris glabella	EpGl;	EN	e	P		200	500	0					2	1.00	6	1.00			Y
Epacris grandis	EpGr;	EN	e	P		200	500	0	Y				2	0.50	5	0.80	P		Y
Epacris graniticola	EpGra;	CR	v	P		200	100	0					4	1.00	9	1.00			Y
Epacris limbata	EpLi;	CR	e	P		200	100	0					1	1.00	3	1.00	P		Y
Epacris moscaliana	EpMo;	EN	r	P		200	100	0					12	0.50	33	0.52			Y
Epacris myrtifolia	EpMy;			B	BL;	200	100	0					11	0.82	13	0.85			Y
Epacris navicularis	EpNa;			B	NS;SE;	200	100	0					5	1.00	8	1.00			Y
Epacris paludosa	EpPa;			B	NS;	200	100	0					7	0.43	10	0.60			
Epacris petrophila	EpPe;			B	NS;SE;SR;	200	100	0					15	0.60	23	0.65			
Epacris stuartii	EpSt;	CR	e	P		200	100	0					2	1.00	2	1.00			Y
Epacris tasmanica	EpaTa;			B	CH;FL;NM;	200	100	0					34	0.29	68	0.35			Y
Epacris virgata	EpVi;	EN	pv	P	FL;SR;	200	100	0					-1	-1.00	-1	-1.00	P		Y

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Epacris virgata (Beaconsfield)	EpVB;	EN	pv	P	FL;SR;	200	100	0					5	0.80	15	0.87			Y
Epacris virgata (Kettering)	EpVK;		pv	P	FL;SR;	200	100	0					15	0.33	32	0.31			Y
Epilobium curtisiae	EpiCu;			B	SR;	200	100	0					8	0.50	8	0.50			
Epilobium gunnianum	EpGu;			B	FL;KI;NM;	200	100	0					22	0.50	36	0.56			
Epilobium hirtigerum	EpHi;			B	CH;NS;NM;SE;	200	100	0					13	0.15	13	0.15			
Epilobium pallidiflorum	EpPal;		r	P	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					30	0.17	44	0.11			
Epilobium perpusillum	EpPer;			B	NS;WSW;	200	100	0					5	1.00	6	0.83			Y
Epilobium sarmentaceum	EpSa;			B	BL;FL;NM;NS;SE;WSW;	200	100	0					35	0.69	40	0.70			
Epilobium tasmanicum	EpiTa;			B	NS;WSW;BL;SR;SE;	200	100	0					11	0.82	12	0.83			
Epilobium willisii	EpWi;		r	P		200	100	0					7	0.86	10	0.90			
Eragrostis brownii	ErBr;			B	BL;NM;NS;	200	100	0					22	0.18	27	0.19			
Erigeron stellatus	ErSt;			B	BL;NS;SE;	200	100	0					39	0.95	83	0.96			Y
Eryngium ovinum	ErOv;		v	P		200	100	0					14	0.14	26	0.12	P		
Eryngium vesiculosum	ErVe;			B	CH;BL;	200	100	0					63	0.48	97	0.49			
Eucalyptus archeri	EuAr;			B	NM;NS;SE;	200	100	0					13	0.92	24	0.92			Y
Eucalyptus barberi	EuBa;		r	P		200	500	0					7	0.29	24	0.63			Y
Eucalyptus brookeriana	EuBr;			B	CH;NM;	200	100	0					67	0.60	142	0.59			Y
Eucalyptus coccifera	EuCoc;			B	NM;O	200	200	0					76	0.75	176	0.80			Y
Eucalyptus cordata	EuCo;			P	CH;	200	100	0					24	0.46	52	0.52			Y

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Eucalyptus cordata subsp. *cordata*	EuCo;			P	CH;	200	100	0					24	0.46	52	0.52			Y
Eucalyptus cordata subsp. *quadrangulosa*	EuCo;			P	CH;	200	100	0					24	0.46	52	0.52			Y
Eucalyptus dalrympleana subsp. *dalrympleana*	EuDD;			B	FL;KI;WSW;	200	100	0					123	0.41	338	0.45			
Eucalyptus delegatensis subsp. *tasmaniensis*	EuDT;			B	KI;FL;	200	200	0					191	0.58	581	0.59			Y
Eucalyptus globulus	EuGG;			B	CH;	200	200	0					156	0.47	377	0.45			
Eucalyptus globulus subsp. *pseudoglobulus*	EuGP;		r	P		200	100	0					2	1.00	2	1.00			
Eucalyptus gunnii	EuGu;			B	NM;	200	100	0					51	0.69	113	0.74			Y
Eucalyptus gunnii subsp. *divaricata*	EuGD;	EN	e	P		200	100	0					11	0.36	32	0.34			Y
Eucalyptus gunnii subsp. *gunnii*	EuGG;			B	NM;	200	100	0					156	0.47	377	0.45			Y
Eucalyptus johnstonii	EuJo;			B	BL;NS;	200	100	0					31	0.71	54	0.76			Y
Eucalyptus morrisbyi	EuMo;	EN	e	P		200	100	0					3	0.67	7	0.43			Y
Eucalyptus nebulosa	EuNe;			P		200	200	0					2	1.00	5	1.00			Y
Eucalyptus nitida	EuNi;			B	BL;NM;	200	100	0					139	0.67	355	0.72			Y
Eucalyptus pauciflora subsp. *pauciflora*	EuPP;			B	WSW;	200	100	0					131	0.38	345	0.35			
Eucalyptus perriniana	EuPe;		r	P		200	100	0					3	0.33	8	0.50	P		
Eucalyptus pulchella	EuPu;			B	NS;FL;CH;	200	100	0					73	0.48	166	0.49			Y
Eucalyptus radiata subsp. *radiata*	EuRa;		r	P		200	500	0					9	0.67	21	0.52			
Eucalyptus regnans	EuRe;			B	KI;FL;NM;	200	100	0					106	0.56	270	0.55			

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Eucalyptus risdonii	EuRi;		r	P		200	100	0					3	0.00	10	0.30	P		Y
Eucalyptus rodwayi	EuRo;			B	FL;WSW;	200	100	0					91	0.34	178	0.36			Y
Eucalyptus rubida	EuRu;			B	NS;WSW;NM;	200	100	0					52	0.38	114	0.38			
Eucalyptus sieberi	EuSi;			B	WSW;	200	100	0					36	0.50	99	0.55			
Eucalyptus tenuiramis	EuTe;			B	KI;FL;CH;NM;	200	100	0					72	0.47	188	0.47			Y
Eucalyptus vernicosa	EuVe;			B	NS;	200	100	0					28	1.00	45	1.00			Y
Euchiton involucratus	EuIn;			B	KI;FL;NM;	200	100	0					53	0.42	63	0.41			
Euchiton sphaericus	EuSp;			B	BL;KI;WSW;	200	100	0					8	0.50	8	0.50			
Euchiton traversii	EuTr;			B	NS;	200	100	0					40	0.67	75	0.75			
Euchiton umbricola	EuUm;			B	NM;	200	100	0					36	0.83	51	0.82			
Eucryphia milliganii	EuMi;			B	KI;NS;	200	100	0					33	0.79	70	0.86			Y
Eucryphia milliganii subsp. *milliganii*	EuMM;			B	KI;NS;	200	100	0					16	0.69	26	0.69			
Euphrasia amphisysepala	EuAm;	VU	r	P		200	100	0					3	1.00	5	1.00			Y
Euphrasia collina	EuCol;			B	NS;FL;WSW;	200	100	0					33	0.82	58	0.83			
Euphrasia collina subsp. *collina*	EupCC;			B	BL;	200	100	0					12	0.17	22	0.23			
Euphrasia collina subsp. *deflexifolia*	EuCDe;		r	P		200	100	0					16	0.75	28	0.64			Y
Euphrasia collina subsp. *diemenica*	EuCD;			B	NS;WSW;NM;	200	100	0					33	0.79	45	0.76			Y
Euphrasia collina subsp. *tetragona*	EuCT;		e	P		200	100	0					2	1.00	5	0.80			
Euphrasia fragosa	EuFr;	CR	e	P		200	100	0					3	0.67	6	0.67			Y
Euphrasia gibbsiae subsp. *microdonta*	EuGM;			B	SR;	200	100	0					1	1.00	1	1.00	P		Y

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Euphrasia gibbsiae subsp. *psilantherea*	EupGP;	CR	e	P		200	100	0					1	1.00	2	1.00	P		Y
Euphrasia gibbsiae subsp. *pulvinestris*	EuGPu;		r	P		200	100	0					1	1.00	3	1.00	P		Y
Euphrasia gibbsiae subsp. *wellingtonensis*	EuGW;		r	P		200	100	0					1	1.00	2	1.00	P		Y
Euphrasia phragmostoma	EuPh;	VU	v	P		200	100	0					1	1.00	2	1.00	P		Y
Euphrasia scabra	EuSc;		e	P		200	100	0					5	0.40	10	0.60	P		
Euphrasia semipicta	EuSe;	EN	e	P		200	100	0					4	1.00	13	0.77			Y
Euphrasia sp Bivouac Bay	EuBB;	EN	e	P		200	100	0					3	1.00	5	1.00			Y
Euphrasia striata	EuSt;			B	NS;NM;BL;SE;	200	100	0					23	0.91	36	0.94			Y
Eurychorda complanata	EuCom;			B	NM;	200	100	0					136	0.71	280	0.72			
Euryomyrtus parviflora	EuRP;			B	BL;NS;	200	100	0					19	0.47	23	0.48			
Eutaxia microphylla	EuMM;		r	P	NM;SE;	200	100	0					16	0.69	26	0.69			
Ewartia catipes	EwCa;			B	KI;NS;WSW;NM;SE;	200	100	0					10	0.90	16	0.94			Y
Ewartia meredithiae	EwMe;			B	NS;NM;	200	100	0					19	1.00	36	1.00			Y
Exocarpos humifusus	ExHu;			B	KI;NS;FL;NM;	200	100	0					59	0.85	92	0.88			Y
Exocarpos nanus	ExNa;			B	BL;NS;	200	100	0					14	0.79	19	0.74			
Festuca plebeia	FePl;			B	KI;NS;WSW;NM;BL;	200	100	0					47	0.51	79	0.54			Y
Ficinia nodosa	FiNo;			B	CH;NM;	200	100	0					108	0.60	216	0.64			
Forstera bellidifolia	FoBe;			B	NS;	200	100	0					16	1.00	23	1.00			Y
Frankenia pauciflora var. *gunnii*	FrPG;		r	P	KI;	200	100	0					3	1.00	5	1.00			

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Gahnia filum	GaFi;			B	BL;CH;NM;NS ;	200	100	0					43	0.35	56	0.32			
Gahnia microstachya	GaMi;			B	NS;	200	100	0					11	0.82	25	0.92			
Gahnia rodwayi	GaRo;			B	BL;NM;SR;	200	100	0					25	0.32	43	0.40			Y
Gahnia sieberiana	GaSi;			B	SR;	200	100	0					59	0.49	97	0.51			
Gahnia trifida	GaTr;			B	NM;NS;WSW;	200	100	0					37	0.41	58	0.50			
Galium ciliare	GaCi;			B	KI;NS;FL;NM;	200	100	0					39	0.46	59	0.44			
Gastrodia procera	GaPr;			B	KI;BL;CH;SE;	200	100	0					21	0.67	25	0.64			
Gastrodia sesamoides	GaSe;			B	NS;WSW;NM; BL;	200	100	0					49	0.57	61	0.54			
Gaultheria depressa	GaDe;			B	NS;WSW;NM; BL;	200	100	0					14	0.93	19	0.89			
Gaultheria hispida	GaHi;			B	KI;NM;	200	100	0					96	0.75	176	0.78			Y
Gaultheria lanceolata	GaLa;			B	NS;BL;SR;	200	100	0					2	1.00	3	1.00			Y
Gaultheria tasmanica	GaTas;			B	SE;	200	100	0					28	0.82	56	0.88			Y
Gentianella diemensis subsp. *diemensis*	GeDD;			B	NS;WSW;BL;S E;	200	100	0					30	0.83	39	0.87			Y
Gentianella eichleri	GeEi;			B	NM;	200	100	0					7	0.71	8	0.63			Y
Gentianella gunniana	GeGu;			B	CH;BL;SR;	200	100	0					4	0.50	5	0.60			
Gentianella pleurogynoides subsp. *pleurogynoides*	GePP;			B	BL;CH;SE;SR; WSW;	200	100	0					8	0.75	8	0.75			Y
Gentianella polysperes	GePo;			B	NS;BL;SR;SE;	200	100	0					5	0.20	5	0.20	P		
Geococcus pusillus	GePu;		r	P	FL;	200	100	0					1	1.00	2	1.00	P		
Geranium retrorsum	GeRet;			B	FL;NM;	200	100	0					7	0.14	8	0.13	P		
Geum talbotianum	GeTa;		r	P		200	100	0					6	1.00	8	1.00			Y

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Glossostigma elatinoides	GlEl;		r	P		200	100	0					4	0.25	4	0.25	P		
Glyceria australis	GlAu;			B	KI;NS;FL;NM; BL;	200	100	0					23	0.13	26	0.19			
Glycine clandestina	GlCl;			B	KI;NM;	200	100	0					50	0.30	65	0.35			
Glycine latrobeana	GlLa;	VU	v	P		200	500	0					47	0.21	83	0.27			
Glycine microphylla	GlMi;		v	P		200	100	0					23	0.17	40	0.17			
Gnaphalium indutum subsp. *indutum*	GnIn;			B	NM;WSW;	200	100	0					12	0.75	17	0.71			
Gompholobium ecostatum	GoEc;		e	P		200	100	0					3	0.33	6	0.33	P		
Gonocarpus humilis	GoHu;			B	KI;NM;	200	100	0					60	0.58	96	0.61			
Gonocarpus montanus	GoMo;			B	SE;NM;	200	100	0					39	0.79	70	0.81			
Gonocarpus serpyllifolius	GoSe;			B	KI;NM;	200	100	0					77	0.56	177	0.64			
Goodenia geniculata	GoGe;		e	P		200	100	0					1	1.00	2	1.00	P		
Goodenia humilis	GoHum ;			B	CH;NM;BL;SR ;	200	100	0					15	0.33	16	0.38			
Goodenia ovata	GoOv;			B	WSW;CH;NM ;	200	100	0					108	0.43	256	0.42			
Goodia lotifolia	GoLo;			B	CH;NM;	200	100	0					52	0.48	79	0.53			
Goodia pubescens	GoPu;			B	NM;SR;	200	100	0					18	0.56	20	0.60			
Grammitis billardierei	GrBi;			B	NM;	200	100	0					176	0.78	428	0.76			
Grammitis pseudociliata	GrPs;			B	SE;	200	100	0					14	0.79	22	0.82			
Gratiola nana	GrNa;			B	NS;NM;	200	100	0					38	0.61	50	0.60			
Gratiola peruviana	GrPe;			B	WSW;	200	100	0					30	0.33	45	0.40			
Gratiola pubescens	GrPu;		v	P		200	100	0					12	0.33	19	0.26			
Gunnera cordifolia	GuCo;			B	SE;KI;NS;WS W;NM;	200	100	0					19	0.58	31	0.65			Y

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Gynatrix pulchella	GyPu;		r	P		200	500	0	Y				19	0.26	32	0.19			
Gyrostemon thesioides	GyTh;		r	P		200	100	0					11	0.36	20	0.55			
Hakea decurrens	HaDe;			B	NS;SE;SR;	200	100	0					4	0.00	5	0.00	P		
Hakea decurrens subsp. *physocarpa*	HaDP;			B	NS;SE;SR;	200	100	0					10	0.60	15	0.73			
Hakea epiglottis subsp. *epiglottis*	HaEE;			B	KI;NM;NS;FL;	200	100	0					40	0.67	59	0.69			Y
Hakea microcarpa	HaMi;			B	NM;	200	100	0					73	0.33	159	0.33			
Hakea nodosa	HaNo;			B	CH;	200	100	0					19	0.21	31	0.39			
Hakea teretifolia subsp. *hirsuta*	HaTH;			B	KI;SR;	200	100	0					43	0.58	82	0.60			
Hakea ulicina	HaUl;		v	P		200	100	0					9	0.33	23	0.35			
Haloragis aspera	HaAs;		v	P		200	500	0	Y				3	1.00	3	1.00			
Haloragis brownii	HaBr;			B	FL;WSW;	200	100	0					5	0.60	5	0.60			
Haloragis heterophylla	HaHe;		r	P		200	500	0	Y				32	0.38	72	0.43			
Haloragis myriocarpa	HaMy;		r	P		200	100	0					4	0.50	4	0.50			
Hardenbergia violacea	HaVi;		e	P		200	100	0					1	1.00	2	1.00	P		
Hedycarya angustifolia	HeAng;		r	P		200	500	0	Y				5	0.60	15	0.53			
Helichrysum leucopsideum	HeLe;			B	BL;NS;SR;	200	100	0					13	0.31	19	0.42			
Helichrysum pumilum	HePu;			B	KI;NS;SE;	200	100	0					49	0.96	91	0.98			Y
Helichrysum pumilum var *pumilum*	HePu;			B	KI;NS;SE;	200	100	0					49	0.96	91	0.98			Y
Helichrysum pumilum var *spathulatum*	HePu;			B	KI;NS;SE;	200	100	0					49	0.96	91	0.98			Y

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Hemarthria uncinata var. *uncinata*	HeUU;			B	BL;	200	100	0					51	0.39	75	0.40			
Hemichroa pentandra	HePe;			B	KI;	200	100	0					12	0.42	15	0.40			
Herpolirion novae-zelandiae	Henz;			B	NS;NM;SR;SE;	200	100	0					23	0.87	40	0.90			
Heterozostera tasmanica	HeTa;			B	SR;WSW;	200	100	0					12	0.33	13	0.38			
Hibbertia acicularis	HiAc;			B	SR;	200	100	0					43	0.53	70	0.51			
Hibbertia appressa	HiAp;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					12	0.67	14	0.71			
Hibbertia basaltica	HiBa;	EN	e	P		200	100	0					3	0.00	7	0.29	P		Y
Hibbertia calycina	HiCa;		v	P		200	100	0					1	1.00	3	1.00	P		
Hibbertia empetrifolia subsp. *empetrifolia*	HiEE;			B	CH;NM;	200	100	0					69	0.64	146	0.65			
Hibbertia hirsuta	HiHir;			B	CH;	200	100	0					73	0.19	144	0.24			Y
Hibbertia hirticalyx	HiHi;			B	KI;NS;	200	100	0					27	0.41	41	0.46			
Hibbertia rufa	HiRu;		r	P		200	100	0					3	0.67	6	0.67			
Hibbertia sericea var *sericea*	HiSS;			B	NS;WSW;BL;SR;	200	100	0					30	0.50	62	0.56			
Hibbertia virgata	HiVi;		r	P		200	100	0					10	0.50	17	0.47			
Hierochloe rariflora	HiRa;		r	P		200	100	0					15	0.80	38	0.66			
Hierochloe redolens	HiRe;			B	KI;NM;	200	100	0					57	0.89	87	0.92			
Hookerochloa hookeriana	AuHo;			B	FL;NM;	200	100	0					22	0.45	32	0.50			
Hovea corrickiae	HoCo;		r	P		200	500	0					10	0.70	20	0.75			
Hovea longifolia	HoLo;		pr	P		200	100	0					6	0.33	7	0.43			
Hovea magnibractea	HoMa;			B	BL;NM;	200	100	0					-1	-1.00	-1	-1.00	P		

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Hovea montana	HoMo;		r	P	FL;NS;	200	100	0					12	0.58	25	0.52			
Hovea tasmanica	HoTa;		r	P	CH;FL;NS;	200	100	0					35	0.46	54	0.46			Y
Hyalosperma demissum	HyDe;		e	P		200	100	0					15	0.40	29	0.55			
Hydrocotyle callicarpa	HyCal;			B	SR;	200	100	0					35	0.51	58	0.45			
Hydrocotyle capillaris	HyCap;			B	NS;BL;SR;	200	100	0					28	0.36	34	0.38			
Hydrocotyle comocarpa	HyCo;		r	P		200	100	0					3	0.33	4	0.50	P		
Hydrocotyle foveolata	HyFo;			B	SE;SR;BK;CH;NS;	200	100	0					29	0.38	41	0.39			
Hydrocotyle laxiflora	HyLa;		e	P		200	500	0					1	0.00	2	0.00	P		
Hydrocotyle muscosa	HyMus;			B	BL;NM;	200	100	0					67	0.54	120	0.54			
Hydrocotyle pterocarpa	HyPt;			B	NM;BL;SR;	200	100	0					30	0.47	35	0.46			
Hydrocotyle sibthorpioides	HySi;			B	NM;	200	100	0					183	0.56	367	0.60			
Hydrocotyle tripartita	HyTr;			B	WSW;NM;	200	100	0					2	0.50	2	0.50	P		
Hydrorchis orbicularis	HyOr;		r	P		200	100	0					9	0.22	11	0.27			
Hymenophyllum marginatum	HyMa;			B	KI;FL;BL;	200	100	0					22	0.86	30	0.83			
Hypolaena fastigiata	HyFa;			B	NM;	200	100	0					63	0.60	127	0.61			
Hypolepis distans	HyDi;	EN	e	P		200	100	0					8	0.38	11	0.27			
Hypolepis glandulifera	HyGl;			B	NS;	200	100	0					12	0.58	14	0.50			
Hypolepis muelleri	HyMu;		r	P		200	100	0					26	0.46	38	0.47			
Hypoxis glabella var *glabella*	HyGG;			B	KI;NS;SR;	200	100	0					49	0.27	76	0.24			
Hypoxis hygrometrica	HyHy;			B	KI;NS;WSW;	200	100	0					60	0.35	92	0.29			
Hypoxis hygrometrica var *hygrometrica*	HyHy;			B	KI;NS;WSW;	200	100	0					60	0.35	92	0.29			

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Hypoxis hygrometrica var *villosisepala*	HyHy;			B	KI;NS;WSW;	200	100	0					60	0.35	92	0.29			
Hypoxis vaginata	HyVa;		r	P		200	100	0					32	0.41	64	0.42			
Hypoxis vaginata var. *brevistigmata*	HyVaB;		pr	P		200	100	0					22	0.23	40	0.17			
Hypoxis vaginata var. *vaginata*	HyVaV;		pr	P		200	100	0					23	0.26	40	0.20			
Imperata cylindrica var. *major*	ImCM;			B	NS;	200	100	0					7	0.14	9	0.22	P		
Indigofera australis subsp. *australis*	InAu;			B	KI;	200	100	0					97	0.54	158	0.56			
Isachne globosa	IsGl;			B	SE;	200	100	0					1	0.00	2	0.00	P		
Isoetes drummondii subsp. *drummondii*	IsDD;		r	P		200	100	0					11	0.64	17	0.76			
Isoetes elatior	IsEl;		r	P		200	100	0					7	0.00	11	0.00	P		Y
Isoetes gunnii	IsGu;			B	NS;BL;	200	100	0					20	0.95	23	0.96			Y
Isoetes humilior	IsHu;		r	P		200	100	0					9	0.78	11	0.73			Y
Isoetes muelleri	IsMu;			B	SE;BL;CH;NM;	200	100	0					16	0.25	21	0.19			
Isoetes sp. *Maxwell River*	IsMR;		r	P		200	100	0					2	1.00	4	1.00			Y
Isoetopsis graminifolia	IsGr;		v	P		200	100	0					9	0.33	22	0.36			
Isolepis crassiuscula	IsCr;			B	NM;	200	100	0					33	0.67	45	0.73			
Isolepis habra	IsHa;		r	P		200	500	0	Y				8	0.75	8	0.75			
Isolepis hookeriana	IsHo;			B	NM;	200	100	0					15	0.53	16	0.56			
Isolepis limbata	IsLi;			B	NS;BL;SR;	200	100	0					11	0.82	12	0.83			Y
Isolepis marginata	IsMa;			B	SR;NS;CH;	200	100	0					49	0.45	65	0.49			

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Isolepis montivaga	IsMo;			B	KI;NS;FL;NM; BL;	200	100	0					29	0.34	32	0.38			
Isolepis platycarpa	IsPl;			B	BL;CH;	200	100	0					33	0.36	39	0.44			
Isolepis producta	IsPr;			B	KI;NS;NM;BL; SR;	200	100	0					16	0.75	19	0.74			
Isolepis stellata	IsSt;		r	P		200	100	0					3	0.67	3	0.67			
Isolepis subtilissima	IsSu;			B	NM;	200	100	0					55	0.69	74	0.70			
Isolepis tasmanica	IsTas;			B	KI;NS;SR;	200	100	0					6	1.00	6	1.00			Y
Isolepis wakefieldiana	IsWa;			B	BL;CH;KI;NM; NS;SE;SR;WS W;	200	100	0					6	0.50	6	0.50			
Isophysis tasmanica	IsTa;			B	SE;NS;	200	100	0					26	0.96	45	0.98			Y
Isopogon ceratophyllus	IsCe;		v	P		200	100	0					12	0.33	28	0.36			
Isotoma fluviatilis subsp. *australis*	IsFA;			B	KI;NS;FL;WS W;NM;BL;	200	100	0					20	0.55	27	0.48			
Juncus amabilis	JuAm;		r	P		200	100	0					49	0.08	87	0.07	P		
Juncus antarcticus	JuAn;			B	BL;SE;	200	100	0					10	0.50	12	0.58			
Juncus astreptus	JuAs;			B	KI;WSW;	200	100	0					69	0.39	117	0.46			Y
Juncus bassianus	JuBa;			B	FL;NM;	200	100	0					75	0.53	123	0.58			
Juncus caespiticius	JuCa;			B	NM;SR;	200	100	0					37	0.43	49	0.53			
Juncus curtisiae	JuCu;			B	KI;NM;	200	100	0					33	0.73	42	0.76			Y
Juncus falcatus subsp. *falcatus*	JuFa;			B	NS;WSW;NM; BL;SE;	200	100	0					26	0.38	29	0.38			
Juncus filicaulis	JuFi;			B	BL;NM;KI;FL; WSW;	200	100	0					47	0.19	70	0.19			
Juncus fockei	JuFo;		r	P		200	100	0					3	0.33	3	0.33	P		

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Juncus gregiflorus	JuGr;			B	SR;CH;BL;	200	100	0					27	0.59	29	0.59			
Juncus holoschoenus	JuHo;			B	SR;KI;NS;CH;BL;	200	100	0					49	0.35	63	0.35			
Juncus kraussii subsp. *australiensis*	JuKA;			B	CH;NS;	200	100	0					79	0.42	135	0.44			
Juncus planifolius	JuPl;			B	NM;	200	100	0					112	0.43	175	0.45			
Juncus prismatocarpus	JuPr;		r	P		200	100	0					5	0.40	5	0.40	P		
Juncus revolutus	JuRe;			B	NM;KI;NS;CH;	200	100	0					8	0.13	8	0.13	P		
Juncus sandwithii	JuSa;			B	FL;NM;NS;	200	100	0					21	0.71	26	0.65			
Juncus sarophorus	JuSar;			B	KI;NM;NS;	200	100	0					122	0.18	208	0.16			
Juncus subsecundus	JuSu;			B	KI;NS;FL;WSW;BL;	200	100	0					62	0.18	87	0.22			
Juncus vaginatus	JuVa;		r	P		200	100	0					14	0.43	16	0.50			
Kennedia prostrata	KePr;			B	BL;CH;WSW;	200	100	0					78	0.47	138	0.49			
Kunzea ambigua	KuAm;			B	NS;	200	100	0					40	0.55	84	0.58			
Lachnagrostis aemula	LaAem;			B	BL;NM;NS;	200	100	0					55	0.51	75	0.45			
Lachnagrostis billardierei subsp. *billardierei*	LaBB;			B	WSW;SE;	200	100	0					9	0.89	9	0.89			
Lachnagrostis billardierei subsp. *tenuiseta*	LaBT;		r	P		200	100	0					4	0.25	5	0.40	P		Y
Lachnagrostis punicea subsp. *filifolia*	LaPF;		r	P		200	100	0					2	0.50	4	0.25	P		
Lachnagrostis punicea subsp. *punicea*	LaPP;		r	P		200	100	0					8	0.00	8	0.00	P		
Lachnagrostis robusta	LaRo;		r	P		200	100	0					5	0.20	9	0.22	P		
Lachnagrostis scabra subsp. *scabra*	LaSS;		r	P		200	100	0					20	0.65	33	0.67			

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Lagarostrobos franklinii	LaFr;			B	SE;	200	100	0					29	0.90	49	0.94			Y
Lagenophora gracilis	LaGr;			B	BL;FL;SR;WSW;	200	100	0					11	0.55	12	0.58			
Lagenophora huegelii	LaHu;			B	CH;KI;NS;	200	100	0					43	0.35	68	0.29			
Lagenophora montana	LaMo;			B	NS;NM;SR;SE;	200	100	0					9	0.78	11	0.82			
Lasiopetalum baueri	LaBa;		r	P	NS;	200	200	0					9	0.67	14	0.57			
Lasiopetalum discolor	LaDi;		r	P		200	100	0					2	0.50	5	0.80	P		
Lasiopetalum micranthum	LaMi;		r	P		200	100	0					4	0.75	14	0.21			Y
Lastreopsis hispida	LaHi;			B	BL;NS;	200	100	0					13	0.77	15	0.80			
Lawrencia spicata	LaSp;			B	NM;WSW;	200	100	0					17	0.35	20	0.35			
Laxmannia orientalis	LaOr;			B	SR;BL;NM;	200	100	0					38	0.58	51	0.57			
Leiocarpa supina	LeSu;			B	FL;	200	100	0					-1	-1.00	-1	-1.00	P		
Leionema bilobum subsp. *truncatum*	LeBT;			B	NM;	200	100	0					13	0.69	22	0.73			Y
Lemna disperma	LeDi;			B	NM;NS;WSW;SE;SR;	200	100	0					31	0.39	39	0.38			
Lemna trisulca	LeTr;			B	FL;	200	100	0					11	0.45	19	0.47			
Lepidium desvauxii	LeDe;			B	NM;NS;WSW;	200	100	0					12	0.67	16	0.69			
Lepidium flexicaule	LeFl;		r	P		200	100	0					3	1.00	5	1.00			
Lepidium hyssopifolium	LeHy;	EN	e	P		200	100	0					31	0.10	51	0.10	P		
Lepidium pseudotasmanicum	LePs;		r	P		200	100	0					53	0.17	101	0.17			
Lepidosperma curtisiae	LeCu;			B	SR;NS;WSW;BL;	200	100	0					41	0.37	70	0.33			
Lepidosperma forsythii	LeFo;		r	P		200	200	0					5	0.20	5	0.20	P		
Lepidosperma gladiatum	LeGl;			B	BL;	200	100	0					41	0.71	74	0.78			

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Lepidosperma globosum	LeGlb;			B	BL;FL;NM;SR;	200	100	0					10	0.40	13	0.46			Y
Lepidosperma longitudinale	LepLo;			B	CH;	200	100	0					125	0.44	226	0.45			
Lepidosperma neesii	LeNe;			B	FL;	200	100	0					1	0.00	1	0.00	P		
Lepidosperma oldfieldii	LeOl;			B	NM;	200	100	0					17	0.71	20	0.70			Y
Lepidosperma tortuosum	LeTo;		r	P		200	100	0					11	0.64	17	0.59			
Lepidosperma viscidum	LeVis;		r	P		200	100	0					7	0.57	16	0.50			
Lepilaena cylindrocarpa	LeCy;			B	KI;NM;	200	100	0					16	0.38	22	0.41			
Lepilaena marina	LeMa;		r	P	SE;	200	100	0					0		0		P		
Lepilaena patentifolia	LePa;		r	P		200	100	0					7	0.57	8	0.50			
Lepilaena preissii	LePr;		r	P	SE;	200	200	0	Y				3	0.00	3	0.00	P		
Leptecophylla abietina	LeAb;			B	SE;	200	100	0					19	0.95	37	0.95			Y
Leptecophylla divaricata	LeDiv;			B	NS;FL;CH;BL;	200	100	0					40	0.47	81	0.56			Y
Leptecophylla pogonocalyx	LePo;			B	NS;	200	100	0					23	0.91	28	0.93			Y
Leptinella filicula	LeFi;			B	KI;NM;	200	100	0					25	0.84	27	0.85			
Leptinella longipes	LeLo;			B	NS;CH;NM;	200	100	0					46	0.61	64	0.66			
Leptinella reptans	LeRe;			B	NS;	200	100	0					88	0.49	139	0.55			
Leptocarpus tenax	LeTe;			B	NM;	200	100	0					136	0.65	305	0.68			
Leptoceras menziesii	LeMe;			B	NM;NS;BL;SE; SR;	200	100	0					9	0.67	12	0.58			
Leptomeria glomerata	LeGlm;			B	NM;NS;SE;	200	100	0					23	1.00	27	1.00			Y
Leptorhynchos elongatus	LeEl;		e	P		200	100	0					4	0.25	6	0.17	P		
Leptorhynchos nitidulus	LehNi;			B	SR;NS;FL;NM; BL;	200	100	0					35	0.31	51	0.39			

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Leptorhynchos squamatus subsp. *alpinus*	LeSA;			B	BL;SE;SR;	200	100	0					8	0.50	11	0.45			
Leptospermum grandiflorum	LeGr;			B	NS;BL;SR;	200	100	0					12	0.58	26	0.50			Y
Leptospermum laevigatum	LeLae;			B	SE;SR;NS;WSW;BL;	200	100	0					33	0.52	75	0.64			
Leptospermum nitidum	LesNi;			B	SE;FL;	200	100	0					86	0.83	182	0.88			Y
Leptospermum riparium	LeRi;			B	NS;NM;	200	100	0					21	0.90	31	0.94			Y
Leptospermum rupestre	LeRup;			B	KI;NM;	200	100	0					37	0.89	80	0.92			Y
Leucochrysum albicans var *tricolor*	LeAl;	EN	e	P	KI;NS;SE;SR;	200	100	0					20	0.35	43	0.42			
Leucophyta brownii	LeBr;			B	KI;NS;SR;SE;	200	100	0					16	0.81	30	0.77			
Leucopogon affinis	LeAf;		r	P	Ki;	200	100	0					10	0.40	17	0.35			
Leucopogon esquamatus	LeEs;		r	P		200	200	0					3	0.33	10	0.30	P		
Leucopogon fraseri	LeFr;			B	NS;FL;WSW;BL;	200	100	0					51	0.57	89	0.56			
Leucopogon lanceolatus var. *lanceolatus*	LeAf;		r	P	KI;	200	100	0					10	0.40	17	0.35			
Leucopogon pilifer	LePi;			B	NS;NM;	200	100	0					17	1.00	30	1.00			
Leucopogon virgatus var. *brevifolius*	LeViB;		r	P		200	500	0					6	0.33	9	0.22			
Libertia pulchella	LiPu;			B	SE;	200	100	0					45	0.82	89	0.82			
Libertia pulchella var *pygmaea*	LiPu;			B	SE;	200	100	0					45	0.82	89	0.82			Y
Libertia pulchella var. *pulchella*	LiPu;			B	SE;	200	100	0					45	0.82	89	0.82			
Limonium australe var. *australe*	LiAA;		r	P		200	100	0					9	0.22	13	0.15			

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Limonium australe var. *baudinii*	LiBa;	VU	v	P		200	500	0					2	0.50	2	0.50	P		Y
Limosella australis	LiAu;			B	NM;	200	100	0					36	0.42	47	0.47			
Lindsaea linearis	LiLi;			B	NM;	200	100	0					118	0.68	234	0.66			
Linum marginale	LiMa;			B	NS;BL;	200	100	0					90	0.33	151	0.36			
Liparophyllum exaltatum	VeEx;		r	P		200	100	0					6	0.50	7	0.43			
Liparophyllum exiguum	LiEx;			B	NM;	200	100	0					34	0.71	49	0.67			Y
Lobelia anceps	LoAn;			B	FL;SE;	200	100	0					74	0.62	133	0.59			
Lobelia irrigua	LoIr;			B	NM;WSW;	200	100	0					23	0.30	33	0.21			
Lobelia pratioides	LoPr;		v	P		200	100	0					11	0.45	16	0.56			
Lobelia rhombifolia	LoRh;		r	P		200	100	0					4	1.00	4	1.00			
Lobelia surrepens	LoSu;			B	NM;NS;SE;	200	100	0					15	0.60	17	0.53			
Lomandra nana	LoNa;			B	SR;CH;BL;	200	100	0					53	0.32	121	0.36			
Lotus australis	LoAu;		r	P		200	100	0					17	0.82	28	0.86			
Luzula atrata	LuAt;		r	P	SR;	200	100	0					5	1.00	5	1.00			
Luzula australasica subsp. *australasica*	LuAA;			B	NS;BL;NM;	200	100	0					20	0.60	33	0.70			Y
Luzula meridionalis	LuMe;			B	NM;	200	100	0					36	0.42	48	0.38			
Luzula modesta	LuMo;			B	KI;NM;SE;	200	100	0					16	0.69	26	0.77			
Lycopodiella diffusa	LyDi;			B	SE;KI;NS;	200	100	0					25	0.80	38	0.84			
Lycopodiella lateralis	LyLa;			B	NS;BL;	200	100	0					51	0.73	85	0.79			
Lycopodium fastigiatum	LyFa;			B	KI;NM;	200	100	0					80	0.81	175	0.86			
Lycopus australis	LyAu;		e	P		200	100	0					9	0.33	11	0.36			
Lyperanthus suaveolens	LySu;			B	SR;KI;NS;WSW;	200	100	0					21	0.48	27	0.48			

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Lythrum hyssopifolia	LyHy;			B	SE;SR;NS;WSW;BL;	200	100	0					50	0.14	71	0.17			
Lythrum salicaria	LySa;		v	P		200	100	0					16	0.13	25	0.20	P		
Malva australiana	MaAu;			B	KI;NM;NS;SE;	200	100	0					1	0.00	1	0.00	P		
Malva preissiana	MaPr;			B	KI;NS;WSW;NM;SE;	200	200	0					2	0.50	5	0.80	P		
Mazus pumilio	MaPu;			B	SR;NS;CH;NM;	200	100	0					40	0.42	55	0.45			
Melaleuca armillaris subsp. *armillaris*	MeAA;			B	SE;	200	100	0					7	0.29	8	0.38			
Melaleuca gibbosa	MeGi;			B	NS;CH;NM;	200	100	0					70	0.44	144	0.49			
Melaleuca pustulata	MePu;		r	P		200	500	0	Y				11	0.36	30	0.17			Y
Melaleuca squamea	MeSq;			B	NM;	200	100	0					152	0.71	312	0.77			
Melaleuca squarrosa	MeSqu;			B	NM;	200	100	0					185	0.59	456	0.61			
Melicytus dentatus	MeDe;			B	KI;NS;FL;NM;BL;SR;	200	100	0					51	0.24	80	0.24			
Mentha australis	MeAu;		e	P		200	100	0					2	1.00	4	1.00			
Mentha diemenica	MeDi;			B	NM;NS;	200	100	0					15	0.67	21	0.76			
Mentha diemenica var. *diemenica*	MeDD;			B	NS;WSW;NM;SE;	200	100	0					3	0.67	3	0.67			
Micrantheum hexandrum	MiHe;			B	FL;	200	100	0					37	0.62	79	0.56			
Micrantheum serpentinum	MiSe;		r	P		200	500	0	Y				3	1.00	8	1.00			Y
Microseris lanceolata	MiLa;			B	KI;FL;	200	100	0					87	0.52	163	0.60			
Microtidium atratum	MiAt;		r	P		200	100	0					19	0.53	30	0.43			
Microtis parviflora	MiPrv;			B	BL;NM;CH;WSW;	200	100	0					36	0.25	48	0.29			

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Milligania densiflora	MiDe;			B	NS;	200	100	0					16	1.00	23	1.00			Y
Milligania johnstonii	MiJo;		r	P		200	100	0					3	1.00	7	1.00			Y
Milligania longifolia	MiLo;		r	P		200	100	0					4	1.00	5	1.00			Y
Millotia muelleri	MiMu;		r	P	FL;	200	100	0					1	1.00	2	1.00	P		
Millotia tenuifolia var *tenuifolia*	MiTT;			B	SR;CH;	200	100	0					38	0.37	66	0.33			
Mirbelia oxylobioides	MiOx;		v	P		200	100	0					2	0.00	5	0.60	P		
Mitrasacme pilosa	MiPi;			B	NM;	200	100	0					48	0.67	70	0.63			
Mitrasacme pilosa var. *pilosa*	MiPP;			B	NM;	200	100	0					25	0.68	29	0.72			
Mitrasacme pilosa var. *stuartii*	MiPS;			B	NM;	200	100	0					13	0.54	16	0.63			
Mitrasacme serpyllifolia	MitSe;			B	NS;SE;	200	100	0					19	0.84	34	0.79			
Monotoca elliptica	MoEp;			B	NS;BL;	200	100	0					40	0.55	71	0.55			
Monotoca glauca	MoGl;			B	NM;	200	100	0					210	0.67	599	0.67			
Monotoca linifolia	MoLi;			B	NS;	200	100	0					22	0.64	36	0.64			Y
Monotoca linifolia subsp. *algida*	MoLA;			B	NS;	200	100	0					17	0.82	23	0.78			Y
Monotoca linifolia subsp. *linifolia*	MoLL;			B	NS;	100	100	0					8	0.75	12	0.75			Y
Monotoca submutica var. *autumnalis*	MoSu;		r	P	BL;NS;SE;	200	100	0					11	0.73	20	0.75			Y
Muehlenbeckia adpressa	MuAu;			B	CH;SR;WSW;	200	100	0					37	0.65	58	0.66			
Muehlenbeckia axillaris	MuAx;		r	P		200	100	0					27	0.30	48	0.31			
Muehlenbeckia gunnii	MuGu;			B	SR;FL;	200	100	0					49	0.51	92	0.51			
Myoporum insulare	MyIn;			B	NS;	200	100	0					49	0.59	89	0.61			

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Myoporum parvifolium;	MyPa;		v	P	FL;	200	200	0					3	0.67	4	0.50			
Myosotis australis	MyAu;			B	NM;NS;	200	100	0					53	0.58	77	0.61			
Myosotis exarrhena	MyEx;			B	NS;	200	100	0					4	0.75	6	0.67			
Myosurus australis	MyAu;		e	P		200	100	0					53	0.58	77	0.61			
Myriophyllum amphibium	MyAm;			B	CH;BL;SE;	200	100	0					20	0.50	29	0.52			
Myriophyllum austropygmaeum	MyAus;			B	KI;NS;NM;BL; SR;	200	100	0					16	0.94	21	0.95			Y
Myriophyllum integrifolium	MyIn;		v	P		200	100	0					49	0.59	89	0.61			
Myriophyllum muelleri	MyMu;		r	P		200	100	0					6	0.67	7	0.71			
Myriophyllum pedunculatum	MyPe;			B	KI;NS;	200	100	0					37	0.62	50	0.60			
Myriophyllum pedunculatum var *longibracteolatum*	MyPL;			B	KI;FL;	200	100	0					-1	-1.00	-1	-1.00	P		
Myriophyllum pedunculatum var *pedunculatum*	MyPP;			B	KI;NM;NS;	200	100	0					22	0.73	30	0.80			
Myriophyllum salsugineum	MySa;			B	BL;NS;NM;	200	100	0					46	0.28	67	0.30			
Myriophyllum simulans	MySi;			B	NM;KI;WSW;	200	100	0					24	0.25	36	0.25			
Myriophyllum variifolium	MyVa;			B	SR;BL;NS;FL; WSW;NM;	200	100	0					12	0.33	14	0.36			
Nematolepis squamea	NeSq;			B	NM;	200	100	0					149	0.63	385	0.65			
Nematolepis squamea subsp. *retusa*	NeSq;			B	NM;	200	100	0					149	0.63	385	0.65			Y
Nematolepis squamea subsp. *squamea*	NeSS;			B	NM;	200	100	0					44	0.68	58	0.71			

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Nothofagus cunninghamii	NoCu;			B	NM;	200	100	0					194	0.73	623	0.72			
Odixia achlaena	OdAc;		r	P		200	500	0					4	0.50	11	0.45			Y
Olearia algida	OlAl;			B	SE;NS;NM;	200	100	0					42	0.48	74	0.50			
Olearia ciliata	OlCi;			B	NM;	200	100	0					13	0.54	18	0.50			
Olearia ericoides	OlEr;			B	SR;CH;BL;	200	100	0					22	0.14	28	0.18			Y
Olearia erubescens	OlEru;			B	NM;	200	100	0					93	0.60	158	0.61			
Olearia floribunda	OlFl;			B	SR;KI;NS;FL; WSW;NM;BL;	200	100	0					26	0.38	35	0.37			
Olearia glandulosa	OlGl;			B	KI;NS;FL;NM;	200	100	0					35	0.40	47	0.40			
Olearia glutinosa	OlGlu;			B	NS;WSW;CH;	200	100	0					8	0.50	17	0.71			
Olearia hookeri	OlHo;		r	P		200	100	0					5	0.60	9	0.56			Y
Olearia lepidophylla	OlLe;			B	SE;	200	100	0					25	0.80	36	0.86			
Olearia myrsinoides	OlMy;			B	KI;FL;NM;	200	100	0					58	0.48	92	0.48			
Olearia obcordata	OlOb;			B	SE;SR;NM;	200	100	0					16	0.81	25	0.84			Y
Olearia pinifolia	OlPi;			B	NM;	200	100	0					25	0.96	48	0.96			Y
Olearia stellulata	OlSt;			B	NM;	200	100	0					89	0.70	157	0.65			
Olearia tasmanica	OlTa;			B	NM;NS;	200	100	0					25	0.88	28	0.89			Y
Opercularia ovata	OpOv;			B	KI;NS;CH;SE;	200	100	0					29	0.21	47	0.19			
Opercularia varia	OpVa;			B	CH;	200	100	0					89	0.48	149	0.56			
Ophioglossum lusitanicum subsp. *coriaceum*	OpLC;			B	BL;NS;	200	100	0					41	0.56	53	0.51			
Oreobolus acutifolius	OrAc;			B	NS;	200	100	0					22	0.95	38	0.97			Y
Oreobolus distichus	OrDis;			B	NM;WSW;	200	100	0					38	0.87	80	0.92			
Oreobolus oligocephalus	OrOl;			B	NS;BL;SR;	200	100	0					15	0.93	20	0.95			Y

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Oreomyrrhis argentea	OrAl;			B	KI;WSW;	200	100	0					5	0.60	7	0.43			
Oreomyrrhis ciliata	OrCi;			B	NS;SE;	200	100	0					34	0.71	57	0.74			
Oreomyrrhis eriopoda	OrEr;			B	KI;FL;NM;	200	100	0					64	0.67	114	0.75			
Oreomyrrhis sessiliflora	OrSe;			B	NS;WSW;	200	100	0					11	0.91	16	0.88			Y
Orites diversifolius	OrDi;			B	BL;NS;	200	100	0					50	0.90	100	0.90			Y
Orites milliganii	OrMi;		r	P		200	100	0					13	0.92	24	0.79			Y
Ornduffia reniformis	OrRe;			B	BL;WSW;	200	100	0					74	0.43	121	0.48			
Orthoceras strictum	OrSt;		r	P		200	100	0					18	0.56	20	0.55			
Oschatzia saxifraga	OsSa;			B	NS;	200	100	0					16	1.00	30	1.00			Y
Oxalis magellanica	OxMa;			B	SE;KI;NM;	200	100	0					65	0.69	113	0.77			
Oxalis radicosa	OxRa;			B	FL;SE;	200	100	0					6	0.17	6	0.17	P		
Oxylobium arborescens	OxAr;			B	KI;FL;SR;SE;	200	100	0					44	0.61	72	0.61			
Ozothamnus antennaria	OzAn;			B	NM;	200	100	0					35	0.66	50	0.70			Y
Ozothamnus argophyllus	OzAr;			B	KI;NM;	200	100	0					1	1.00	1	1.00	P		
Ozothamnus costatifructus	OzCo;			B	BL;SR;FL;CH;	200	100	0					13	0.31	18	0.28			Y
Ozothamnus ericifolius	OzEr;			B	BL;NS;FL;NM;	200	100	0					13	0.77	23	0.61			Y
Ozothamnus hookeri	OzHo;			B	NM;	200	100	0					34	0.62	75	0.79			Y
Ozothamnus ledifolius	OzLe;			B	SE;NM;	200	100	0					20	0.80	31	0.87			Y
Ozothamnus lycopodioides	OzLy;		r	P		200	500	0	Y				4	1.00	16	0.69			Y
Ozothamnus reflexifolius	OzRe;	VU	v	P		200	100	0					1	1.00	1	1.00	P		Y
Ozothamnus rodwayi	OzRod;			B	SE;	200	100	0					14	1.00	25	1.00			Y
Ozothamnus rodwayi var *rodwayi*	OzRR;			B	FL;NS;	200	100	0					33	0.94	55	0.96			Y

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Ozothamnus rodwayi var. *kingii*	OzRK;			B	SE;	200	100	0					5	0.80	8	0.88			Y
Ozothamnus rosmarinifolius	OzRo;			B	KI;NS;FL;NM;	200	100	0					49	0.55	59	0.54			
Ozothamnus scutellifolius	OzSc;			B	CH;	200	100	0					26	0.31	54	0.43			Y
Ozothamnus thyrsoideus	OzTh;			B	FL;	200	100	0					68	0.51	101	0.58			
Ozothamnus turbinatus	OzTu;			B	BL;NS;	200	100	0					33	0.79	52	0.85			
Pandorea pandorana	PaPa;		r	P		200	100	0					1	0.00	4	0.75	P		
Paracaleana minor	PaMi;			B	CH;NS;SR	200	100	0					19	0.58	26	0.54			
Parietaria debilis	PaDe;		r	P		200	100	0					12	0.58	26	0.65			
Parsonsia brownii	PaBr;			B	NM;	200	100	0					61	0.67	104	0.66			
Patersonia fragilis	PaFr;			B	NS;NM;BL;	200	100	0					128	0.56	257	0.61			
Patersonia occidentalis var. *occidentalis*	PaOO;			B	CH;	200	100	0					33	0.70	57	0.65			
Pelargonium inodorum	PeIn;			B	SR;NS;NM;	200	100	0					41	0.51	57	0.51			
Pelargonium littorale	PeLi;			B	SE;SR;KI;FL;WSW;	200	100	0					8	0.38	10	0.50			
Pellaea calidirupium	PeCa;		r	P		200	100	0					19	0.42	32	0.44			
Pellaea falcata	PeFa;			B	SR;KI;CH;NM;	200	100	0					37	0.59	53	0.60			
Pentachondra ericifolia	PeEr;		r	P		200	100	0					12	0.67	19	0.68			Y
Pentachondra involucrata	PeInv;			B	KI;BL;	200	100	0					24	0.83	42	0.86			Y
Pentachondra pumila	PePum;			B	SE;NS;NM;	200	100	0					54	0.85	140	0.90			
Pentapogon quadrifidus	PeQu;			B	KI;	200	100	0					127	0.30	234	0.32			
Pentapogon quadrifidus var *parviflorus*	PeQD;			B	KI;	200	100	0					34	0.85	42	0.83			Y

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Pentapogon quadrifidus var *quadrifidus*	PeQQ;			B	KI;	200	100	0					14	0.57	16	0.56			
Persicaria decipiens	PeDe;		v	P		200	500	0	Y				21	0.29	32	0.25			
Persicaria hydropiper	PeHy;			B	KI;NS;BL;	200	100	0					6	0.17	10	0.10	P		
Persicaria praetermissa	PePra;			B	NS;FL;NM;SE;	200	100	0					9	0.33	10	0.40			
Persicaria subsessilis	PeSu;		e	P		200	500	0	Y				5	0.80	7	0.71			
Persoonia gunnii	PeGun;			B	BL;CH;NM;NS;	200	100	0					48	0.85	87	0.90			Y
Persoonia moscalii	PeMo;		r	P		200	100	0					3	1.00	5	1.00			Y
Persoonia muelleri	PeMue;			B	SE;	200	100	0					11	1.00	17	1.00			Y
Persoonia muelleri subsp. *angustifolia*	PeMu;		r	P		200	100	0					19	0.74	30	0.67			Y
Phebalium daviesii	PhDa;	CR	e	P		200	500	0	Y				4	1.00	6	0.83			Y
Pheladenia deformis	PhDe;			B	BL;KI;	200	100	0					23	0.43	34	0.38			
Pherosphaera hookeriana	PhHo;		v	P		200	100	0					12	0.92	27	0.96			Y
Philotheca freyciana	PhFr;	EN	e	P		200	100	0					2	1.00	2	1.00			Y
Philotheca verrucosa	PhVe;			B	SR;KI;NS;FL;	200	100	0					30	0.43	47	0.45			
Philotheca virgata	PhVi;			B	BL;NS;FL;BL;	200	100	0					35	0.57	73	0.66			
Phragmites australis	PhrAu;			B	SR;NS;CH;BL;	200	100	0					49	0.35	65	0.29			
Phyllangium distylis	PhDis;		r	P		200	200	0					13	0.46	17	0.59			
Phyllangium divergens	PhDiv;		v	P		200	100	0					22	0.64	38	0.68			
Phyllanthus australis	PhyAu;			B	SR;KI;FL;CH;NM;	200	100	0					24	0.54	36	0.53			
Phyllocladus aspleniifolius	PhAs;			B	NM;	200	100	0					146	0.73	391	0.76			Y
Phylloglossum drummondii	PhDr;		r	P		200	100	0					10	0.60	13	0.62			

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Phyllota diffusa	PhDif;			B	SR;NS;NM;	200	100	0					13	0.62	24	0.54			Y
Picris angustifolia	PiAn;			B	BL;NM;NS;	200	100	0					35	0.77	53	0.77			
Picris angustifolia subsp. *angustifolia*	PiAA;			B	BL;NM;NS;	200	100	0					24	0.71	26	0.73			
Picris angustifolia subsp. *merxmuelleri*	PiAM;			B	BL;NM;NS;	200	100	0					2	0.50	2	0.50	P		
Pilularia novae-hollandiae	PiNo;		r	P		200	100	0					10	0.30	11	0.27			
Pimelea axiflora subsp. *axiflora*	PiAx;		e	P		200	100	0					2	0.50	7	0.57	P		
Pimelea curviflora	PiCur;		pr	P	BL;NM;	200	100	0					27	0.30	41	0.34			
Pimelea curviflora var. *gracilis*	PiCG;		r	P	BL;FL;NM;SR;SE;	200	100	0					25	0.20	40	0.22			
Pimelea curviflora var. *sericea*	PiCS;		r	P	FL;NM;	200	100	0					1	0.00	4	0.50	P		
Pimelea filiformis	PiFi;			B	FL;	200	500	0					13	0.46	31	0.48			Y
Pimelea flava subsp. *flava*	PiFF;		r	P		200	100	0					26	0.50	64	0.44			
Pimelea glauca	PiGla;			B	SR;KI;CH;BL;	200	100	0					46	0.43	67	0.43			
Pimelea ligustrina subsp. *ligustrina*	PiLL;			B	FL;	200	100	0					68	0.44	101	0.50			
Pimelea milliganii	PiMi;		r	P		200	100	0					6	1.00	9	1.00			Y
Pimelea pauciflora	PiPa;			B	NM;SE;	200	500	0					39	0.28	80	0.30			
Pimelea pygmaea	PiPy;			B	NS;	200	100	0					12	0.75	20	0.70			Y
Pimelea serpyllifolia subsp. *serpyllifolia*	PiSS;			B	KI;NS;WSW;;BL;SE;	200	100	0					15	0.73	24	0.75			
Planocarpa nitida	PlNi;		r	P		200	100	0					7	1.00	12	1.00			Y
Planocarpa petiolaris	PlPe;			B	NM;NS;	200	100	0					33	0.85	55	0.89			Y

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Planocarpa sulcata	PlSu;		r	P		200	100	0					10	0.90	16	0.75			Y
Plantago antarctica	PlAn;			B	SE;BL;	200	100	0					12	0.25	15	0.27			
Plantago bellidioides	PlBe;			B	NS;	200	100	0					10	0.70	17	0.71			Y
Plantago daltonii	PlDa;			B	NM;	200	100	0					26	0.85	38	0.89			Y
Plantago debilis	PlDe;		r	P		200	100	0					14	0.79	23	0.70			
Plantago gaudichaudii	PlGa;		v	P		200	100	0					1	1.00	1	1.00	P		
Plantago glabrata	PlGlb;			B	WSW;NM;	200	100	0					34	0.65	59	0.75			Y
Plantago glacialis	PlGlc;		r	P	SR;WSW;	200	100	0					6	0.83	7	0.86			
Plantago tasmanica	PlTa;			B	FL;	200	100	0					44	0.75	70	0.77			Y
Plantago tasmanica var *tasmanica*	PlTa;			B	FL;	200	100	0					44	0.75	70	0.77			Y
Plantago tasmanica var. *archeri*	PlTa;			B	FL;	200	100	0					44	0.75	70	0.77			Y
Plantago triantha	PlTr;			B	SE;KI;FL;BL;CH;	200	100	0					19	0.74	34	0.82			
Platylobium obtusangulum	PlOb;			B	BL;CH;KI;	200	100	0					16	0.50	28	0.61			
Pleurosorus rutifolius	PlRu;			B	FL;NM;NS;	200	100	0					23	0.22	30	0.23			
Pneumatopteris pennigera	PnPe;		e	P		200	100	0					6	0.50	12	0.50			
Poa clelandii	PoCl;			B	BL;NM;	200	100	0					37	0.54	44	0.55			
Poa fawcettiae	PoFa;			B	KI;CH;BL;SR;	200	100	0					5	0.80	7	0.86			
Poa halmaturina	PoHa;		r	P		200	100	0					2	1.00	7	0.57			
Poa hiemata	PoHi;			B	WSW;BL;SR;	200	100	0					5	1.00	5	1.00			
Poa hookeri	PoHo;			B	CH;	200	100	0					53	0.34	98	0.36			
Poa jugicola	PoJu;			B	SE;	200	100	0					7	0.57	9	0.67			Y

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Poa mollis	PoMo;		r	P		200	100	0					12	0.58	23	0.61			Y
Poa poiformis var. *ramifer*	PoPR;		r	P	NS;	200	100	0					11	0.64	15	0.67			
Poa rodwayi	PoRo;			B	FL;	200	100	0					160	0.44	369	0.48			
Poa tenera	PoTe;			B	KI;	200	100	0					113	0.50	214	0.52			
Podocarpus lawrencei	PoLa;			B	NM;	200	100	0					37	0.84	58	0.86			
Podolepis jaceoides	PoJa;			B	KI;NS;FL;WSW;	200	100	0					46	0.46	68	0.50			
Polyscias sp. *Douglas-Denison*	PoDD;		e	P		200	100	0					2	1.00	3	1.00			
Pomaderris apetala subsp. *apetala*	PoAA;			B	KI;NM;	200	100	0					93	0.73	139	0.73			
Pomaderris apetala subsp. *maritima*	PaAM;			B	NM;BL;SE;	200	100	0					9	0.44	10	0.50			
Pomaderris aspera	PoAs;			B	SR;NS;WSW;CH;	200	100	0					30	0.53	43	0.51			
Pomaderris elachophylla	PoEl;		v	P		200	500	0	Y				13	0.31	33	0.21			
Pomaderris elliptica var *diemenica*	PoED;			B	SR;NS;BL;NM;	200	100	0					20	0.45	23	0.52			Y
Pomaderris elliptica var *elliptica*	PoEE;			B	KI;WSW;NM;	200	100	0					49	0.57	75	0.64			
Pomaderris intermedia	PoIn;		r	P		200	100	0					24	0.29	36	0.33			
Pomaderris oraria	PoOr;		pr	P		200	100	0					5	0.60	7	0.57			
Pomaderris oraria subsp. *oraria*	PoOr;		r	P		200	100	0					5	0.60	7	0.57			
Pomaderris paniculosa subsp. *paralia*	PoPa;		r	P		200	100	0					9	0.33	21	0.57			
Pomaderris phylicifolia subsp. *ericoides*	PoPE;		pr	P		200	100	0					1	0.00	1	0.00	P		

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Pomaderris phylicifolia subsp. *phylicifolia*	PoPh;		pr	P		200	500	0	Y				22	0.45	48	0.35			
Pomaderris pilifera subsp. *pilifera*	PoPP;			B	KI;	200	100	0					80	0.55	155	0.61			
Pomaderris pilifera subsp. *talpicutica*	PoPT;	VU	e	P		200	100	0					3	1.00	4	1.00			Y
Pomaderris racemosa	PoRa;			B	NS;NM;SR;	200	100	0					23	0.43	33	0.42			
Poranthera petalifera	PoPe;	VU	v	P		200	100	0					2	1.00	3	1.00			Y
Portulaca oleracea	PoOl;			B	FL;SE;	200	100	0					6	0.00	6	0.00	P		
Potamogeton australiensis	PoAu;			B	NS;CH;NM;	200	100	0					27	0.44	35	0.54			
Potamogeton crispus	PoCr;			B	SE;SR;NM;	200	100	0					4	0.00	5	0.00	P		
Potamogeton ochreatus	PoOc;			B	SR;KI;NS;FL;CH;NM;	200	100	0					27	0.26	33	0.27			
Potamogeton perfoliatus	PoPer;			B	CH;	200	100	0					2	1.00	2	1.00			
Potamogeton tricarinatus	PoTr;			B	FL;WSW;NM;	200	100	0					34	0.35	49	0.33			
Prasophyllum alpinum	PrAl;			B	KI;NS;	200	100	0					27	0.89	37	0.89			Y
Prasophyllum amoenum	PrAm;	EN	v	P		200	100	0					3	1.00	9	1.00			Y
Prasophyllum apoxychilum	PrAp;	EN	e	P		200	100	0					14	0.57	22	0.64			Y
Prasophyllum atratum	PrAt;	CR	e	P		200	100	0					1	1.00	3	1.00	P		Y
Prasophyllum australe	PrAu;			B	NS;NM;	200	100	0					46	0.63	61	0.61			
Prasophyllum brevilabre	PrBr;			B	CH;	200	100	0					36	0.47	59	0.51			
Prasophyllum castaneum	PrCa;	CR	e	P		200	100	0					4	1.00	4	1.00			Y
Prasophyllum crebriflorum	PrCr;	EN	e	P		200	100	0					5	0.20	10	0.10	P		Y

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Prasophyllum elatum	PrEl;			B	KI;WSW;CH;BL;	200	100	0					26	0.58	37	0.57			
Prasophyllum favonium	PrFa;	CR	e	P		200	100	0					2	1.00	6	1.00			Y
Prasophyllum flavum	PrFl;			B	KI;FL;WSW;NM;BL;	200	100	0					13	0.38	14	0.36			
Prasophyllum incorrectum	PrInc;	CR	e	P		200	100	0					2	1.00	4	1.00			Y
Prasophyllum incurvum	PrIn;			B	SE;SR;	200	100	0					11	0.73	14	0.79			Y
Prasophyllum limnetes	PrLi;	CR	e	P		200	100	0					1	1.00	2	0.50	P		Y
Prasophyllum lindleyanum	PrLin;			B	KI;NS;FL;WSW;NM;BL;	200	100	0					12	0.42	20	0.50			
Prasophyllum milfordense	PrMi;	CR	e	P		200	100	0					1	0.00	1	0.00	P		Y
Prasophyllum mimulum	PrMim;			B	BL;SE;NS;WSW;	200	100	0					6	1.00	9	0.89			Y
Prasophyllum olidum	PrOl;	CR	e	P		200	100	0					1	1.00	1	1.00	P		Y
Prasophyllum perangustum	PrPe;	CR	e	P		200	500	0					1	1.00	1	1.00	P		Y
Prasophyllum pulchellum	PrPu;	CR	e	P		200	100	0					11	1.00	17	1.00			Y
Prasophyllum robustum	PrRob;	CR	e	P		200	100	0					3	0.67	3	0.67			Y
Prasophyllum rostratum	PrRos;			P		200	100	0					22	0.64	31	0.71			Y
Prasophyllum secutum	PrSe;	EN	e	P		200	100	0					10	0.60	11	0.55			Y
Prasophyllum sp. Arthurs Lake	PrALk;		e	P		200	100	0					2	0.50	2	0.50	P		
Prasophyllum stellatum	PrSt;	CR	e	P		200	500	0					3	0.33	6	0.17	P		Y
Prasophyllum tadgellianum	PrTa;		r	P		200	100	0					3	1.00	4	0.75			
Prasophyllum taphanyx	PrTap;	CR	e	P		200	100	0					1	0.00	1	0.00	P		Y

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Prasophyllum truncatum	PrTr;			B	KI;WSW;CH;NM;	200	100	0					14	0.71	17	0.76			Y
Prasophyllum tunbridgense	PrTu;	EN	e	P		200	100	0					3	1.00	6	0.83			Y
Prionotes cerinthoides	PrCe;			B	KI;NS;	200	100	0					42	0.90	85	0.89			Y
Prostanthera rotundifolia	PrRot;		v	P		200	500	0	Y				9	0.44	19	0.32			
Pseudocephalozia paludicola	PsPa;	VU		P		200	100	0					-1	-1.00	-1	-1.00	P		
Pteris comans	PtCom;			B	FL;CH;	200	100	0					28	0.79	30	0.80			
Pteris tremula	PtTr;			B	NS;FL;WSW;NM;	200	100	0					21	0.62	29	0.62			
Pterostylis alata	PtAl;			B	SR;BL;KI;	200	100	0					22	0.36	34	0.32			Y
Pterostylis aphylla	PtAp;			B	BL;FL;NS;	200	100	0					26	0.58	33	0.55			Y
Pterostylis atrans	PtAtn;			B	CH;FL;SR;	200	100	0					13	0.69	18	0.61			
Pterostylis atriola	PtAt;	EN	r	P		200	500	0					12	0.75	23	0.74			Y
Pterostylis commutata	PtCo;	CR	e	P		200	100	0					5	0.40	10	0.30	P		Y
Pterostylis concinna	PtCon;			B	FL;NM;NS;	200	100	0					17	0.24	28	0.21			
Pterostylis cucullata subsp cucullata	PtCC;	VU	e	P		200	100	0					6	0.50	16	0.56			
Pterostylis curta	PtCur;			B	KI;NS;BL;	200	100	0					13	0.62	19	0.47			
Pterostylis dubia	PtDu;			B	NS;	200	100	0					14	0.93	18	0.89			Y
Pterostylis falcata	PtFa;		e	P	NS;	200	100	0					3	0.33	3	0.33	P		
Pterostylis furcata	PtFu;			B	KI;CH;NM;BL;SR;	200	100	0					6	0.33	6	0.33			Y
Pterostylis grandiflora	PtGr;		r	P		200	100	0					11	0.36	20	0.50			
Pterostylis lustra	PtLu;		e	P		200	100	0					3	0.33	3	0.33	P		

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Pterostylis melagramma	PtMe;			B	NM;	200	100	0					69	0.54	99	0.54			
Pterostylis mutica	PtMu;			B	NM;SE;	200	100	0					1	0.00	1	0.00	P		
Pterostylis nutans	PtNu;			B	CH;	200	100	0					103	0.51	169	0.51			
Pterostylis pedoglossa	PtPe;			B	BL;NM;	200	100	0					21	0.57	31	0.65			
Pterostylis pratensis	PtPr;	VU	v	P		200	100	0					7	0.14	15	0.13	P		Y
Pterostylis rubenachii	PtRu;	EN	e	P		200	100	0					1	1.00	3	1.00	P		Y
Pterostylis sanguinea	PtSa;		r	P		200	500	0					6	0.33	11	0.36			
Pterostylis scabrida	PtSc;			B	FL;	200	100	0					26	0.77	30	0.77			Y
Pterostylis squamata	PtSq;		r	P		200	100	0					15	0.40	20	0.35			
Pterostylis stenochila	PtSt;			B	BL;CH;FL;NM;	200	100	0					13	0.62	19	0.58			Y
Pterostylis tasmanica	PtTa;			B	SR;BL;WSW;	200	100	0					19	0.63	28	0.71			
Pterostylis tunstallii	PtTu;		e	P		200	100	0					3	0.33	3	0.33	P		
Pterostylis wapstrarum	PtWa;	CR	e	P		200	100	0					3	0.00	7	0.00	P		Y
Pterostylis williamsonii	PtWi;			B	NM;NS;SR;	200	100	0					14	0.64	24	0.58			Y
Pterostylis ziegeleri	PtZi;	VU	v	P		200	100	0					20	0.50	38	0.58			Y
Pterygopappus lawrencei	PtLa;			B	BL;SE;	200	100	0					17	1.00	35	1.00			Y
Ptilotus spathulatus	PtSp;			B	FL;	200	100	0					28	0.21	58	0.22			
Ptilotus spathulatus f. spathulatus	PtSp;			B	FL;	200	100	0					28	0.21	58	0.22			
Puccinellia perlaxa	PuPer;		r	P		200	100	0					2	0.50	2	0.50	P		
Puccinellia stricta	PuSt;			B	NM;	200	100	0					21	0.24	27	0.26			
Pultenaea dentata	PuDe;			B	NM;NS;	200	100	0					71	0.63	114	0.64			
Pultenaea fasciculata	PuFa;			B	NS;SR;	200	100	0					14	0.64	24	0.75			
Pultenaea humilis	PuHu;		v	P		200	500	0					8	0.88	12	0.83			

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Pultenaea mollis	PuMo;		v	P		200	100	0					4	0.50	13	0.54			
Pultenaea pedunculata	PuPe;			B	SR;CH;FL;NS;	200	100	0					47	0.51	92	0.43			
Pultenaea prostrata	PuPr;		v	P		200	500	0					19	0.37	29	0.38			
Pultenaea sericea	PuSe;		v	P		200	100	0					4	1.00	9	0.67			
Pultenaea tenuifolia	PuTe;			B	CH;NM;BL;SE;	200	100	0					10	0.70	16	0.75			
Ranunculus acaulis	RaAc;		r	P		200	100	0					9	1.00	20	1.00			
Ranunculus amphitrichus	RaAm;			B	NM;NS;	200	100	0					76	0.46	112	0.43			
Ranunculus collicola	RaCo;		r	P		200	100	0					-1	-1.00	-1	-1.00	P		Y
Ranunculus collinus	RaCol;			B	NS;	200	100	0					19	0.74	29	0.76			
Ranunculus decurvus	RaDe;			B	WSW;NM;	200	100	0					30	0.40	50	0.48			Y
Ranunculus diminutus	RaDi;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					-1	-1.00	-1	-1.00	P		
Ranunculus glabrifolius	RaGl;			B	NM;FL;WSW;	200	100	0					38	0.63	58	0.66			
Ranunculus gunnianus	RaGu;			B	NS;BL;SR;SE;	200	100	0					8	0.88	9	0.89			
Ranunculus jugosus	RaJu;		r	P		200	100	0					6	1.00	8	1.00			Y
Ranunculus lappaceus	RaLa;			B	KI;	200	100	0					109	0.49	203	0.47			
Ranunculus pascuinus	RaPa;			B	WSW;BL;	200	100	0					12	0.75	23	0.74			Y
Ranunculus pimpinellifolius	RaPi;			B	NS;NM;	200	100	0					17	0.29	22	0.32			
Ranunculus prasinus	RaPr;	EN	e	P		200	100	0					7	0.86	9	0.78			Y
Ranunculus pumilio var. *pumilio*	RaPP;		r	P		200	100	0					14	0.21	22	0.18			
Ranunculus scapiger	RaSc;			B	FL;	200	100	0					61	0.61	124	0.62			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Ranunculus sessiliflorus var. *sessiliflorus*	RaSe;		r	P		200	100	0					31	0.45	55	0.47			
Ranunculus triplodontus	RaTr;			B	NS;NM;BL;	200	100	0					18	0.72	24	0.67			Y
Rhagodia candolleana subsp. *candolleana*	RhCC;			B	NS;	200	100	0					54	0.52	98	0.53			
Rhodanthe anthemoides	RhAn;		r	P		200	500	0					9	0.44	21	0.62			
Rhytidosporum inconspicuum	RhIn;		e	P		200	100	0					8	0.25	12	0.33	P		
Richea acerosa	RiAc;			B	NS;WSW;NM;	200	100	0					28	0.64	77	0.78			Y
Richea dracophylla	RiDr;			B	BL;	200	100	0					16	0.69	28	0.79			Y
Richea gunnii	RiGu;			B	SE;NS;WSW; NM;	200	100	0					39	0.79	77	0.81			Y
Richea milliganii	RiMi;			B	NS;SE;	200	100	0					20	1.00	33	1.00			Y
Richea procera	RiPr;			B	BL;NM;	200	100	0					57	0.63	107	0.67			Y
Richea scoparia	RiSc;			B	SE;NM;	200	100	0					57	0.93	141	0.94			Y
Richea sprengelioides	RiSp;			B	NM;	200	100	0					52	0.90	111	0.91			Y
Richea Xcurtisiae	RiXC;			B	BL;CH;FL;KI;NM;NS;SE;SR; WSW;	200	100	0					13	0.92	17	0.94			Y
Rorippa dictyosperma	RoDi;			B	KI;NS;FL;NM;	200	100	0					15	0.67	21	0.67			
Rorippa gigantea	RoGi;			B	SR;KI;FL;WSW;	200	100	0					11	0.73	14	0.79			
Rumex bidens	RuBi;		r	P		200	100	0					8	0.38	10	0.40			
Rumex brownii	RuBr;			B	BL;NS;NM;	200	100	0					59	0.25	85	0.33			
Rumex dumosus	RuDu;			B	SE;BL;CH;	200	100	0					24	0.17	33	0.15			
Ruppia megacarpa	RuMe;		r	P		200	100	0					9	0.89	10	0.80			

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Ruppia polycarpa	RuPo;			B	KI;NM;	200	100	0					31	0.26	38	0.32			
Ruppia tuberosa	RuTu;		r	P		200	100	0					0		0		P		
Rytidosperma caespitosum	Ryce;			B	BL;KI'WSW;	200	100	0					121	0.30	234	0.31			
Rytidosperma carphoides	AuCa;			B	BL;CH;KI;NS;SR;	200	100	0					41	0.17	65	0.20			
Rytidosperma diemenicum	AuDi;			B	WSW;NM;	200	100	0					30	0.77	48	0.81			Y
Rytidosperma dimidiatum	RyDi;			B	NM;	200	100	0					75	0.44	112	0.41			
Rytidosperma geniculatum	AuGe;			B	FL;KI;NM;	200	100	0					16	0.38	19	0.37			
Rytidosperma gracile	NoGr;			B	BL;	200	100	0					64	0.48	82	0.51			
Rytidosperma indutum	AuIn;		r	P	NM;NS;SR;	200	100	0					29	0.14	52	0.19	P		
Rytidosperma laeve	AuLa;			B	FL;	200	100	0					102	0.35	186	0.33			
Rytidosperma nitens	RyNi;			B	NS;BL;SR;SE;	200	100	0					21	0.76	29	0.83			Y
Rytidosperma nivicola	RyNiv;			B	SE;	200	100	0					16	0.69	21	0.76			
Rytidosperma nudiflorum	RyNu;			B	NM;SE;	200	100	0					39	0.72	60	0.78			
Rytidosperma pilosum	AuPi;			B	KI;WSW;	200	100	0					145	0.34	296	0.36			
Rytidosperma popinensis	RyPo;	EN	r	P	NM;SE;SR;	200	100	0					12	0.00	27	0.00	P		Y
Rytidosperma remotum	AuRe;		r	P	WSW;	200	100	0					1	1.00	1	1.00	P		Y
Rytidosperma semiannulare	RySe;			B	SR;NS;FL;WSW;NM;BL;	200	100	0					46	0.41	59	0.47			
Rytidosperma tenuius	AuTe;			B	SR;WSW;	200	100	0					70	0.36	108	0.34			
Sagina diemensis	SaDi;	EN	e	P		200	100	0					1	1.00	3	1.00	P		Y
Sagina namadgi	SaNa;			B	KI;	200	100	0					3	0.33	3	0.33	P		

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Samolus repens var *repens*	SaRe;			B	CH;NS;	200	100	0					74	0.55	111	0.57			
Sarcochilus australis	SaAu;			B	NS;WSW;	200	100	0					25	0.84	37	0.78			
Sarcocornia blackiana	SaBl;			B	KI;NS;FL;	200	100	0					7	0.14	9	0.22	P		
Sarcocornia quinqueflora	SaQu;			B	NS;	200	100	0					59	0.47	79	0.49			
Sarcocornia quinqueflora subsp. *quinqueflora*	SaQQ;			B	NS;	200	100	0					11	0.73	14	0.71			
Sarcocornia quinqueflora subsp. *tasmanica*	SaQT;			B	NS;	200	100	0					1	1.00	1	1.00	P		
Saxipoa saxicola	SaSa;			B	BL;WSW;	200	100	0					22	0.77	42	0.86			
Scaevola aemula	ScAe;		e	P		200	100	0					3	1.00	7	0.86			
Scaevola albida	ScAl;		v	P	KI;	200	100	0					4	0.50	7	0.57			
Scaevola hookeri	ScHo;			B	KI;NM;	200	100	0					46	0.67	55	0.73			
Schenkia australis	ScAu;		r	P		200	100	0					20	0.55	23	0.61			
Schizacme archeri	ScAr;			B	SE;	200	100	0					26	0.96	44	0.98			Y
Schizacme montana	ScMo;			B	SE;NS;BL;	200	100	0					54	0.96	105	0.98			
Schizaea asperula	ScAs;			B	NS;FL;BL;	200	100	0					4	0.50	4	0.50			
Schizaea bifida	ScBf;			B	NS;WSW;BL;	200	100	0					16	0.63	19	0.68			
Schizaea fistulosa	ScFi;			B	NS;	200	100	0					43	0.65	62	0.71			
Schoenoplectus pungens	ScPu;			B	BL;NM;	200	100	0					26	0.46	36	0.47			
Schoenoplectus tabernaemontani	ScTa;		r	P		200	500	0	Y				5	0.20	9	0.11	P		
Schoenus absconditus	ScAb;			B	SR;FL;CH;BL;	200	100	0					37	0.16	65	0.18			Y
Schoenus brevifolius	SchBr;		r	P		200	100	0					6	0.83	7	0.86			
Schoenus calyptratus	SchCa;			B	SE;NS;	200	100	0					24	0.83	38	0.87			

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Schoenus carsei	ScCar;			B	FL;BL;SR;SE;	200	100	0					6	0.50	6	0.50			
Schoenus fluitans	SchFl;			B	NM;BL;SR;	200	100	0					37	0.68	54	0.61			
Schoenus latelaminatus	SchLa;		e	P		200	100	0					4	0.75	8	0.88			
Schoenus maschalinus	ScMa;			B	NM;	200	100	0					64	0.47	95	0.53			
Schoenus nitens	ScNi;			B	NS;CH;	200	100	0					80	0.59	146	0.61			
Schoenus tesquorum	ScTe;			B	BL;KI;WSW;NM;	200	100	0					39	0.56	50	0.60			
Schoenus turbinatus	ScTu;			B	FL;WSW;CH;	200	100	0					6	0.33	6	0.33			
Scleranthus brockiei	SclBr;		r	P		200	100	0					41	0.37	71	0.30			
Scleranthus diander	ScDi;		v	P		200	100	0					8	0.38	18	0.50			
Scleranthus fasciculatus	ScFa;		v	P		200	100	0					41	0.32	78	0.26			
Scutellaria humilis	ScHu;		r	P		200	100	0					9	0.33	12	0.42			
Sebaea albidiflora	SeAl;			B	NM;	200	100	0					18	0.50	23	0.57			
Selaginella gracillima	SeGr;			B	NM;	200	100	0					7	1.00	9	1.00			
Selaginella uliginosa	SeUl;			B	CH;NM;	200	100	0					132	0.66	292	0.66			
Selliera radicans	SeRa;			B	CH;NS;	200	100	0					81	0.52	138	0.54			
Senecio albogilvus	SenAl;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					7	1.00	8	1.00			Y
Senecio biserratus	SeBi;			B	NM;	200	100	0					92	0.53	134	0.54			
Senecio campylocarpus	SeCa;			B	NM;	200	100	0					3	0.33	3	0.33	P		
Senecio extensus	SeEx;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					1	1.00	1	1.00	P		
Senecio glomeratus	SeGl;			B	BL;CH;SR;	200	100	0					76	0.25	124	0.29			

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Senecio glomeratus subsp. *glomeratus*	SeGl;			B	BL;CH;SR;	200	100	0					76	0.25	124	0.29			
Senecio glomeratus subsp. *longifructus*	SeGl;			B	BL;CH;SR;	200	100	0					76	0.25	124	0.29			
Senecio gunnii	SeGu;			B	FL;NM;	200	100	0					64	0.59	128	0.63			
Senecio hispidissimus	SeHi;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					3	1.00	3	1.00			
Senecio leptocarpus	SeLe;			B	SE;	200	100	0					29	0.97	46	0.98			Y
Senecio linearifolius var. *arachnoideus*	SeLA;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					1	0.00	1	0.00	P		
Senecio microbasis	SeMi;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					5	0.40	7	0.43			
Senecio odoratus	SeOd;			B	SR;	200	100	0					18	0.78	24	0.79			
Senecio pectinatus var *pectinatus*	SePP;			B	NS;FL;BL;	200	100	0					16	1.00	19	1.00			Y
Senecio prenanthoides	SePr;			B	BL;NS;CH;NM;	200	100	0					19	0.42	20	0.40			
Senecio psilocarpus	SePs;	VU	e	P		200	100	0					27	0.41	50	0.42			
Senecio quadridentatus	SeQu;			B	BL;CH;	200	100	0					100	0.26	188	0.23			
Senecio squarrosus	SePs;		r	P		200	100	0					27	0.41	50	0.42			
Senecio vagus subsp. *vagus*	SeVa;			B	FL;	200	100	0					-1	-1.00	-1	-1.00	P		
Senecio velleioides	SeVe;		r	P		200	100	0					31	0.39	39	0.33			
Sicyos australis	SiAu;		r	P		200	100	0					1	1.00	3	1.00	P		
Siloxerus multiflorus	SiMu;		r	P		200	100	0					11	0.64	24	0.67			

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Solanum laciniatum	SoLa;			B	SR;NS;WSW; CH;NM;BL;	200	100	0					46	0.54	62	0.55			
Solanum opacum	SoOp;		e	P		200	100	0					4	0.75	7	0.43			
Solanum vescum	SoVe;			B	NS;NM;	200	100	0					16	0.50	22	0.59			
Solenogyne dominii	SoDo;			B	FL;WSW;	200	100	0					73	0.23	123	0.23			
Solenogyne gunnii	SoGu;			B	KI;FL;WSW;	200	100	0					91	0.42	178	0.43			
Sowerbaea juncea	SoJu;		v	P		200	100	0					5	0.20	9	0.11	P		
Sphaerolobium minus	SpMin;			B	NS;NM;	200	100	0					46	0.70	71	0.70			
Spinifex sericeus	SpSe;			B	NS;	200	100	0					28	0.61	46	0.67			
Spiranthes australis	SpAu;			B	NS;CH;BL;	200	100	0					30	0.57	44	0.61			
Sporadanthus tasmanicus	SpTa;			B	NM;	200	100	0					88	0.75	163	0.81			
Sporobolus virginicus	SpVi;		r	P		200	100	0					19	0.63	25	0.68			
Sprengelia distichophylla	SpDi;			B	CH;SR;	200	100	0					8	1.00	12	1.00			Y
Sprengelia incarnata	SpIn;			B	NM;	200	100	0					164	0.74	369	0.78			
Spyridium eriocephalum var. *eriocephalum*	SpEE;		e	P		200	100	0					2	0.50	3	0.67	P		
Spyridium gunnii	SpGu;			B	NS;SE;	200	100	0					20	0.80	29	0.83			Y
Spyridium lawrencei	SpLa;	EN	v	P		200	100	0					11	0.27	31	0.23	P		Y
Spyridium obcordatum	SpObc;	VU	v	P		200	100	0					6	0.50	18	0.56			Y
Spyridium obovatum	SpObo;			B	SR;FL;NM;	200	100	0					25	0.64	41	0.68			Y
Spyridium obovatum var. *obovatum*	SpOO;			B	NM;	200	100	0					18	0.56	36	0.58			Y
Spyridium obovatum var. *velutinum*	SpOV;			B	NM;	200	100	0					14	0.43	20	0.45			Y
Spyridium parvifolium	SpPa;		pr	P	SE;	200	100	0					1	0.00	1	0.00	P		

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Spyridium parvifolium var. *molle*	SpPM;		r	P	BL;	200	100	0					9	0.33	16	0.44			Y
Spyridium parvifolium var. *parvifolium*	SpPP;		r	P	BL;SE;	200	100	0					21	0.48	33	0.36			
Spyridium ulicinum	SpUl;			B	CH;FL;	200	100	0					16	0.31	27	0.44			Y
Spyridium vexilliferum var. *vexilliferum*	SpVe;		r	P		200	100	0					18	0.61	34	0.65			
Stackhousia pulvinaris	StkPu;		v	P		200	500	0					3	1.00	11	0.82			
Stackhousia spathulata	StSp;			B	NM;SR;SE;	200	100	0					15	0.93	21	0.95			
Stackhousia subterranea	StSu;		e	P		200	200	0					11	0.45	24	0.54			
Stellaria angustifolia	StAn;			B	NS;NM;BL;SE;	200	100	0					17	0.29	21	0.33			
Stellaria caespitosa	StCa;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					1	0.00	1	0.00	P		
Stellaria flaccida	StFl;			B	FL;	200	100	0					69	0.72	112	0.71			
Stellaria multiflora	StMu;		r	P	SR;	200	100	0					48	0.56	82	0.46			
Stellaria pungens	StlPu;			B	KI;NM;	200	100	0					49	0.51	77	0.48			
Stenanthemum pimeleoides	StPi;	VU	v	P		200	100	0					14	0.57	33	0.55			Y
Stenopetalum lineare	StLi;		e	P		200	100	0					4	0.50	5	0.40	P		
Sticherus lobatus	StLo;			B	SE;BL;	200	100	0					27	0.81	38	0.82			
Sticherus urceolatus	StUr;			B	KI;FL;CH;BL;	200	100	0					34	0.59	35	0.57			
Stonesiella selaginoides	StSe;	EN	e	P		200	100	0					2	0.50	7	0.71	P		Y
Stuckenia pectinata	StPe;		r	P		200	100	0					12	0.67	13	0.69			
Stylidium armeria subsp. *armeria*	StAr;			B	FL;	200	100	0					20	0.55	28	0.64			

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Stylidium beaugleholei	StBe;		r	P		200	100	0					17	0.65	30	0.77			
Stylidium despectum	StDe;		r	P		200	100	0					21	0.76	30	0.73			
Stylidium perpusillum	StPer;		r	P	BL;	200	100	0					12	0.83	17	0.76			
Stylidium sp. Ephemeral	StEp;		pr	P		200	100	0					1	0.00	1	0.00	P		
Suaeda australis	SuAu;			B	SR;KI;NS;	200	100	0					24	0.42	35	0.49			
Swainsona lessertiifolia	SwLe;			B	SE;	200	100	0					14	0.71	20	0.75			
Taraxacum aristum	TaAr;		r	P		200	100	0					4	0.50	6	0.67			
Taraxacum cygnorum	TaCy;	VU		P		200	100	0					-1	-1.00	-1	-1.00	P		
Tecticornia arbuscula	TeAr;			P		200	100	0					20	0.45	25	0.44			
Telopea truncata	TeTr;			B	NM;	200	100	0					97	0.81	204	0.84			Y
Tetracarpaea tasmannica	TeTa;			B	NS;	200	100	0					35	0.91	57	0.93			Y
Tetragonia tetragonoides	TeTe;			B	NS;SE;SR;	200	100	0					13	0.46	17	0.59			
Tetrarrhena acuminata	EhAc;			B	KI;NS;CH;NM;	200	100	0					39	0.69	47	0.68			
Tetratheca ciliata	TeCi;		r	P		200	100	0					9	0.56	10	0.50			
Tetratheca gunnii	TeGu;	CR	e	P		200	100	0					3	0.67	8	0.88			Y
Tetratheca procumbens	TePr;			B	KI;NS;FL;	200	100	0					37	0.65	60	0.65			Y
Teucrium corymbosum	TeCo;		r	P		200	100	0					30	0.40	61	0.41			
Thelionema caespitosum	ThCae;			B	KI;CH;NM;BL;	200	100	0					41	0.46	59	0.44			
Thelionema umbellatum	ThUm;			B	KI;FL;SR;	200	100	0					7	0.71	11	0.73			
Thelymitra antennifera	ThAn;		e	P	KI;SE;	200	100	0					4	0.50	8	0.38			
Thelymitra arenaria	ThAr;			B	SR;NS;FL;CH; NM;BL;	200	100	0					22	0.41	26	0.38			Y
Thelymitra atronitida	ThAt;		e	P		200	100	0					3	0.33	3	0.33	P		
Thelymitra benthamiana	ThBe;		e	P		200	100	0					2	0.00	3	0.00	P		

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Thelymitra bracteata	ThBr;		e	P		200	100	0					2	0.50	2	0.50	P		
Thelymitra carnea	ThCar;			B	SR;NS;WSW; NM;BL;	200	100	0					18	0.33	21	0.33			
Thelymitra circumsepta	ThCi;			B	NS;FL;BL;	200	100	0					23	0.78	28	0.79			
Thelymitra cyanea	ThCy;			B	FL;NS;	200	100	0					54	0.70	79	0.71			
Thelymitra erosa	ThEr;			B	NS;FL;NM;BL;	200	100	0					44	0.59	53	0.55			
Thelymitra exigua	ThEx;			B	FL;	200	100	0					3	0.33	3	0.33	P		
Thelymitra flexuosa	ThFl;			B	WSW;NM;BL;	200	100	0					28	0.68	47	0.70			
Thelymitra holmesii	ThHo;		r	P		200	100	0					20	0.50	21	0.52			
Thelymitra imbricata	ThIm;			B	KI;FL;CH;NM; SE;	200	100	0					7	0.43	9	0.33			Y
Thelymitra improcera	ThImp;			B	KI;	200	100	0					1	0.00	1	0.00	P		
Thelymitra inflata	ThIn;			B	SE;	200	100	0					1	0.00	1	0.00	P		
Thelymitra ixioides	ThIx;			B	BL;FL;NM;WS W;	200	100	0					32	0.44	41	0.41			
Thelymitra jonesii	ThJo;	EN	e	P		200	100	0					8	0.25	11	0.36	P		Y
Thelymitra longiloba	ThLo;			B	SE;SR;FL;WS W;NM;BL;	200	100	0					7	0.71	9	0.67			
Thelymitra lucida	ThLu;			B	BL;CH;FL;KI;N M;NS;SE;SR; WSW;	200	100	0					1	0.00	1	0.00	P		
Thelymitra malvina	ThMa;		e	P		200	100	0					13	0.31	18	0.39			
Thelymitra mucida	ThMu;		r	P		200	100	0					5	0.60	6	0.50			
Thelymitra nuda	ThNu;			B	NS;FL;WSW;C H;BL;	200	100	0					34	0.50	43	0.51			
Thelymitra pauciflora	ThePa;			B	CH;	200	100	0					89	0.49	135	0.44			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Thelymitra peniculata	ThPe;			B	FL;NM;SE;SR;	200	100	0					7	0.14	8	0.13	P		
Thelymitra polychroma	ThPo;			B	FL;BL;	200	100	0					6	0.83	11	0.82			Y
Thelymitra silena	ThSi;			B	FL;SR;WSW;	200	100	0					5	1.00	7	1.00			Y
Thelymitra simulata	ThSim;			B	FL;BL;SE	200	100	0					3	1.00	5	1.00			
Thelymitra spadicea	ThSp;			B	FL;	200	100	0					5	0.60	6	0.67			Y
Thelymitra viridis	ThVi;			B	SE;	200	100	0					5	0.60	6	0.50			Y
Thelymitra Xirregularis	ThXI;			B	FL;KI;SE;	200	100	0					5	0.20	7	0.29	P		
Thelymitra Xmerraniae	ThXM;			B	BL;CH;FL;KI;NM;NS;SE;SR;WSW;	200	100	0					2	1.00	2	1.00			
Thelymitra Xtruncata	ThXt;			B	FL;BL;SR;WSW;	200	100	0					16	0.56	18	0.61			
Thismia rodwayi	ThRo;		r	P		200	100	0					17	0.53	35	0.57			
Thryptomene micrantha	ThMi;		v	P		200	500	0					4	0.75	6	0.67			
Thynninorchis nothofagicola	ThNo;	CR	e	P		200	500	0					1	1.00	1	1.00	P		Y
Thysanotus patersonii	ThPa;			B	SR;KI;NS;BL;	200	100	0					39	0.72	68	0.72			
Tmesipteris elongata	TmEl;			B	SE;	200	100	0					22	0.64	25	0.68			
Tmesipteris parva	TmPa;		v	P		200	100	0					2	0.50	3	0.67	P		
Todea barbara	ToBa;			B	SR;NM;	200	100	0					54	0.65	86	0.65			
Trachymene composita var *composita*	TrCo;			B	SR;KI;NM;	200	200	0					8	0.75	11	0.64			
Trachymene humilis	TrHu;			B	SE;NS;	200	100	0					13	0.69	24	0.75			
Trachymene humilis subsp. *breviscapa*	TrHB;			B	NS;SE;	200	100	0					3	0.67	5	0.60			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Trachymene humilis subsp. *humilis*	TrHH;			B	NS;SE;	200	100	0					8	0.38	11	0.27			
Tricoryne elatior	TrEl;		v	P		200	100	0					13	0.15	25	0.08			
Tricostularia pauciflora	TrPa;		r	P	FL;	200	200	0					3	0.33	4	0.25	P		
Triglochin alcockiae	TrAl;			B	SE;SR;CH;NM;	200	100	0					12	0.83	15	0.87			
Triglochin minutissima	TrMi;		r	P		200	100	0					18	0.78	26	0.81			
Triglochin mucronatum	TrMu;		e	P		200	200	0					2	0.50	2	0.50	P		
Triglochin nana	TrNa;			B	KI;NM;SE;	200	100	0					13	0.69	16	0.69			
Triglochin procera	TrPr;			B	BL;NS;	200	100	0					83	0.41	144	0.42			
Triglochin rheophila	TrRh;			B	NS;BL;SE;	200	100	0					9	0.44	11	0.55			
Triglochin striata	TrSt;			B	SR;BL;	200	100	0					67	0.45	102	0.46			
Triptilodiscus pygmaeus	TrPy;		v	P	NM;SE;	200	200	0					16	0.25	34	0.35			
Trisetum spicatum subsp. *australiense*	TrSA;			B	WSW;NM;	200	100	0					24	0.67	35	0.69			
Trithuria submersa	TrSu;		r	P		200	100	0					14	0.64	19	0.74			Y
Trochocarpa disticha	TrDi;			B	KI;WSW;	200	100	0					12	0.67	20	0.60			Y
Trochocarpa gunnii	TrGu;			B	SE;	200	100	0					77	0.82	160	0.86			Y
Trochocarpa thymifolia	TrTh;			B	SE;BL;WSW;NM;	200	100	0					19	0.89	34	0.91			Y
Typha angustifolia	TyAn;			B	KI;	200	100	0					-1	-1.00	-1	-1.00	P		
Typha domingensis	TyDo;			B	FL;NM;SE;	200	100	0					10	0.10	12	0.08	P		
Typha orientalis	TyOr;			B	SE;KI;NS;FL;NM;	200	100	0					10	0.10	11	0.09	P		
Uncinia compacta	UnCo;			B	SE;KI;NM;	200	100	0					42	0.93	75	0.95			
Uncinia elegans	UnEl;		r	P		200	100	0					20	0.30	22	0.36			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Uncinia riparia	UnRi;			B	NM;	200	100	0					55	0.69	88	0.70			
Uncinia tenella	UnTe;			B	NM;FL;	200	100	0					98	0.72	188	0.69			
Utricularia australis	UtAu;		r	P	FL;NM;SE;WSW;	200	200	0	Y	Y			10	0.60	12	0.67			
Utricularia dichotoma	UtDi;			B	NS;BL;	200	100	0					71	0.69	103	0.70			
Utricularia monanthos	UtMo;			B	KI;NM;BL;SR;	200	100	0					16	0.56	21	0.67			
Utricularia tenella	UtTe;		r	P		200	100	0					10	0.70	16	0.69			
Utricularia violacea	UtVi;		r	P	FL;KI;	200	200	0	Y				-1	-1.00	-1	-1.00	P		
Vallisneria australis	VaAu;		r	P		200	500	0	Y				6	0.33	8	0.25			
Velleia montana	VeMo;			B	WSW;NM;	200	100	0					55	0.58	112	0.67			
Velleia paradoxa	VePa;		v	P		200	100	0					17	0.18	30	0.20			
Veronica calycina	VeCa;			B	KI;WSW;	200	100	0					133	0.60	279	0.58			
Veronica ciliolata subsp. *fiordensis*	VeCF;	VU	v	P		200	200	0					1	1.00	2	1.00	P		
Veronica derwentiana subsp. *derwentiana*	VeDD;			B	KI;FL;NM;BL;SR;	200	100	0					18	0.39	22	0.50			
Veronica formosa	VeFo;			B	FL;WSW;NM;	200	100	0					35	0.54	65	0.62			Y
Veronica gracilis	VeGr;			B	WSW;KI;	200	100	0					141	0.43	286	0.43			
Veronica novae-hollandiae	VeNo;		v	P		200	100	0					5	1.00	8	1.00			Y
Veronica plebeia	VePl;		r	P		200	100	0					13	0.31	22	0.27			
Viminaria juncea	ViJu;		e	P		200	100	0					1	1.00	2	0.50	P		
Viola betonicifolia subsp. *betonicifolia*	ViBB;			B	KI;FL;WSW;	200	100	0					91	0.47	193	0.55			
Viola caleyana	ViCa;		r	P		200	100	0					4	0.25	5	0.20	P		
Viola cunninghamii	VioCu;		r	P		200	500	0					15	0.53	25	0.60			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Viola fuscoviolacea	ViFu;			B	NS;	200	100	0					14	0.71	27	0.78			
Viola hederacea subsp. *curtisiae*	ViHC;		r	P		200	100	0					3	1.00	3	1.00			Y
Viola sieberiana	ViSi;			B	SE;FL;WSW;	200	100	0					12	0.58	18	0.72			
Vittadinia australasica var. *oricola*	ViAO;		e	P	KI;	200	100	0					1	1.00	2	1.00	P		
Vittadinia burbidgeae	ViBu;		r	P	SE;	200	100	0					23	0.17	45	0.29			Y
Vittadinia cuneata var. *cuneata*	VitCu;		r	P	BL;CH;NM;SR;	200	100	0					26	0.12	56	0.18	P		
Vittadinia gracilis	ViGr;		r	P		200	100	0					30	0.13	73	0.12	P		
Vittadinia muelleri	ViMu;		r	P	CH;NM;SR;	200	100	0					22	0.09	66	0.11	P		
Vittadinia muelleri (broad sense)	ViMu;		pr	P	CH;NM;SR;	200	100	0					22	0.09	66	0.11	P		
Vittadinia sp	ViSp;		pr	P		200	100	0					3	0.33	3	0.33	P		
Wahlenbergia ceracea	WaCe;			B	NS;FL;WSW;BL;SR;	200	100	0					29	0.76	49	0.76			
Wahlenbergia gracilenta	WaGr;			B	CH;	200	100	0					79	0.38	122	0.40			
Wahlenbergia multicaulis	WaMu;			B	KI;	200	100	0					81	0.37	150	0.34			
Wahlenbergia saxicola	WaSa;			B	NS;WSW;	200	100	0					28	0.82	52	0.81			Y
Wahlenbergia stricta subsp. *stricta*	WaSt;			B	BL;KI;	200	100	0					90	0.43	164	0.41			
Westringia angustifolia	WeAn;		r	P		200	100	0					17	0.29	34	0.44			Y
Westringia brevifolia	WeBr;			B	CH;BL;	200	100	0					21	0.81	36	0.89			Y
Westringia rubiifolia	WeRu;			B	FL;	200	100	0					23	0.65	45	0.73			Y
Wilsonia humilis	WiHu;		r	P		200	100	0					7	0.29	10	0.40			
Wilsonia rotundifolia	WiRo;		r	P	NM;	200	100	0	Y				22	0.50	33	0.42			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Wolffia australiana	WoAu;			B	KI;NS;NM;SE;	200	100	0					12	0.25	14	0.21			
Wurmbea dioica subsp. *dioica*	WuDD;			B	BL;SR;	200	100	0					51	0.31	92	0.38			
Wurmbea latifolia subsp. *vanessae*	WuLV;		e	P		200	100	0					1	0.00	2	0.00	P		
Wurmbea uniflora	WuUn;			B	NM;	200	100	0					31	0.45	44	0.55			
Xanthorrhoea aff. *arenaria*	XaAr;	PVU	pv	P		200	100	0					1	0.00	1	0.00	P		Y
Xanthorrhoea aff. *bracteata*	XaABr;	EN	pv	P		200	100	0					8	0.25	13	0.15	P		Y
Xanthorrhoea arenaria	XaAre;	VU	v	P		200	100	0					14	0.36	30	0.33			Y
Xanthorrhoea australis	XaAu;			B	KI;CH;	200	100	0					57	0.56	125	0.58			
Xanthorrhoea bracteata	XaBr;	EN	v	P		200	100	0					14	0.36	41	0.34			Y
Xanthosia pilosa	XaPi;			B	SR;	200	100	0					62	0.66	106	0.63			
Xanthosia ternifolia	XaTe;			B	KI;SR;	200	100	0					17	0.41	19	0.47			
Xerochrysum bicolor	XeBi;		r	P		200	100	0					15	0.67	18	0.56			
Xerochrysum bracteatum	XeBr;			B	SR;KI;WSW;CH;NM;	200	100	0					19	0.58	24	0.63			
Xerochrysum palustre	XePa;	VU	v	P	NM;	200	100	0					11	0.45	12	0.50			
Xerochrysum papillosum	XePap;			B	BL;	200	100	0					14	0.64	23	0.70			
Xerochrysum subundulatum	XeSu;			B	KI;FL;WSW;NM;SE;	200	100	0					28	0.75	62	0.84			
Xyris tasmanica	XyTa;			B	FL;NS;	200	100	0					35	0.69	46	0.61			Y
Zieria littoralis	ZiLi;		r	P		200	100	0					1	0.00	4	0.75	P		
Zieria veronicea subsp. *veronicea*	ZiVV;		e	P		200	100	0					2	1.00	4	1.00			

Species	Code	EPBC	TSPA	Model type	Bioregions	Accuracy	Distance	Year	Riparian	Water	Native	Plantations	Land systems	Land sys reserved	Land comps.	Land comps reserved	Reserve status	Fauna type	Endemic
Zoysia macrantha subsp. *walshii*	ZoMW;			B	KI;CH;NM;	200	100	0					24	0.58	29	0.55			
Zygophyllum billardierei	ZyBi;		r	P		200	100	0					4	1.00	14	0.79			

Biodiversity data, models and indicators for Forestry Tasmania's Forest Management Unit: Attachment 7 – Spatial habitat models for priority threatened fauna

R.I. Knight

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Report to Forestry Tasmania

natural resource planning

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CONTENTS

1. Introduction

Development of the Regional Ecosystem Model (REM) requires spatial modelling of the locations and habitat of threatened and 'other' priority species. Threatened species are taken to mean those listed under the schedules of the Tasmanian *Threatened Species Protection Act 1995* or *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. Other priority species are currently defined as non-listed Regional Forest Agreement (RFA) priority species, some significant non-listed fauna species, hollow dwelling species as a habitat-based group, and poorly reserved flora species (Lawrence *et al.* 2008[1]).

The REM models species habitat using two methods – one based on rules applied to records of flora and fauna species in the Natural Values Atlas (NVA); the other as more detailed models for particular fauna species whose habitat is more complex than can be readily generated from NVA records.

The species modelled from NVA records include all listed threatened species, non-listed RFA priority species, some non-threatened but significant fauna species and poorly reserved flora species. The models are described in section 3.2.1.3 of the main report and detailed for each modelled species in Attachment 6.

The point-based modelling works reasonably well for a large proportion of threatened flora species and for some aspects of fauna species habitat (e.g. known nest sites of some bird species), particularly where the species is sessile. However, they are less suited for modelling the habitat of fauna which are wide ranging or whose habitat is affected by a wider range of variables than those described above.

Models of selected fauna species were therefore refined and/or developed to incorporate into the REM. The work to was undertaken concurrently with other projects which are similarly seeking to provide a higher spatial resolution of fauna habitat, and may therefore need to be revised in the future. Other projects addressing fauna species models include extrapolation of descriptions of species range and habitat to include significant habitat determinations for the Forest Practices System[2], and also work being undertaken by the Centre for Environment on modelling birds, mammals and reptiles in the Midlands.

The approach used to develop species models for the REM was an expert-based rules system in which the characteristics of each species are described from current knowledge and available data, which are in turn converted to GIS-based rules to achieve spatial outputs. There are a number of issues associated with the choice of approach.

[1] Lawrence, N., Storey, D. & Whinam, J. (2008). Reservation status of Tasmanian native higher plants. February 2008, Biodiversity Conservation Branch, Department of Primary Industries & Water, Hobart. http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-7CW3RX?open

[2] Forest Practices Authority (2014). Summary of threatened fauna species range boundaries and habitat descriptions. v1.7 August 2013, Forest Practices Authority, Hobart. Table is an updated summary of information in Forest Practices Authority and Threatened Species Section (2012). Review of Threatened Fauna Adviser: background report 2: Review of information on species & management approach. Forest Practices Authority, Hobart.

Constant advances in scientific understanding are resulting in progressive and ongoing improvements in Tasmanian species modelling. Like any other time-bound project, Forestry Tasmania's HCV Assessment will use the best available models of the day, fully conscious that better models will continue to be developed into the future. There are many methods for modelling species habitat, and it was not possible within the timeframes to develop and test other modelling systems.

The expert rules approach is considered to offer advantages in the context of an FSC certification process. Explicit and transparent sets of rules for species habitat are more accessible both auditors for determining compliance with standards, and to stakeholders who will be engaged through the certification process.

There is a wide range of Tasmanian fauna species for which better models of habitat are desirable. In the context of Forestry Tasmania's management obligations, the species which have been prioritised for attention are those for which similar work is being undertaken for incorporation into the Forest Practices Authority's (FPA) Threatened Fauna Advisor[3].

The species being considered in that process have been described in terms of their:

- core range;
- potential range;
- known range;
- potential habitat;
- significant habitat; and
- other habitat definitions used in management.

Definitions of these attributes are shown in Table 1. These definitions have been adopted as a starting point for the present work. It should be noted that the FPA document available at the time of commencement of the modelling process was v1.4, which transitioned to v1.7 by the time of completion. Notes for the above categories have been updated to those in v1.7 and the nature of changes since v1.4 noted.

A large number (n = ~80) of the fauna species being addressed by the FPA also have spatial habitat models developed for use by the Private Forest Reserves Program (CARSAG, 2004[4]). The habitat descriptors in these species models were based largely on a range of reports prepared during the RFA process, and on some models generated using the CORTEX program and subsequently accredited for RFA use. These models have also been incorporated into the information stream used to develop models for the REM.

[3] Forest Practices Authority (2014). Summary of threatened fauna species range boundaries and habitat descriptions. v1.7 August 2013. Forest Practices Authority, Hobart.
[4] Comprehensive, Adequate & Representative Scientific Advisory Group (2004). Assessing reservation priorities for private forested land in Tasmania. Private Forest Reserves Program, Department of Primary Industries, Water & Environment, Hobart.

The facet of species habitat which the REM aims to model is probably closest to the FPA descriptor of “significant habitat”. However, the term “REM habitat’ has been used to avoid confusion with the work being undertaken on significant habitat for regulation under the Forest Practices System. In practice it is anticipated that substantial consistency between habitat definitions will be achieved.

In the context of FT’s FSC certification, it is expected that HCVs related to threatened species are most likely to be defined from interpretations of REM habitat. However, it should be noted that HCV determination for FSC certification purposes is not an analogue for management that meets the requirements of the Forest Practices system, which is assessed separately within the FSC in terms of demonstrating legal and regulatory compliance.

Table 1. Draft range and habitat definitions for Threatened Fauna Advisor

Species attribute	Definition
Core range	Encompasses the area, within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species.
Potential range	Includes the known range, but also includes the area within which the species has not been found but may occur based on environmental conditions.
Known range	Is the area within which the species is most likely to occur, being the area of land within a minimum convex polygon of all known localities of the species. This term is synonymous with ‘extent of occurrence’ as referred to in the Guidelines for Eligibility for Listing under the Threatened Species Protection Act 1995 (DPIW 2008[5]).
Potential habitat	Is all habitat types within the potential range of a species that are likely to support that species in the short and/or long term. It may not include habitats known to be occupied intermittently (e.g. occasional foraging habitat only). Potential habitat is determined from published and unpublished scientific literature and/or expert opinion, and is agreed by the Threatened Species Section (DPIPWE) in consultation with species' specialists.
Significant habitat	Is habitat within the known range of a species that (1) is known to be of high priority for the maintenance of breeding populations throughout the species’ range and/or (2) conversion of which to non-native vegetation is considered to result in a long term negative impact on breeding populations of the species. It may include areas that do not currently support breeding populations of the species but need to be maintained to ensure the long-term future of the species. Significant habitat is determined from published and unpublished scientific literature and/or expert opinion, and is agreed by the Threatened Species Section (DPIPWE) in consultation with species' specialists.
Other habitat definitions	na

[5] Department of Primary Industries, Parks, Water & Environment (2008). Guidelines for the listing of species under the Tasmanian Threatened Species Protection Act 1995. Revised guidelines as at 29/10/08, Department of Primary Industries, Parks, Water & Environment, Hobart.
http://www.dpiw.tas.gov.au/inter,nsf/Attachments/LBUN-59X7G2?open

The section which follows summarises each species in terms of:

- the range and habitat descriptions drafted for the Threatened Fauna Advisor;
- habitat model descriptions developed for the Private Forest Reserve Program by CARSAG;
- other habitat information that is considered relevant;
- a draft description of REM habitat model for the species;
- notes on issues identified in the development of each model; and
- data input requirements and spatial format of finalised models (NVA records, FPA/TSU range polygons and Tasveg or updated vegetation mapping from the NRP Atomic Planning Units layer are assumed for all species).

Comments on a draft version of the models were obtained from the Forest Practices Authority and Threatened Species Section of the Department of Primary Industries, Parks, Water and Environment. The response and any subsequent changes to the draft models arising from the comments are stored in a separate file.

2. Species habitat descriptors and models

2.1 Birds

Species: Azure Kingfisher
Ceyx azureus* subsp. *diemenensis

Species attribute	Definition
FPA attributes	
Core range	The core range of the azure kingfisher species is major river systems (class 1 and 2 as per the Forest Practices Code) in western coastal areas between Latrobe and Geeveston, with permanent deep flowing water and intact riparian vegetation.
Potential range	N/A
Known range	N/A
Potential habitat	Potential habitat for the azure kingfisher comprises potential foraging habitat and potential breeding habitat. Potential foraging habitat is primarily freshwater (occasionally estuarine) waterbodies such as large rivers and streams with well-developed overhanging vegetation suitable for perching and water deep enough for dive-feeding. Potential breeding habitat is usually steep banks of large rivers (a breeding site is a hole (burrow) drilled in the bank).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	(1. Known nest sites.) Removed from model in response to comments. 2. Native riparian vegetation within one kilometre of known locations that is on class 1 or class 2 streams, or fringing waterbodies or estuaries. 3. Native riparian vegetation that is within 2 kilometres of known locations within the Core Range that is on class 1 or class 2 streams, or fringing waterbodies or estuaries.
Notes	No nesting sites are currently recorded in the NVA. Native riparian vegetation is taken to mean Tasveg native vegetation classes within the distances prescribed for class 1-4 streams in the Forest Practices Code.
Data	Habitat to be generated within the REM process using NVA records with positional accuracy <1,000 m.
Model status:	Model tested and used in the REM.

Species: Forty-spotted Pardalote
Pardalotus quadragintus

Species attribute	Definition
FPA attributes	
Core range	The core range of the 40- spotted pardalote is a 500 m (radius) buffer centred on the boundary of all mapped colonies.
Potential range	The potential range of the 40-spotted pardalote is mainland Tasmania between Southport and Bicheno within 5 km of the coast, and some offshore islands. The survey range of the 40-spotted pardalote is a specialist defined area within the potential range delineated to assist with decisions on the need for a survey (most areas are close to known colonies).
Known range	N/A
Potential habitat	Potential habitat for the 40-spotted pardalote is any forest and woodland supporting *Eucalyptus viminalis* (white gum) where the canopy cover of *E. viminalis* is greater than or equal to 10% or where *E. viminalis* occurs as a localised canopy dominant or co-dominant in patches exceeding 0.25 ha.
Significant habitat	Significant habitat for the 40- spotted pardalote is all potential habitat associated with known colonies and such habitat within 500 m of known colonies.
Other habitat definitions	N/A
CARSAG habitat model	Eucalypt forests around colonies as mapped by Brown (1986[6]) on Bruny Island or 500 m of known colonies elsewhere.
Other information	N/A
REM habitat model	1. Known colonies and all land within 200 m of the boundary of known colonies, excluding Tasveg "O" communities. 2. Habitat comprises all contiguous eucalypt forest within one kilometre of colonies, with a threshold for contiguity of 90 m.
Notes	*E. viminalis* is sub-dominant in nearly all dry eucalypt communities in the species range, hence modelling of the potential habitat is problematic. The 90 m threshold for contiguity ensures 100 m is the effective contiguous distance due to the spacing of data points in the REM.
Data	Habitat to be generated within the REM process using spatial data on known colonies and available vegetation mapping (Tasveg or updated vegetation where available).
Model status:	Model tested and used in the REM.

[6] Brown, P.B. (1986). The Forty-spotted Pardalote in Tasmania. Technical report 86/4, National Parks & Wildlife Service, Tasmania.

Species: King Island Brown Thornbill
Acanthiza pusilla subsp. *archibaldi*

Species attribute	Definition
FPA attributes	
Core range	The core range of the King Island brown thornbill is Pegarah State Forest.
Potential range	The potential range of the King Island brown thornbill is the whole of King Island.
Known range	N/A
Potential habitat	Potential habitat for the King Island brown thornbill is eucalypt forest, woodland, tea tree thickets, and wet scrub (including remnants amongst farmland).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	Native vegetation within and adjacent to the Core Range, excluding the Tasveg community SSK.
Notes	There are only 2 NVA records of this species with accuracy <1,000 m. One is dated 1968 and the other unknown. SSK has been excluded from the model as this is generally more open and not considered to provide much in the way of suitable habitat.
Data	Data is a set of polygons based on Tasveg mapping and stored in the NRP Atomic Planning Units layer.
Model status:	Model has been constructed within APU version 723 onward. Full spatial extent of model can be extracted as a separate layer. Model tested and used in the REM.

Species: King Island Green Rosella
Platycercus caledonicus brownii

Species attribute	Definition
FPA attributes	
Core range	The core range of the King Island green rosella is Pegarah State Forest and surrounding forests.
Potential range	The potential range of the King Island green rosella is the whole of King Island.
Known range	N/A
Potential habitat	Potential habitat for the King Island green rosella is any forest (primarily with a eucalypt canopy) supporting suitable hollows.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A

REM habitat model	(1. Known nest sites.) Removed from model. 2. Eucalypt forest on King Island with a biophysical naturalness class >1. 3. PI codes with a mature eucalypt element, including in non-forest vegetation.
Notes	Nesting habitat is the limiting factor for the species.
Data	PI-type data of eucalypt maturity for King Island. Data will be generated as part of the REM process.
Model status	Model tested and used in the REM.

Species: King Island Scrub Tit
Acanthornis magna subsp. *greeniana*

Species attribute	Definition
FPA attributes	
Core range	The core range of the King Island scrub tit is the Nook Swamps, Colliers Swamp and Pegarah State Forest.
Potential range	The potential range of the King Island scrub tit is the whole of King Island.
Known range	Potential habitat for the King Island scrub tit is wet sclerophyll forest and swamp forest (including remnants).
Potential habitat	N/A
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Wet eucalypt forest, swamp forests and wet scrubs within the core range, plus contiguous vegetation of the same types on streams and wet areas within 500 m. 2. Where not 1, contiguous wet eucalypt forest, swamp forest and wet scrub within one kilometre of known locations.
Notes	The NVA record location at Pegarah is outside the State Forest and the Core Range polygon. Swamp forests and scrub comprise the Tasveg codes NME, SLW, SMR and SSK. Scrubs occur in a mosaic in the core range in association with wetlands, and a significant proportion of records are located in vegetation mapped as scrub. Model 2 addresses habitat at the known location on the Sea Elephant River (NVA obs. 1245790).
Data	Data is a set of polygons based on Tasveg mapping and stored in the NRP Atomic Planning Units layer, which will be transferred into the REM.
Model status	Model has been constructed within APU version 723 onward. Full spatial extent of model can be extracted as a separate layer. Model tested and used in the REM.

Species: Grey Goshawk
Accipiter novaehollandiae

Species attribute	Definition
FPA attributes	
Core range	The core range of the grey goshawk is a specialist defined area (N. Mooney, unpublished data) based on the availability of potential and significant habitat and known breeding records.
Potential range	The potential range of the grey goshawk is the whole of mainland Tasmania.
Known range	N/A
Potential habitat	Potential habitat for the grey goshawk is native forest with mature elements below 600 m altitude, particularly along watercourses. FPA's Fauna Technical Note 12[7] can be used as a guide in the identification of grey goshawk habitat (v1.5 update of FPA document).
Significant habitat	Significant habitat may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.). FPA's Fauna Technical Note 12 can be used as a guide in the identification of grey goshawk habitat. (v1.5 update of FPA document).
Other habitat definitions	N/A
CARSAG habitat model	High quality foraging habitat comprising: (i) riparian and swamp (BF, ME, L) forests within 5km of nest sites; (ii) swamp and riverine forests in King bioregion; and (iii) riverine forests on maps at the base of the Great Western Tiers. All with Use_bn = 3-5. APU v4.2 data substituted where Tasveg mapping not available. King Island record not accepted.
Other information	N/A
REM habitat model	1. Native riparian vegetation within 500 m of known nest sites, excluding vegetation types that are low and/or open (Tasveg grasslands, saltmarsh and wetlands). 2. Areas that are not in the northwest Core Range (NVA data) and are within 5km of known nest sites and within 100 m of freshwater features (LIST watercourse, waterbody, wetlands), or on LIST floodplains, and are: (i)Tasveg wet eucalypt forest (Tasveg W) which is old growth, mature or predominantly mature (PI-data) with biophysical naturalness classes 3, 4 or 5; or (ii) rainforest (RMT, RMS) swamp forests (NAF, NAR) with biophysical naturalness classes 3, 4 and 5. 3. Foraging habitat in the northwest of the State is areas in the Core Range polygon of the following Tasveg classes that are within 100 m of a water course: *Acacia melanoxylon* swamp forest (NAF), *Acacia melanoxylon* forest on rises (NAR), *Leptospermum scoparium-Acacia mucronata* forest (NAL), *Leptospermum* forest (NLE), *Leptospermum lanigerum-Melaleuca squarrosa* swamp forest (NLM), *Melaleuca ericifolia* swamp forest (NME) that have had little or no known disturbance from fire or harvesting, as evidenced by mapping in biophysical naturalness classes 3, 4 and 5.
Notes	Distance within known nest sites is used here as a surrogate for core populations. Species occurrences outside of this area are assumed more likely to be juveniles ejected from the parental territory.

[7] Forest Practices Authority (2011). Goshawk habitat categories. Fauna Technical Note 12 v2.1, Forest Practices Authority, Hobart, Tasmania. http://www.fpa.tas.gov.au/__data/assets/pdf_file/0005/58046/Fauna_Tech_Note_12_Goshawk_habitat_categories.pdf

Species attribute	Definition
Data	To be derived within the REM process using inputs from the Atomic Planning Units layer (vegetation communities, biophysical naturalness, old growth), PI-type data (maturity) and LIST Hydarea layer (watercourses (1D and 2D), waterbodies, wetlands, floodplains).
Model status	Model tested and used in the REM.

Species: Masked Owl
Tyto novaehollandiae subsp. *castanops*

Species attribute	Definition
FPA attributes	
Core range	The core range of the masked owl is forest that occurs at low elevation (<600 m a.s.l.).
Potential range	The potential range of the masked owl is the whole state, except Bass Strait islands.
Known range	N/A
Potential habitat	Potential habitat for the masked owl is all areas with trees with large hollows (≥15 cm entrance diameter). In terms of using mapping layers, potential habitat is considered to be all areas with at least 20% mature eucalypt crown cover (PI-type mature density class 'a', 'b', or 'c'). From on-ground surveys this is areas with at least 8 trees per hectare over 100 cm dbh.
Significant habitat	Significant habitat for the masked owl includes native dry forest areas with trees with large hollows (≥15 cm entrance diameter) that are mostly mature with no or little regrowth component. In terms of using mapping layers, significant habitat is considered to be all areas of dry forest (TASVEG dry Eucalypt forest and woodland) with at least 20% mature eucalypt crown cover (PI-type mature density class 'a', 'b', or 'c') that is classified as mature (Growth Stage class 'M'). From on-ground surveys this is areas with at least 8 trees per hectare over 100 cm dbh and more than half of the canopy cover is comprised of mature trees. Remnants and paddock trees in agricultural areas may also constitute significant habitat. (v1.5 update of FPA document – see Notes).
Other habitat definitions	N/A
CARSAG habitat model	Nests and roosts: APUs within a 300 m radius of known nest and roost sites likely to contain trees suitable for nesting or roosting within 100 m of nest or roost sites, based on Bell *et al.* (1997[8]) with some records excluded, plus some recent nest and roost sites. Inclusion: native forest and woodland; non-forest vegetation with sparse eucalypt overstorey. Exclusion: recently cleared (cr) codes, non-forest vegetation lacking sparse eucalypt overstorey (data categories from v1.0 and v1.2 Tasveg). Territories: APUs of native and partly natural vegetation within 1,300 m of revised nest and roost sites (therefore extends beyond). Exclusions: Use_BN = 0, Water and plantations.
Other information	Species habitat descriptions from PhD by Todd (2012[9]) via email "Basically, low elevation forest (less than 575 m) is very important. Mature eucalypt forest, also important. Dry forest better than wet forest but this isn't quite so important." Species model from thesis also sourced.

[8] Bell, P., Mooney, N. & Wiersma, J. (1997). Predicting essential habitat for forest owls in Tasmania. Report to the Tasmanian Regional Forest Agreement Environment & Heritage Technical Committee, January 1997.
[9] Todd, M.K. (2012). Ecology & habitat of a threatened nocturnal bird, the Tasmanian Masked Owl. PhD thesis, University of Tasmania, Hobart.

Species attribute	Definition
REM habitat model	1. Known nest and roost sites: all areas within 100 m of known nests and roosts. 2. Potential breeding habitat is old growth, mature or predominantly mature forests within the Todd model, that are: (i) medium, high or very high model class, within 5 km of known nest sites; or (ii) within the high or very high model class.
Notes	Important breeding habitat is most likely to occur in areas within accessible distance to hunting grounds. Among the major prey species, 88% of NVA bandicoot (both species) records occur on land systems which are characteristically 0-300 m altitude. Large trees suitable for nest sites are difficult to map from available PI-type data and its derivatives (e.g. mature habitat map), as only a single suitable tree is required.
Data	PI-type maturity and regrowth data. NRP land systems components data. Additional data generated with scripting embedded in the REM process.
Model status	Model tested and used in the REM.
Known issues	V1.5 update of the FPA document changed significant habitat to dry forest only. This change occurred after the model was developed.

Species: Orange-bellied Parrot
Neophema chrysogaster

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the orange-bellied parrot comprises the potential foraging range and the potential breeding range. [still to be developed]
Known range	N/A
Potential habitat	Potential habitat for the orange-bellied parrot comprises potential breeding habitat and potential foraging habitat. Potential breeding habitat is mature eucalypt forest and woodland, including copses amongst plains, with obvious hollows present. Potential foraging habitat is dunes, heathlands, coastal grasslands and saltmarshes.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	Additional information on the species is contained in the Orange-bellied Parrot recovery plan (2006[10]), which includes a map of the Breeding Range and Non-breeding Range in Tasmania: "Eucalypt forest (in the breeding range) saltmarshes, coastal dunes, pastures, shrublands,

[10] Orange-belled Parrot Recovery Team (2006). National recovery plan for the Orange-bellied Parrot (*Neophema chrysogaster*). Threatened Species Section, Department of Primary Industries & Water, Hobart. http://www.environment.gov.au/system/files/resources/f493ebf4-a19b-412c-ac15-413b7d413a69/files/orange-bellied-parrot-recovery.pdf

Species attribute	Definition
	estuaries, islands, beaches and moorlands, usually within ten kilometres of the coast, make up the diverse habitats used by Orange-bellied Parrots. Breeding habitat is a mosaic of eucalypt forest, rainforest, and extensive fire dependant moorland and sedgeland plains, intersected by wooded creeks, rivers and estuaries within the Tasmanian Wilderness World Heritage Area (Brown and Wilson 1982, 1984; Stephenson 1991). Nesting occurs predominantly in the hollows of live Smithton Peppermint *Eucalyptus nitida* in patches of forest throughout coastal southwest Tasmania, but focussed within 20 km of Melaleuca and 5km of Birch's Inlet (Brown and Wilson 1984; Higgins 1999). The entire known breeding population is contained within the Tasmanian Wilderness World Heritage Area (in particular the Southwest National Park) and Southwest Conservation Area. On passage in western and northwestern Tasmania (including offshore islands) the species occurs in dunes, heathland, coastal grasslands, saltmarsh and pasture. On King Island, they mostly occur in saltmarsh dominated by Beaded Glasswort *Sarcocornia quinqueflora*, flanked by tall dense Swamp Paperbark *Melaleuca ericifolia* forest (Higgins 1999)." p3 of Recovery Plan
REM habitat model	1. Breeding habitat for the species is native vegetation containing mature forest elements (any density) in the breeding range, as defined in the 2006 Recovery Plan. 2. Foraging habitat is vegetation communities in the species inclusion list (see below) within either the breeding range or the foraging range, based on the map and description in the 2006 Recovery Plan.
Notes	The inclusions list for the species is the Tasveg communities in which the species has been recorded in the NVA since 1983 at accuracy <=500 mm and that are consistent with the descriptions of the foraging habitat: ARS ASS, AUS, AWU, GHC, MBS, SCA, SSC and SSK.
Data	Breeding range polygon generated from map in 2006 Recovery Plan. Foraging range polygon (outside of the breeding range) generated from the map and descriptions in the 2006 Recovery Plan, comprising the Breeding range, 10km inland of the coast from Veridian Point (SW Tas) to Sisters Beach (NW Tas), and King, Hunter, Three Hummock, Walker, Robbins and Perkins Islands. Vegetation mapping from Tasveg and/or NRP Atomic Planning Units data.
Model status	Model tested and used in the REM.

Species: Swift Parrot
Lathamus discolor

Species attribute	Definition
FPA attributes	
Core range	The core breeding range of the swift parrot is the area within the SE potential breeding range that is within 10km of the coast or is designated as a SPIBA (as defined in FPA 2010).
Potential range	The potential breeding range of the swift parrot comprises the NW potential breeding range and the SE potential breeding range. The NW potential breeding range includes the NW breeding areas (known nesting locations e.g. Gog Range, Badger Range, Kelsey Tier).
Known range	N/A
Potential habitat	Potential breeding habitat for the swift parrot comprises potential foraging habitat and potential nesting habitat, and is based on definitions of foraging and nesting trees (see Table A in swift parrot habitat assessment. Potential foraging habitat comprises *E. globulus* or *E. ovata* trees that are old enough to flower. The occurrence of foraging habitat can be remotely assessed, although only to a limited extent, by using mapping layers such as GlobMap (DPIPWE 2010[11]). Due to the scale and inadequacies in current foraging-habitat mapping, potential foraging-habitat density within operational areas may need to be largely identified by ground based surveys as per Table B in the draft swift parrot habitat assessment Technical Note). For management purposes potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees. The FPA mature habitat availability map (see FPA's Fauna Technical Note 2[12]) predicts the availability of hollow bearing trees using the relevant definitions of habitat provided in Table C of the draft swift parrot habitat assessment Technical Note. The mature habitat availability map is designed to be used to make landscape-scale assessments and may not be reliable for stand-level assessments required during the development of a forest practices plan. At the stand-level the availability and distribution of hollow-bearing trees across a coupe or operation area is best determined from a ground-based assessment (see Table C in the draft Swift parrot habitat assessment technical note).
Significant habitat	Significant habitat is all potential breeding habitat within the SE potential breeding range and the NW breeding areas.
Other habitat definitions	N/A
CARSAG habitat model	Swift Parrot foraging habitat. APUs of *E. globulus* grassy forest and *E. ovata/E. viminalis* shrubby forest intersecting the modelled distribution of the species. Model is as defined as a single polygon in the file Swiftglob.shp, supplied by Ray Brereton and John Ashworth, plus all APUs of the two forest types within 5km. Swift Parrot nest sites: All forested APUs with good biophysical naturalness characteristics within 300 m of nest locations reported in Brereton (1997[13]).
Other information	N/A

[11] Biodiversity Conservation Branch (2010). Globmap, the Swift Parrot foraging habitat map. Department of Primary Industries, Parks, Water & Environment, Hobart.
[12] Koch, A. (2011). Explanatory notes on the mapping of areas that potentially contain mature forest characteristics (the 'mature habitat availability map'). Fauna Technical Note 2, Forest Practices Authority, Hobart.
[13] Brereton, R. (1997). Management prescriptions for the Swift Parrot in production forests. Report to the Tasmanian Regional Forest Agreement Environment & Heritage Technical Committee, June 1997.

Species attribute	Definition
REM habitat model	1. Known nest sites: Areas within 300 m of known nest sites (NVA data). 2. Foraging habitat: *E. ovata* (DOV, DOW) or *E. globulus* forests (DGL, WGL) with biophysical naturalness class 2-5 within the South East Core Range and North West breeding area. Also includes areas mapped in the Globmap project as having 20-50% of individuals in a stand as *E. globulus* that are not biophysical naturalness class 1 or silvicultural regeneration. 3. Breeding habitat: Areas of eucalypt forest in the south East Core Range and North West breeding area which are old growth, mature or predominantly mature in PI-type mapping..
Notes	Biophysical naturalness class 1 is excluded from foraging habitat, as trees are assumed to be too small to flower.
Data	Foraging habitat stored as a set of polygons in the NRP Atomic Planning Units layer, which includes Tasveg, GlobMap and other field-based mapping. Breeding habitat to be generated using scripting embedded in the REM process.
Model status	Model tested and used in the REM.

Species: Wedge-tailed Eagle (nest sites)
Aquila audax subsp. *fleayi*

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the wedge-tailed eagle is the whole of Tasmania including islands.
Known range	N/A
Potential habitat	Potential habitat for the wedge-tailed eagle comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is a wide variety of forest (including areas subject to native forest silviculture) and nonforest habitats. Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year. [see Part I of the FPA Biodiversity Values Database, FPA's Fauna Technical Note 1 and nesting habitat model (e.g. State Forest Eagle Potential Nesting layer) for more information]
Significant habitat	Significant habitat for the wedge tailed eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where the nest tree is still present).
Other habitat definitions	N/A
CARSAG habitat model	Approximately 500 m around known nest sites (depending on noise arising from GIS intersection of vegetation polygons.
Other information	N/A

REM habitat model	All areas within 500 m of known nest sites.
Notes	The 1,000 m line of sight provision is excluded from the REM due to complexity of inclusion in the REM architecture. It is assumed this requirement will be met through operational provisions. The FPA criterion of including only native forest and native non-forest is not supported, as the sensitivity of the zone around the nest is to disturbance and has not been reported as sensitive to habitat type. Determination of the presence of the nest tree will be either from NVA data (see below) or dealt with through operational provisions.
Data	Habitat is generated through the REM process based on a subset of NVA point locations identified as nest sites (project code "RND", observation type "nest", and notes not indicating nest lost or destroyed).
Model status	Model tested and used in the REM.

Species: White-bellied Sea Eagle (nest sites)
Haliaeetus leucogaster

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the white-bellied sea eagle is the whole of Tasmania including islands.
Known range	N/A
Potential habitat	Potential habitat for the white-bellied sea-eagle species comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (Class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used. The species nests and forages mainly near the coast but will also live near rivers, lakes and farm dams. Nest trees are amongst the largest in a locality. Nests are not usually constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year
Significant habitat	Significant habitat for the white-bellied sea eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where the nest tree is still present).
Other habitat definitions	N/A
CARSAG habitat model	Approximately 500 m around known nest sites (depending on noise arising from GIS intersection of vegetation polygons.
Other information	N/A
REM habitat model	All areas within 500 m of known nest sites.

Notes	The 1,000 m line of sight provision is excluded from the REM due to complexity of inclusion in the REM architecture. It is assumed this requirement will be met through operational provisions. The FPA criterion of including only native forest and native non-forest is not supported, as the sensitivity of the zone around the nest is to disturbance and has not been reported as sensitive to habitat type. Determination of the presence of the nest tree will be either from NVA data (see below) or dealt with through operational provisions.
Data	Habitat is generated through the REM process based on a subset of NVA point locations identified as nest sites (project code "RND", observation type "nest", and notes not indicating nest lost or destroyed).
Model status	Model tested and used in the REM.

2.2 Fish

Species: Arthurs Paragalaxias
Paragalaxias mesotes

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Arthurs paragalaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species).
Known range	N/A
Potential habitat	Potential habitat for the Arthurs paragalaxias is all waterbodies including streams and riparian vegetation (including lakeside vegetation).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Native riparian vegetation within one kilometre of known locations on streams. 2. Native riparian vegetation around the foreshores of Woods Lake and Arthurs lake, and the native riparian vegetation of streams entering the lakes up to a distance of one kilometre from the lake edge.
Notes	There is a single NVA record from Tarraleah in the NVA. It is recorded as a museum specimen from 1976. This area will not be modelled for habitat.
Data	NRP Atomic Planning Units data layer. LIST Hydline and Hydarea layer.
Model status	Model tested and used in the REM.

Species: Australian Grayling
Prototroctes maraena

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range for the Australian grayling is coastal river systems (Davies, unpubl. data).
Known range	N/A
Potential habitat	Potential habitat for the Australian grayling is all streams and rivers in their lower to middle reaches. Areas above permanent barriers (e.g. Prosser River dam, weirs) that prevent fish migration are not potential habitat.
Significant habitat	N/A

Species attribute	Definition
Other habitat definitions	N/A
CARSAG habitat model	APUs 2km upstream and downstream of recorded locations (or to coast).
Other information	N/A
REM habitat model	1. Class 1 and Class 2 streams in CFEV river section catchments with maximum altitude <250 m that are in CFEV subcatchments in which the species has been recorded, and associated riparian zones. Note: The includes all riparian zones, not just those under native vegetation.
Notes	All records with accuracy <=200 m occur on Class 1 or Class 2 streams, or in other aquatic environments such as
Data	CFEV river section catchment and subcatchments data.
Model status	Model tested and used in the REM.

Species: Clarence Galaxias
Galaxias fontanus

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Clarence galaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species).
Known range	N/A
Potential habitat	The potential range of the Clarence galaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	APUs intersecting the locations of all populations as described in the Threatened Species Listing Statement for the species at and to the north of Clarence Lagoon, Wentworth Hills, Dyes Rivulet and Dyes Marsh, Tibbs Plain Marsh, Skullbone Plains and a tributary of the Nive River.
Other information	Important locations for the species are identified in the threatened species listing statement for the species. .
REM habitat model	1. Native riparian vegetation on streams within the Potential Range. 2. Waterbodies identified in the species listing statement as important locations, and their associated riparian zones. Note: Wetlands are included in the definition of riparian zones in the REM.
Notes	62% of records are on Class 2 streams. Average slope of stream beds is ~2 degrees, however SD and variance are relatively high.

Species attribute	Definition
Data	NRP Atomic Planning Units data. FT Hydline layer attributed with FPA stream classes. LIST Hydarea layer (for watercourse polygons).
Model status	Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that it needs to develop a new range boundary involving a minor change to include one old data point not captured by the version used. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: Dwarf Galaxias
Galaxiella pusilla

Species attribute	Definition
FPA attributes	
Core range	The core range of the dwarf galaxiid incorporates known sites and the catchments above known sites.
Potential range	The potential range of the dwarf galaxiid is the broader catchments defined by specialists where the species may occur and where surveys have not been conducted.
Known range	N/A
Potential habitat	Potential habitat for the dwarf galaxiid is slow-flowing waters such as swamps, lagoons, drains or backwaters of streams, often with aquatic vegetation. It may also be found in temporary waters that dry up in summer for as long as 6-7 months, especially if burrowing crayfish burrows are present (although these will usually be connected to permanent water). Habitat may include forested swampy areas. Juveniles congregate in groups at the water surface in pools free of vegetation.
Significant habitat	Significant habitat for the dwarf galaxiid is all potential habitat and a 30 m stream-side reserve within the core range.
Other habitat definitions	N/A
CARSAG habitat model	APUs of riverine, wetland or water vegetation within 500 m of known locations, plus some areas individually tagged.
Other information	N/A
REM habitat model	1. LIST wetlands and 2D watercourses, and Tasveg wetlands, within the Core Range that are <50 m altitude. 2. Native riparian vegetation on Class 1, 2 streams in the Core Range that are <50 m altitude. 3. Native riparian vegetation on Class 3 and 4 streams in the Core Range that are <50 m altitude AND have a streambed slope (CFEV data) of <2 degrees.
Notes	82% of record locations that intersect stream buffers are on Class 2 streams. All NVA records with an accuracy <=200 m are on CFEV river sections with a slope of <2 degrees (CFEV data), and are also at <50 m altitude.
Data	Vegetation data from NRP Atomic Planning Units. LIST Hydarea layer. CFEV river sections data (contains bed slope data).
Model status	Model tested and used in the REM.

Known issues	DPIPWE advised on 30 January 2014 that it needs to develop a new range boundary for the species to correct erroneous TMAG data points. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: Golden Galaxias
Galaxias aerates

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the golden galaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species). The range boundary includes the catchments of populations translocated on private property.
Known range	N/A
Potential habitat	Potential habitat for the golden galaxias is all waterbodies including streams and riparian vegetation (including lakeside vegetation).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Riparian zones within 500 m of known locations that are outside the Potential Range. 2. Riparian zones associated with streams and waterbodies that are within the Potential Range.
Notes	The Potential Range excludes the locations of seven NVA records that are of relatively high positional accuracy (<=200 m) and currency (most 1996 or later). Some NVA record locations are on freshwater features on which there is no native riparian vegetation.
Data	LIST Hydarea and Hydline layers.
Model status	Model tested and used in the REM.

Species: Great Lake Paragalaxias
Paragalaxias eleotroides

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Great Lake paragalaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species).
Known range	N/A
Potential habitat	Potential habitat for the Great Lake paragalaxias is all waterbodies (including streams) and riparian vegetation (including lakeside vegetation) within the potential range of the species.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. The Great Lake waterbody and fringing riparian zone (native vegetation and other). 2. Riparian zones contiguous within one kilometre of the foreshore of Great Lake that are watercourse polygons (Hydarea data), Class 1 or Class 2 streams, or Class 3 or Class 4 streams with a bed slope <2.5 degrees.
Notes	All NVA record locations with <=500 m accuracy are located in Great Lake and around the foreshore, and not in streams forming the lake catchment. The habitat beyond the lake is therefore considered to include only streams entering the lake that have a low stream class (1, 2) or low bed slope, both of which are used here as an analogue of areas in which stiller water is likely to occur.
Data	CFEV rivers layer (bed slope data). LIST Hydarea layer. DPIPWE stream classes and buffers (for class of watercourse polygons). FT Hydline layer attributed with FPA stream classes.
Model status	Model tested and used in the REM.

Species: Saddled Galaxias
Galaxias tanycephalus

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the saddled galaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species).
Known range	N/A
Potential habitat	Potential habitat for the saddled galaxias is all waterbodies including streams and riparian vegetation (including lakeside vegetation).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Native riparian vegetation within one kilometre of known locations on streams. 2. Native riparian vegetation around the foreshores of Woods Lake and Arthurs lake, and the native riparian vegetation of streams entering the lakes up to a distance of one kilometre from the lake edge.
Notes	Only one NVA record of the species with a positional accuracy <=200 m (it then jumps to 1,000 m) is located more than one kilometre from a waterbody. Rule 1 applies to only 2 NVA record locations.
Data	LIST Hydline and Hydarea data.
Model status	Model is identical to Arthurs Paragalaxias. Model script finds tags for Arthurs Paragalaxias and adds codes for this species, and updates the species number and status fields. Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that it needs to develop a new range boundary to correct erroneous TMAG data points. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: Shannon Paragalaxias
Paragalaxias dissimilis

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Shannon paragalaxias is the catchment of the lakes and other waterbodies where the species occurs (except where a specialist advises that part of the catchment is not important to the species).
Known range	N/A
Potential habitat	Potential habitat for the Shannon paragalaxias is all waterbodies (including streams) and riparian vegetation (including lakeside vegetation) within the potential range of the species.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. The Great Lake and Penstock Lagoon waterbodies and fringing riparian zone (native vegetation and other). 2. Riparian zones contiguous within one kilometre of the foreshore of Great Lake that are Class 1 or Class 2 streams, or Class 3 or Class 4 streams with a bed slope <2.5 degrees.
Notes	The Potential Range polygon excludes a recorded location in the Poatina Tail Race.
Data	CFEV rivers layer (bed slope data). DPIPWE stream classes and buffers. FT Hydline layer attributed with FPA stream classes.
Model status	Model tested and used in the REM.

Species: Swamp Galaxias
Galaxias parvus

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range for the swamp galaxias is swampy areas and suitable streams surrounding the Lake Pedder impoundment, a few streams draining to Lake Gordon near McPartlan Pass (part of the Wedge catchment prior to flooding) and some small streams in the Huon River catchment upstream of the Pedder impoundment. It does not include the main body of the Lake Pedder impoundment or Lake Gordon.
Known range	N/A
Potential habitat	Potential habitat for the swamp galaxias is slow-flowing swampy streams with sandy or silty substrate, ranging in size from large deep streams to small runnels.

Species attribute	Definition
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Native riparian vegetation on streams within 500 m of known locations. 2. Native riparian vegetation on streams and wetlands on river sections with <3 degrees bed slope within the Potential Range. 3. Native riparian vegetation on Class 1 and Class 2 streams within the Potential Range.
Notes	90% of NVA records with an accuracy <=200 m are on streams with <3 degrees slope. Some streams on which records are located are not recognised in CFEV, so slope data will need to be substituted from other sources (e.g. FT stream class data).
Data	CFEV rivers and wetlands layers. DPIPWE stream classes and buffers layer. LIST Hydarea layer. FT Hydline layer attributed with FPA stream classes.
Model status	Model has not been developed as species potential range does not overlap the area of interest.
Known issues	DPIPWE advised on 30 January 2014 that it needs to develop a new range boundary involving major extensions to correct erroneous data. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: Swan Galaxias
Galaxias fontanus

Species attribute	Definition
FPA attributes	
Core range	The core range of the Swan galaxias incorporates known sites and the catchments above known sites. This includes the Wildlife Priority Areas (Fauna Special Management Zones) on the upper Swan River, Tater Garden Creek and upper Blue Tier Creek, and other upper catchments of tributaries of the Macquarie, Blackman and Isis Rivers.
Potential range	The potential range of the Swan galaxias is the broader catchments defined by specialists where the species may occur and where surveys have not been conducted.
Known range	N/A
Potential habitat	Potential habitat for the Swan galaxias is slow to moderately fast flowing streams containing permanent water (even when not flowing), which have good in-stream cover from overhanging banks and/or logs, and shade from overhanging vegetation. A population can only be maintained where barriers have prevented establishment of trout and redfin perch. The nature of these barriers is variable and can include permanent natural structures such as waterfalls and chutes and also low flow dependent features such as marshes, ephemeral water-losing and remnant channels, and braided channel floodplain features.

Species attribute	Definition
Significant habitat	Significant habitat for the Swan galaxias is all potential habitat and a 30 m stream-side reserve within the core range. This includes the Wildlife Priority Areas (Fauna Special Management Zones) on the upper Swan River, Tater Garden Creek and upper Blue Tier Creek, and other upper catchments of tributaries of the Macquarie, Blackman and Isis Rivers.
Other habitat definitions	N/A
CARSAG habitat model	Riverine APUs in the natural populations in Blue Tier Creek, Tater Garden Creek (2 populations) and translocated populations in Coghlans Creek, Cygnet River, Dukes River, Green Tier Creek, Lost Falls Creek, Rocka Rivulet, St Pauls River, Tullochgorum Creek and Upper Blue Tier Creek.
Other information	N/A
REM habitat model	1. Native riparian vegetation within 500 m of recorded locations. 2. Native riparian vegetation on Class 1, 2 and 3 streams in the catchments above known sites.
Notes	Some known locations are not in the Core Range polygon. 90% of NVA records with accuracy <=100 m are on Class 2 streams. The Core Range polygon does not match the description given. It includes substantial areas downstream of the known locations, despite the extant habitat being dependent on barriers to exotic fish establishment. Polygons in the NVA layer correspond to the CFEV subcatchments in which the species has been recorded, not the description. A separate layer for the species has been produced that matches the description given.
Data	FT Hydline layer attributed with FPA stream classes.
Model status	Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that it needs to develop a new range boundary for the species reflecting an “extremely minor change”. This occurred after the model had been developed and may need to be incorporated into a future revision.

2.3 Frogs and reptiles

Species: Glossy Grass Skink
Pseudemoia rawlinsoni

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the glossy grass skink is a 5 km (radius) buffer centred on known sites.
Known range	N/A
Potential habitat	Potential habitat for the glossy grass skink is wetlands and swampy sites (including grassy wetlands, tea tree swamps and grassy sedgelands), and margins of such habitats.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. The Core Range (500 m buffer of known locations), excluding urban areas (Tasveg FUR, FUM). 2. Parts of the land system polygons that are within one kilometre of the Core Range and have any of the following characteristics: (i) are LIST freshwater features classified as wetlands, wet areas or floodplains; or (ii) are land components that are gentle lower slopes or lower plains with the Tasveg communities for wetlands ("A" codes), grasslands, (GSL, GCL) swamp forests (NLM, NME), forests known to occur on wet areas (DOV, DOW, DVS) or wet scrubs (SRI, SSC).
Notes	The Core Range data on the NVA is a 500 m buffer, not 5km. Some recorded locations are on the edge of urban areas, with the Core Range buffer extending into them. 78% of NVA records with accuracy <=500 m are on land components that are gentle lower slopes or lower plains.
Data	NRP Land systems components data. LIST Hydarea layer. Vegetation from NRP Atomic Planning Units. Additional data generated by a script embedded in the REM.
Model status	Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that the revised boundary developed by the FPA needs to be included in the repository on the NVA. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: Green and Gold Frog
Litoria raniformis

Species attribute	Definition
FPA attributes	
Core range	The core range of the green and gold frog is an arbitrary 5 km (radius) buffer centred on the known sites (this range is also referred to as "important areas", which can include point locations for low precision records and polygons for known habitat patches such as named lagoons).
Potential range	The potential range of the green and gold frog is based on models of the current and historic distribution of the species.
Known range	N/A
Potential habitat	Potential habitat for the green and gold frog is permanent and temporary waterbodies, usually with vegetation in or around them. Potential habitat includes features such as natural lagoons, permanently or seasonally inundated swamps and wetlands, farm dams, irrigation channels, artificial water-holding sites such as old quarries, slow-flowing stretches of streams and rivers and drainage features.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. 100 m around known locations. 2. Riparian zones around freshwater features within the Potential Range, excluding class 4 streams. (3. For recorded locations outside the Potential Range, riparian zones of freshwater within one kilometre of the recorded location that are not class 4 streams.) Deleted from current REM - there are no records of sufficient accuracy outside the Core Range.
Notes	The land system polygon is used as an indicator of likely change in the physical characteristics of the potential habitat. The Core Range polygon is extremely large relative to the Potential Range; probably too large to be useful.
Data	To be generated through a script to be incorporated in the REM. Updated land systems polygons data (NRP). LIST Hydarea layer. Stream class data for river sections (FT version of LIST Hydline).
Model status	Model tested and used in the REM.

Species: Striped Marsh Frog
Limnodynastes peroni

Species attribute	Definition
FPA attributes	
Core range	The core range of the striped marsh frog is an arbitrary 5 km (radius) buffer centred on the known sites (this range is also referred to as "important areas", which can include point locations for low precision records and polygons for known habitat patches such as named lagoons).
Potential range	The potential range of the striped marsh frog is based on models of the current and historic distribution of the species (mainly coastal and near-coastal parts of the northeast, north, northwest, west and southwest).
Known range	N/A
Potential habitat	The core range of the striped marsh frog is an arbitrary 5 km (radius) buffer centred on the known sites (this range is also referred to as "important areas", which can include point locations for low precision records and polygons for known habitat patches such as named lagoons).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. 100 m around known locations. 2. Riparian zones around freshwater features within the Potential Range, excluding class 4 streams. (3. For recorded locations outside the Potential Range, riparian zones of freshwater within one kilometre of the recorded location that are not class 4 streams.) Deleted. There are no records of sufficient accuracy outside the Core Range.
Notes	The land system polygon is used as an indicator of likely change in the physical characteristics of the potential habitat.
Data	To be generated through a script to be incorporated in the REM. Updated land systems polygons data (NRP). LIST Hydarea layer. Stream class data for river sections (FT version of LIST Hydline).
Model status	Model tested and used in the REM.

Species: Tussock Skink
Pseudemoia pagenstecheri

Species attribute	Definition
FPA attributes	
Core range	The core range of the tussock skink is a 500 m (radius) buffer centred on the known sites.
Potential range	The potential range of the tussock skink includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (includes the majority of mapped native lowland and highland grasslands throughout the Midlands, Fingal Valley and northwest grasslands).
Known range	N/A
Potential habitat	The potential range of the tussock skink includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (includes the majority of mapped native lowland and highland grasslands throughout the Midlands, Fingal Valley and northwest grasslands).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. The Core Range, where the location of NVA records in the polygon have a spatial accuracy <=500 m, and the vegetation type is not water. 2. Native grasslands (Tasveg ”G”), dry forest and woodlands (Tasveg “D”) and non-eucalypt forest and woodland (Tasveg “N”) on land systems polygons that intersect the core range and are land components that are lower plains or gentle lower slopes and within 5km of the Core Range.
Notes	Some of the buffered polygons in the Core Range data are based on records of low positional accuracy (e.g. NVA species obs. 560447, accuracy 2,000 m). All but one of the NVA species records is 1983 or later. Known locations of the species are concentrated on flatter areas associated with proximity to streams. 76% of records with accuracy <=500 m are on land components that are gentle lower slopes or lower plains.
Data	
Model status	Model tested and used in the REM.

2.4 Invertebrates

Species: Ammonite Snail (land snail)
Discocharopa vigens

Species attribute	Definition
FPA attributes	
Core range	The core range of the ammonite snail is a specialist-defined buffer zone based on habitat features and centered on known sites.
Potential range	The potential range of the ammonite snail includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the ammonite snail is dry and wet eucalypt forests on dolerite in the Hobart lowlands (all below 400 m a.s.l).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. 100 m around known locations. 2. Dry forest ("D" codes) and wet forest ("W" codes) within the Core Range.
Notes	The Potential Range is extremely large relative to the number of known locations.
Data	
Model status	Model not developed. Species does not occur in FT area of interest.

Species: *Beddomeia kershawi, B. krybetes & B. launcestonensis*
(Hydrobiid group 1)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened freshwater snails includes the known range and specialist-defined extensions of the known range based on habitat features (catchment based) but are as yet largely unsurveyed.
Known range	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Potential habitat	Potential habitat for these species (*B. kershawi, B. krybetes, B. launcestonensis*) is riverine habitats within the potential range.
Significant habitat	N/A

Species attribute	Definition
Other habitat definitions	N/A
CARSAG habitat model	Various models, mostly based on riparian vegetation within specified distance of known locations.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Riparian zones on Class 1 and 2streams within the Potential Range.
Notes	Recorded locations of these species are on main river channels.
Data	FT version of LIST Hydline layer, attributed with stream classes.
Model status	Model tested and used in the REM. Habitat in model is largely outside FT area of interest.

Species: *B. averni, B. briansmithi, B. camensis, B. capensis, B. fromensis, B. fultoni, B. hallae, B. hermansi, B. lodderae, B. petterdi, B. phasianella, B. ronaldi, B. tumida, B. waterhouseae, B. wiseae*
(Hydrobiid group 2)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened freshwater snails includes the known range and specialist-defined extensions of the known range based on habitat features (catchment based) but are as yet largely unsurveyed.
Known range	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Potential habitat	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Significant habitat	*B. briansmithi, B. capensis, B. fromensis, B. lodderae, B. ronaldi, B. turnerae, B. waterhouseae, B. wiseae* all included in FPA Planning Guideline 2008/1. Significant habitat for these species is all native vegetation within the known range.
Other habitat definitions	N/A
CARSAG habitat model	Various models, mostly based on riparian vegetation within specified distance of known locations.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Riparian zones within the Known Range of species listed above under Significant Habitat, plus *B. camensis,* and *B. fultoni.* 3. Riparian zones within the Potential Range of *B. averni, B. hallae, B. hermansi, B. petterdi,* and *B. phasianella.*
Notes	Potential Range used where the known range is small and does not contain substantial areas where the physical environment or vegetation of riparian zones is substantially different from the Known Range.

Species attribute	Definition
Data	LIST Hydline and Hydarea layers. Native vegetation from NRP Atomic Planning Units (mostly Tasveg with some updates). Riparian zones are generated in the REM scripting process.
Model status	Model tested and used in the REM.

Species: *B. angulata, B. zeehanensis, Phrantela annamurrayae, P. conica, P. marginata* (Hydrobiid group 3)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened freshwater snails includes the known range and specialist-defined extensions of the known range based on habitat features (catchment based) but are as yet largely unsurveyed.
Known range	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Potential habitat	Potential habitat for these species (*B. angulata, B. zeehanensis, P. annamurrayae, P. conica, P. marginata*) is all watercourses within the potential range. These species either have restricted distributions that are currently poorly defined (e.g. some of the west coast species) or restricted distributions that may be better defined but a higher level of management is anticipated due to the restricted distribution.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Various models, mostly based on riparian vegetation within specified distance of known locations.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Riparian zones within the Known Range.
Notes	
Data	LIST Hydline and Hydarea layers. Riparian zones are generated in the REM scripting process.
Model status	Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that it needs to develop a new range boundary for *P. marginata* to reflect new records. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: *B. bowryensis, B. gibba, B. salmonis* (Hydrobiid group 4)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened freshwater snails includes the known range and specialist-defined extensions of the known range based on habitat features (catchment based) but are as yet largely unsurveyed.
Known range	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Potential habitat	Potential habitat for these species (*B. bowryensis, B. gibba, B. salmonis*) is all watercourses within the potential range. These species are poorly understood. Multiple surveys have failed to extend the range beyond a low number of sites.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Various models, mostly based on riparian vegetation within specified distance of known locations.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Riparian zones within the Known Range of *B. bowryensis* and *B. salmonensis* 3. Riparian zones within the Potential Range of *B. gibba.*
Notes	NVA range polygons include two layers for Bowry Creek hydrobiids. Layer for *B. bowryensis* is suffixed with species code 70_20443.
Data	LIST Hydline and Hydarea layers. Riparian zones are generated in the REM scripting process.
Model status	Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that it needs to update the range boundaries for *B. bowryensis, B. gibba* and *B. salmonis* to reflect new records. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: *B. bellii, B. forthensis, B. franklandensis, B. hulli, B. inflata, B. protruberata, B. topsiae, B. trochiformis*
(Hydrobiid group 5)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened freshwater snails includes the known range and specialist-defined extensions of the known range based on habitat features (catchment based) but are as yet largely unsurveyed.
Known range	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Potential habitat	Potential habitat for these species (*B. bellii, B. forthensis, B. franklandensis, B. hulli, B. inflata, B. protruberata, B. topsiae, B. trochiformis*) is all watercourses within the potential range.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Various models, mostly based on riparian vegetation within specified distance of known locations.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Riparian zones within the Known Range of *B. forthensis, B. franklandensis, B. hullii, B. protuberata, B. topsiae.* 3. Riparian zones within the Potential Range of *B. bellii, B. inflata, B. trochiformis.*
Notes	
Data	LIST Hydline and Hydarea layers. Riparian zones are generated in the REM scripting process.
Model status	Model tested and used in the REM.
Known issues	DPIPWE advised on 30 January 2014 that it needs to update the range boundaries for *B. hullii* to reflect new records at Savage River and new records for *B. topsiae*. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: *B. fallax, B. mesibovi, B. minima, B. tasmanica, B. turnerae, B. wilmotensis, P. pupiformis*
(Hydrobiid group 6)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened freshwater snails includes the known range and specialist-defined extensions of the known range based on habitat features (catchment based) but are as yet largely unsurveyed.
Known range	The known range of threatened freshwater snails is based on known sites, surveys (presence/absence) and specialist opinion.
Potential habitat	Potential habitat for these species (*B. fallax, B. mesibovi, B. minima, B. tasmanica, *B. turnerae, B. wilmotensis, P. pupiformis*) is generally restricted to smaller streams across larger catchments.
Significant habitat	*B. turnerae* is included in FPA Planning Guideline 2008/1. Significant habitat for these species is all native vegetation within the known range.
Other habitat definitions	N/A
CARSAG habitat model	Various models, mostly based on riparian vegetation within specified distance of known locations.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Riparian zones within the Known Range of *B. fallax, B. mesibovi, B. minima, B. tasmanica, B. turnerae* and *Phrantela pupiformis.* 3. Riparian zones within the Potential Range of *B. wilmotensis.*
Notes	
Data	LIST Hydline and Hydarea layers. Native vegetation from NRP Atomic Planning Units (mostly Tasveg with some updates). Riparian zones are generated in the REM scripting process.
Model status	Model tested and used in the REM.

Species: Blind Velvet Worm
Tasmanipatus anophthalmus

Species attribute	Definition
FPA attributes	
Core range	The core range of the blind velvet worm is a minimum convex polygon around known sites.
Potential range	The potential range of the blind velvet worm is a buffer of 2 km around most of the core range but greater around the southern part of the range (where survey has been limited).
Known range	N/A
Potential habitat	Potential habitat for the blind velvet worm is eucalypt forest with rotting logs.

Species attribute	Definition
Significant habitat	Significant habitat for the blind velvet worm is all forest within the core range that has not been subject to any high-intensity or frequent fires within at least the last 20 years, containing numerous rotting eucalypt logs including large (greater than 40 cm in mid-log diameter) decaying eucalypt logs with a soft rot centre, that remain moist in areas protected from disturbance such as fire.
Other habitat definitions	N/A
CARSAG habitat model	Core habitat: APUs of eucalypt forest within the core distribution mapped by Mesibov (1997) in good biophysical condition (Use_bn >= 3). Also same forest characteristics in vicinity of known locations. General habitat: APUs of eucalypt forest within the marginal distribution mapped by Mesibov (1997) in very good biophysical condition (Use_bn >=4). Condition a surrogate for use of rotting logs as habitat.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations or eucalypt forest within 200 m of known locations. 2. Areas within the Potential Range that are land systems components that are steep lower slopes, steep mid-slopes and gentle lower and: - are eucalypt forests with PI-type coding that is predominantly mature; or - are old growth; or - are eucalypt forest with biophysical naturalness classes 4 or 5.
Notes	86% of NVA record locations are on land system components that are steep mid-slopes, steep lower slopes (incised streams in this area) or gentle lower slopes.
Data	PI-type coding within species range. Land systems components data layer (NRP layer).
Model status	Model tested and used in the REM.

Species: Bornemisszas Stag Beetle
Hoplogonus bornemisszai

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	N/A
Known range	The known range of the Bornemisszas stag beetle is a minimum convex polygon around known sites.
Potential habitat	Potential habitat for the Bornemisszas stag beetle is wet eucalypt forest (including those regenerating after clearfell, burn and sow silviculture), mixed forest, damp or wet forest gullies in dry forest. Habitat quality may improve with increasing moisture content, leaf litter depth, proportion of coarse woody debris, etc. (v1.5 update of FPA document – see Notes).
Significant habitat	Significant habitat for the Bornemisszas stag beetle is all potential habitat within the known range
Other habitat definitions	N/A

Species attribute	Definition
CARSAG habitat model	APUs of wet forest in good biophysical condition (Use_BN >=3) plus other APUs in vicinity of recorded locations.
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Tasveg wet eucalypt forest ("W" codes) or riparian zone of dry eucalypt forests ("D" codes) within the Known Range.
Notes	v1.5 update of FPA document added section on habitat quality to potential habitat.
Data	Vegetation from NRP Atomic Planning Units. Riparian zones generated from LIST Hydline and Hydarea as part of the REM process.
Model status	Model tested and used in the REM.

Species: Broad-toothed Stag Beetle
Lissotes latidens

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the broad-toothed stag beetle includes the known range and specialist-defined extensions to the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (primarily extending to the coastal region, east of the known range on mainland Tasmania and the whole of Maria Island).
Known range	The known range of the broad-toothed stag beetle is a minimum convex polygon around known sites.
Potential habitat	Potential habitat for the broad-toothed stag beetle ranges from patches of wet forest within dry eucalypt forest (especially drainage lines and wet gullies) to wet eucalypt forest and rainforest, noting that areas where logs occupy more than 10% of the forest floor are preferred.
Significant habitat	Significant habitat for the broad toothed stag beetle is all potential habitat within the known range.
Other habitat definitions	N/A
CARSAG habitat model	APUs of wet forest, damp sclerophyll and rainforest in good biophysical condition that intersect the 2 known ranges of the species as reported by Meggs (1999[14]) , plus all such APUs within 100 m of known locations of the species. Also riverine APUs of other forest types in good biophysical conditions within known range.
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Wet eucalypt forest ("W" codes), rainforest ("R" codes), dry eucalypt forest ("D" codes) in riparian zones, and SBR within the Potential Range that are within biophysical naturalness classes 3, 4 or 5.

[14] Meggs, J.M. (1999). Distribution, habitat characteristics & conservation requirements of the Broad-toothed Stag Beetle *Lissotes latidens* (Coleoptera: Lucanidae). A report to the Forest Practices Board & Forestry Tasmania, May 1999.

Species attribute	Definition
Notes	Biophysical naturalness classes less than 3 are less likely to have logs on the forest floor due to the intensity of harvesting.
Data	BN data is embedded in NRP Atomic Planning Units data, including update for FT land using PI-type disturbance data. Riparian zones generated from LIST Hydline and Hydarea data as part of the REM process.
Model status	Model tested and used in the REM.

Species: Burgundy Snail
Helicarion rubicundus

Species attribute	Definition
FPA attributes	
Core range	The core range of the burgundy snail is a minimum convex polygon around known sites.
Potential range	The potential range of the burgundy snail includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the burgundy snail is all wet forest, including regrowth, regardless of age, topography or management history.
Significant habitat	Significant habitat for the burgundy snail is all potential habitat within the core range.
Other habitat definitions	N/A
CARSAG habitat model	Wet eucalypt and rainforest APUs in good biophysical condition within two defined ranges – one of the Forestier Peninsula and the other on the Tasman Peninsula, plus riparian APUs of other forest types in same range.
Other information	N/A
REM habitat model	1. Native vegetation within 200 m of known locations. 2. Wet eucalypt forest within the potential range.
Notes	15 of 77 NVA record locations for the species are mapped in dry eucalypt forests.
Data	Vegetation data from NRP Atomic Planning Units (Tasveg plus some updated data).
Model status	Model tested and used in the REM.

Species: Burnie Burrowing Crayfish
Engaeus yabbimunna

Species attribute	Definition
FPA attributes	
Core range	The core range of the Burnie burrowing crayfish is a minimum convex polygon around known sites.
Potential range	The potential range of the Burnie burrowing crayfish includes the core range and specialist-defined extensions of the core range that may support the species but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the Burnie burrowing crayfish includes any poorly drained habitats such as streams (of any class and disturbance history), seepages (e.g. springs in forest or pasture, outflows of farm dams), low-lying flat swampy areas and vegetation (e.g. buttongrass and heathy plains, marshy areas, boggy areas of pasture), drainage depressions, ditches (artificial and natural, including roadside ditches, pasture drains, etc.).
Significant habitat	Significant habitat for the Burnie burrowing crayfish is all native vegetation in the immediate catchments of sites where the species is known to occur.
Other habitat definitions	N/A
CARSAG habitat model	Riparian native vegetation within known range. Native vegetation within 100 m of known sites, plus some small areas of cultural vegetation types within same distance (see Doran and Richards 1996).
Other information	N/A
REM habitat model	1. 100 m around known locations. 2. Native riparian vegetation within the Potential Range.
Notes	The Core Range does not include all recorded locations of the species. There are no strong associations with landforms for this species. The Potential Range is significantly larger than the Core Range – possibly by a factor of two. All recorded locations are on land systems characterised as <300 m altitude.
Data	Land systems components layer (NRP data). Vegetation data from NRP Atomic Planning Units (Tasveg plus some updated data).
Model status	Model tested and used in the REM.

Species: Caddisflies
(*Stenopsychodes lineata, Ramiheithrus kocinus, Orthotrichia adornata, Tasimia drepana, Leptocerus souta, Oxyethira mienica, Oecetis gilva, Hydrobiosella sagitta, Hydroptila scamandra, Orphninotrichia maculata*)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of threatened caddisflies is the known location with a buffer of 2 km upstream and downstream of the known site.
Known range	N/A
Potential habitat	Potential habitat for threatened caddisflies is all waterbodies including streams and riparian vegetation.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Caddis Fly (Macquarie River). Riparian APUs along Macquarie River within 1km of recorded location.
Other information	N/A
REM habitat model	1. Areas within 100 m of recorded locations. 2. Riparian zones within the Potential Range of each species.
Notes	
Data	LIST Hydline and Hydarea data. Riparian zones are generated through the REM process.
Model status	Model not developed. Most species are poorly known and considered to be sessile or near-sessile. Model based on NVA point locations used as default.

Species: Cataract Gorge Snail
Pasmaditta jungermanniae

Species attribute	Definition
FPA attributes	
Core range	The core range of the Cataract Gorge snail is a 750 m (radius) buffer centred on the known sites at Notley Gorge, and a 500 m (radius) buffer centred on the known sites in other areas.
Potential range	The potential range of the Cataract Gorge snail includes the Core Range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the Cataract Gorge snail is intact or disturbed native vegetation with extensive exposed rock faces, usually greater than 2 m high (e.g. distinct outcrops/cliffs or several large boulders), with well-developed moss and/or lichen cover on rock faces and ledges (such sites often occur in more deeply incised drainage features or steeper slopes).
Significant habitat	N/A

Species attribute	Definition
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. 100 m around known locations. 2. Native vegetation and Tasveg ORO within the Core Range.
Notes	The Potential Range is extremely large relative to the Core Range.
Data	Vegetation data from NRP Atomic Planning Units (Tasveg plus some updated data).
Model status	Model tested and used in the REM.

Species: Cave Fauna
(*Goedetrechus mendumae, Olgania excavata, Geodetrechus parallelus, Parvotettix rangaensis, Hickmanoxyomma gibbergunyar, Idacarabus cordicollis, Tasmanotrechus cockerilli, Pseudotyrannochthonius typhlus, Idacarabus troglodytes, Parvotettix whinrayi*)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of cave fauna is the cave and catchment of the cave supporting the known sites for the particular species.
Known range	N/A
Potential habitat	Potential habitat for cave fauna is the cave environment, including features associated with cave entrances and exits such as boulders and cliffs, known sites for the particular species sinkholes, and pools and streams within 40 m of cave entrance.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. The Known Range of each species.
Notes	NVA now includes polygons for the Known Range of these species. The Known Range is used as the habitat as many habitat features are fine in scale and not amenable to being expressed spatially. Rule 1 is included to account for any records that might fall outside the Known Range.
Data	
Model status	Model not developed. Species in this group are sessile or near-sessile and have small known ranges. Model based on NVA point locations used as default.

Species: Central North Burrowing Crayfish
Engaeus granulatus

Species attribute	Definition
FPA attributes	
Core range	The core range of the central north burrowing crayfish is a minimum convex polygon around known sites.
Potential range	The potential range of the central north burrowing crayfish includes the core range and specialist-defined extensions of the core range that may support the species but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the central north burrowing crayfish includes any poorly drained habitats such as streams (of any class and disturbance history), seepages (e.g. springs in forest or pasture, outflows of farm dams), low-lying flat swampy areas and vegetation (e.g. buttongrass and heathy plains, marshy areas, boggy areas of pasture), drainage depressions, ditches (artificial and natural, including roadside ditches, pasture drains, etc.).
Significant habitat	Significant habitat for the central north burrowing crayfish is all native vegetation within the immediate catchments where the species is known to occur.
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Riparian zones within 500 m of known locations. 2. Riparian zones within the Potential Ranges on land system components that are lower plains, gentle lower slopes or steep lower slopes and within five kilometres of NVA record locations.
Notes	The Known Range polygon does not include all NVA record locations. The Potential Range polygon includes a substantial area (western side of Tamar River) in which no records of the species have been found. It also appears to have been derived inconsistently, containing both boundaries which correspond to catchments and also long straight lines most likely drawn from a minimum convex polygon. There are no clear associations between stream Class or bed slope of streams. There is no association between record locations and vegetation type – 50% of all records are on cleared land. There is a strong association with landform types that are lower in the landscape– 85% of land components polygons in which species records occur are lower plains, gentle lower slopes or steep lower slopes (i.e. incised streams).
Data	LIST Hydline and Hydarea layers. Land systems components layer (NRP layer).
Model status	Model tested and used in the REM.
Known issue	DPIPWE provided advice on 30 January 2014 that it needs to generate a new range boundary for the species to reflect a minor change to the western boundary. This occurred after the species model had been developed and may need to be incorporated into a future revision.

Species: Chaostola Skipper
Antipodia chaostola

Species attribute	Definition
FPA attributes	
Core range	The core range of the chaostola skipper is a 2 km (radius) buffer centred on the known sites.
Potential range	The potential range of the chaostola skipper is the distribution of *Gahnia radula* and *G. microstachya*.
Known range	N/A
Potential habitat	Potential habitat for the chaostola skipper is dry forest and woodland supporting *Gahnia radula* (usually on sandstone and other sedimentary rock types) or *Gahnia microstachya* (usually on granite-based substrates).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Sites identified by Neyland (1994[15]) as having good stands of *Gahnia radula* which provide suitable habitat for the species.
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Native vegetation in the Core Range that is dry eucalypt forest (Tasveg "D"), native grassland (Tasveg "G") or dry scrub types (SCH, SHL, SHU). 3. Native vegetation that is dry eucalypt forest (Tasveg "D"), native grassland (Tasveg "G") or dry scrub types (SCH, SHL, SHU) on land system polygons within 5km of the Core Range which are sedimentary or acid igneous (granitic) rock types, <300 m altitude and <750 mm rainfall
Notes	The use of *G. radula* and *G. microstachya* as a predictor of potential habitat on its own is not supported by data on environmental characteristics of the species recorded locations. 91% of Chaostola Skipper records occur on sediments (though the number of known sites is small so this figure may not be reliable). In comparison, only 42% of the *Gahnia* species records occur on sediments. There are additional strong associations with rainfall, with 82% of Chaostola Skipper locations in areas with <750 mm rainfall, and altitude, with 93% of locations on areas <300 m ASL. The species also has a strong association with distance from the coast, with no records location more than 21km inland.
Data	
Model status	Model developed and tested.
Known issues	DPIPWE advised on 30 January 2014 that it needs to update the range boundary for the species to include new populations at Grasstree Hill and Buckland. This occurred after the species model had been developed and may need to be incorporated into a future revision.

[15] Neyland, M. (1994). The ecology & conservation status of three rare hesperiid butterflies in Tasmania. Wildlife Report 94/3, Parks & Wildlife Service, Hobart.

Species: Chequered Blue Butterfly
Theclinesthes serpentata* subsp. *lavara

Species attribute	Definition
FPA attributes	
Core range	The core range of the chequered blue butterfly is a 500 m (radius) buffer centred on the known sites.
Potential range	The potential range of the chequered blue butterfly includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the chequered blue butterfly is saltmarshes, and beach and coastal habitats, supporting food plants including *Rhagodia candolleana* (coastal saltbush) and species of *Atriplex*.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. LIST coastal flats (field [Hydarty1]) and tide zones (field [Hydarty1]) that are unvegetated mudflats (field [Hydarty2]) adjoining Pitt Water Lagoon. 2. The Potential Range. 3. Saltmarsh communities contiguous with the Potential Range.
Notes	The Potential Range polygon is the foreshore of Pitt Water Lagoon. Available vegetation mapping of the foreshore is too coarse to delineate much of the potential habitat within the Potential Range.
Data	LIST Hydarea layer.
Model status	The species occurs outside the FT area of interest. A shapefile of the habitat based on the REM habitat model has been prepared but has not been tested.

Species: Chevron Looper Moth
Amelora acontistica

Species attribute	Definition
FPA attributes	
Core range	The core range of the chevron looper moth is a 500 m (radius) buffer centred on the known sites.
Potential range	The potential range of the chevron looper moth includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the chevron looper moth is saltmarshes, saltpans, and adjacent grasslands and grassy forest/woodland (within the same catchment as, and adjacent to saline habitats).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	Native vegetation within the Core Range.
Notes	The Core Range is sufficiently small that all native vegetation is included.
Data	To be attributed in NRP Atomic Planning Units.
Model status	No additional modelling needed. Model delivered through the NVA records based modelling process of the REM. Species occurs outside FT area of interest, so no area in the REM is attributed for the species.

Species: Furneaux Burrowing Crayfish
Engaeus martigener

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Furneaux burrowing crayfish, for the purposes of the TFA, is the Furneaux islands (primarily Flinders and Cape Barren islands).
Known range	N/A
Potential habitat	Potential habitat for the Furneaux burrowing crayfish includes boggy areas and small clear water creeks in high altitude wet ferny gullies (Horwitz 1990a[16]; Doran & Richards 1996[17]). These areas appear to be the stronghold of the species, although recent survey work has also located populations at lower altitudes and in a poorly-drained mossy tea-tree bog and a small grassy spring/soak in open dry eucalypt forest (UTas, unpubl. data). The species occupies a type 2 burrow habitat (Horwitz 1990a).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Native vegetation within 200 m of known locations. 2. Contiguous native riparian vegetation within 500 m of NVA records located within or adjacent to riparian areas. 3. Native riparian vegetation within the Potential Habitat.
Notes	There are no records in the NVA for the northern-most of the three polygons of the Potential Habitat. REM habitat attribute 3 to be coded separately to distinguish from habitat associated with known locations.
Data	LIST Hydline and Hydarea layers. Riparian zones generated through the REM process.
Model status	Model not developed. The species range is outside the FT area of interest.

[16] Horwitz, P. (1990). The conservation status of Australian freshwater crustacea (with a provisional list of threatened species, habitats & potentially threatening processes). Report Series 14, Australian National Parks & Wildlife Service, Canberra.
[17] Doran, N. & Richards, K. (1996). Management requirements for rare & threatened burrowing crayfish in Tasmania. Report to the Tasmanian Regional Forest Agreement Environment & Heritage Technical Committee, November 1996.

Species: Giant Freshwater Crayfish
Astacopsis gouldi

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the giant freshwater crayfish extends from the Arthur River, in Tasmania's northwest, across the north of the State to the Ringarooma River, including the Arthur River catchment and all river catchments flowing into Bass Strait, with the exception of the Tamar catchment. In addition, the species has been introduced to two catchments: the North Esk catchment (St Patricks River) and the Derwent catchment River Clyde).
Known range	N/A
Potential habitat	Potential habitat for the giant freshwater crayfish is freshwater streams of all sizes. Characteristics of potential habitat include a combination of well-shaded flowing and still waters, deep pools, decaying logs and undercut banks. Riparian vegetation needs to be predominantly intact to provide shade, nutrient, energy and structural inputs into streams. Smaller juveniles inhabit shallow fast-flowing streams favouring habitats with rocks or logs that are large enough to be stable but not embedded in finer substrates, but overlie coarser substrates and/or have a distinct cavity underneath. Perennial headwater streams have substantially higher juvenile densities than non-perennial headwater streams. See FPA's Fauna Technical Note 3[18] for guidance on how to identify categories of potential habitat suitability (high suitability habitat, moderate suitability habitat and low suitability habitat) of class 4 streams. The GFC Habitat Suitability Map may be used in the assessment of habitat suitability for all other stream classes, however on ground assessment is recommended.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Known populations: Riparian native vegetation contiguous (to 100 m interval) with known locations to a distance of about 2km upstream and downstream. Modelled habitat: Riparian native vegetation in patches of natural vegetation >200ha and below 400 m in catchments where species known to occur. More general tags used on map sheets where riparian zone not defined due to lack of completed Tasveg mapping.
Other information	N/A
REM habitat model	1. Native riparian vegetation of vegetation communities of sufficient height to shade streams that are in biophysical naturalness classes 2-5 and within two kilometres of recorded locations and within the Potential range. 2. Native riparian vegetation of communities of sufficient height to shade streams that is within the Potential Range and: - is in biophysical naturalness classes 2-5; and - is classified as medium or high habitat suitability on the Forest Practices Authority habitat suitability map layer.
Notes	Vegetation communities of sufficient height to shade streams is taken to mean dry eucalypt forest (Tasveg "D"), wet eucalypt forest (Tasveg "W"), rainforest and related scrub (Tasveg "R"), non-eucalypt forest and woodland (Tasveg "N") and scrub, heath and coastal complexes (Tasveg "S", H"). Lower biophysical naturalness classes are more likely to not shade streams.

[18] Forest Practices Authority (2013). Assessing juvenile Giant Freshwater Crayfish habitat in Class 4 streams. Draft Fauna Technical Report No. 3 (v0.3, June 2013), Forest Practices Authority, Hobart.

Species attribute	Definition
Data	FPA habitat suitability layer. Biophysical naturalness from NRP Atomic Planning Units, updated with Forestry Tasmania disturbance data.
Model status	Model tested and used in the REM.

Species: Giant Velvet Worm
Anopthalmus barretti

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	N/A
Known range	The known range of the giant velvet worm is defined by a minimum convex polygon around known sites.
Potential habitat	Potential habitat for the giant velvet worm includes wet sclerophyll forest grading into rainforest or mixed forest and dry forest within its known range.
Significant habitat	Significant habitat for the giant velvet worm is all potential habitat within the known range.
Other habitat definitions	N/A
CARSAG habitat model	APUs of wet, damp and riverine eucalypt forests in good biophysical condition (Use_bn >=3) within known range.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations or native eucalypt forests within 200 m. 2. Areas of wet eucalypt forest ("W" codes) or riparian dry forests ("D" codes) or scrubs ("S" codes) within two kilometres of recorded locations.
Notes	There are no strong landform associations with this species. There are some relatively large gaps between recorded locations within the Known Range, hence the use of the distance function in rule 2.
Data	
Model status	Model tested and used in the REM.

Species: Great Lake invertebrates
(*Onchotelson brevicaudatus, O. spatulatus, Mesacanthotelson setotus, M. tasmaniae, Tasniphargus tyleri, Uramphisopus pearsoni*)

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of Great Lake invertebrates is the catchments of Great Lake and Shannon Lagoon.
Known range	N/A
Potential habitat	Potential habitat for Great Lake invertebrates is all waterbodies (including streams) and riparian vegetation (including lakeside vegetation) within the potential range of the species.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. LIST waterbodies and adjoining wetlands contiguous with Shannon Lagoon and Great Lake (i.e. the Known Ranges). 2. Native riparian vegetation contiguous within 500 m of 1.
Notes	None of the Known Range or Potential Range polygons include Shannon Lagoon. Riparian zones within the Potential Range may contain areas that need to be managed, however habitat is considered to be more closely tied to the waterbodies that form the Known Range.
Data	LIST Hydline and Hydarea layers.
Model status	Model not developed. The range of these species does not encompass any of the FT area of interest.

Species: Green-lined Ground Beetle
Catadromus lacordairei

Species attribute	Definition
FPA attributes	
Core range	The core range of the green lined ground beetle is a 500 m (radius) buffer centred on the known sites.
Potential range	The potential range of the green-lined ground beetle includes the core range and specialist defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the green-lined ground beetle is open, grassy/sedgy, low altitude grasslands and woodlands associated with wetlands and low-lying plains or flats adjacent to rivers/streams. Key habitat elements that need to be present include sheltering sites such as patches of stones, coarse woody debris and/or cracked soils. The species is a highly active and mobile flyer that often comes to ground close to water sources and is rarely found further than 250 m from such a source.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. LIST waterbodies and wetlands intersecting the Core Range or within 250 m of NVA recorded locations. 2. Native vegetation or land system components that are lower plains or gentle lower slopes within 250 m of 1.
Notes	NVA Known Range polygons matches the description for the Core Range. The Potential Range is extremely large relative to the Core Range. Land systems components used to approximate topographic characteristics described in the Potential Habitat.
Data	Land systems components layer (NRP data).
Model status	Model not developed. All known locations are outside of FT area of interest.

Species: Keeled Snail
Tasmaphena lamproides

Species attribute	Definition
FPA attributes	
Core range	The core range of the keeled snail is based on known sites and potential habitat.
Potential range	The potential range of the keeled snail includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the keeled snail is mature, regrowth and regenerating forests, predominantly wet eucalypt but also including some rainforest and blackwood.
Significant habitat	Significant habitat for the keeled snail is all potential habitat within the core range supporting a high density of live Keeled Snails and/or the habitat patch is important for connectivity of significant or potential habitat.
Other habitat definitions	N/A
CARSAG habitat model	APUs of wet forest and Blackwood swamp forests in good condition (Use_BN=3-5) within the main range of the species, plus within 200 m of other known locations. Other record locations inspected and APUs tagged to represent species presence, including a small number where no forest occurs.
Other information	N/A
REM habitat model	1. 200 m of known locations. 2. Wet eucalypt forest ("W" codes), rainforest ("R" codes) and blackwood forests (NAF, NAR) on land system polygons with sedimentary argillaceous geology and within two kilometres of known locations.
Notes	Density of live snails is likely to only be detectable at the operational level. All NVA record locations are on land systems characterised as occurring below 300 m. 95% of NVA record locations are on land system polygons characterised by argillaceous sedimentary geology, however the geological association is much weaker when compared with 1:25,000 geology and may be related to other factors in the land system classification (e.g. soils, landform, rainfall), or biogeographic history.
Data	Land systems polygons layer (NRP updated version of DPIPWE layer).
Model status	Model tested and used in the REM.

Species: Lake Fenton Trapdoor Spider
Plesiothele fentoni

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Lake Fenton trapdoor spider is a 5 km (radius) buffer centred on the known sites.
Known range	N/A
Potential habitat	Potential habitat for the Lake Fenton trapdoor spider is: (1) rainforest, mixed forest (i.e. wet eucalypt forest with distinct secondary canopy comprising typical rainforest species), mature wet eucalypt forest (i.e. wet forest with rainforest species such as myrtle and sassafras becoming prevalent in the understorey) in the Tarraleah area; (2) subalpine *Eucalyptus coccifera* woodland and subalpine scrub on dolerite scree in the Lake Fenton area.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Patches of the following Tasveg communities within the Potential Range at Lake Fenton: DCO, ORO, SHS, SLW and SMM. 2. Patches of the following vegetation types within the Tarraleah Potential Range polygons: - Tasveg rainforests ("R" codes) and wet eucalypt forest with a rainforest understorey (none currently mapped but primarily includes WRE, WVI, WDR, WOR); and - Tasveg wet eucalypt forests with PI-type classes indicating forest is predominantly mature and has myrtle, sassafras or blackwood in the understorey.
Notes	Two of the Potential Range polygons for this species have no NVA records of the species within them. It has been assumed that the centroid of the polygons represent known locations.
Data	PI-type data on mature and regrowth percentage crown cover.
Model status	Model tested and used in the REM.

Species: Marrawah Skipper
Oreisplanus munionga* subsp. *larana

Species attribute	Definition
FPA attributes	
Core range	The core range of the Marrawah skipper is a 2 km (radius) buffer centred on the known sites.
Potential range	The potential range of the Marrawah skipper includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the Marrawah skipper is any vegetation type, including forest (native and plantation) and nonforest native and non-native types, with an understorey either dominated by *Carex appressa* or supporting *Carex appressa* in patches (as small as 20 square metres).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Native vegetation within 500 m of recorded locations. 2. Land system components that are lower plains, adjacent elevated plains, or gentle lower slopes within the Core Range and are native or induced vegetation types.
Notes	The association of the species with small patches of *Carex appressa* makes modelling difficult, due to its fine scale. *C. appressa* has no strong associations with rainfall, geological age, substrate or landscape-scale landform, but a moderate association with altitude (67% of records below 300 m). Within the Core Range *C. appressa* has been recorded almost exclusively (91% of records) on flat areas (land system components lower plains or locally elevated plains) and gentle lower slopes.
Data	Land systems components layer (NRP layer).
Model status	Model tested and used in the REM.

Species: Miena Jewel Beetle
Castiarina insculpta

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Miena jewel beetle is a 3 km (radius) buffer centred on the known sites.
Known range	N/A
Potential habitat	Potential habitat for the Miena jewel beetle is open forest, woodland and low shrubby vegetation above c. 900 m elevation.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Areas with 500 m of recorded locations (excluding aquatic and wetland vegetation codes. 2. Native vegetation within three kilometres of recorded locations which is dry eucalypt forests (“D” codes), native grasslands (“G” codes), highland treeless vegetation (“H” codes) or scrubs (“S” codes).
Notes	The Potential Range polygon does not match the description given.
Data	
Model status	Model tested and used in the REM.
Known issue	DPIPWE provided advice on 30 January 2014 that it needs to generate a new range boundary for the species to reflect new data. This occurred after the model had been developed and may need to be incorporated into a future revision.

Species: Mount Arthur Burrowing Crayfish
Engaeus orramakunna

Species attribute	Definition
FPA attributes	
Core range	The core range of the Mt Arthur burrowing crayfish is a minimum convex polygon around known sites.
Potential range	The potential range of the Mt Arthur burrowing crayfish includes the core range and specialist-defined extensions of the core range that may support the species but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the Mt Arthur burrowing crayfish includes any poorly drained habitats such as streams (of any class and disturbance history), seepages (e.g. springs in forest or pasture, outflows of farm dams), low-lying flat swampy areas and vegetation (e.g. buttongrass and heathy plains, marshy areas, boggy areas of pasture), drainage depressions, ditches (artificial and natural, including roadside ditches, pasture drains, etc.).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	Riparian native vegetation within known range. Native vegetation within 100 m of known sites, plus some small areas of cultural vegetation types within same distance (see Doran and Richards 1996[19]).
Other information	N/A
REM habitat model	1. 100 m around NVA record locations. 2. All areas of the same land components on which the species has been recorded, excepting water and rock.
Notes	There are no strong associations between landform and bed slope for this species. Component 2 of the model applies to any land component polygon of the same type of those on which the species has been recorded, irrespective of it having been recorded on the particular polygon, so long as it intersects the known range.
Data	LIST Hydline and Hydarea layers. Riparian zones are generated within the REM process.
Model status	Model tested and used in the REM. The land components which form the basis of the model are attributed as a subset of polygons within the NRP land systems components data layer.

[19] Doran, N. & Richards, K. (1996). Management requirements for rare & threatened burrowing crayfish in Tasmania. Report to the Tasmanian Regional Forest Agreement Environment & Heritage Technical Committee, November 1996.

Species: Mt Mangana Stag Beetle
Lissotes menalcas

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Mt Mangana stag beetle includes the known range and specialist-defined extensions of the known range that may support the species based on habitat characteristics but are as yet largely unsurveyed (including all of South Bruny Island, Tasman/Forestier and Tinderbox peninsulas).
Known range	The known range of the Mt Mangana stag beetle includes the areas encompassed within the minimum convex polygons around known localities, calculated for the three main parts of the species' range (Southern Forests, South Bruny, and Tasman/Forestier peninsulas).
Potential habitat	Potential habitat for the Mt Mangana stag beetle is any eucalypt forest that contains rotting logs (often numerous, and usually greater than about 40 cm diameter at mid-log length) below about 650 m a.s.l. (generally moist habitats that have not been subject to high intensity or frequent fires in about the last 20 years). The species has a patchy distribution within areas of potential habitat. Some rainforest will support the species, although in low densities as the species has an apparent preference for eucalypt logs. In terms of using mapping layers, potential habitat is all areas with at least 5% mature Eucalypt crown cover (PI-type mature density class 'a', 'b', 'c', or 'd') that is also mapped as 'wet forest' under TASVEG or another forest type that is within 50 m of a freshwater source (e.g. stream or wetland). (v1.6 update of FPA document – see Notes).
Significant habitat	Significant habitat for the Mt Mangana stag beetle is all potential habitat within the known range.
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Areas within the known range that are on land system polygons in which the species has been recorded, and are: - wet eucalypt forest ("W" codes) with PI-type mature density classes a, b or c; or - riparian zones of dry eucalypt forests; or - rainforest in riparian zones where adjacent to eucalypt forest.
Notes	
Data	PI-type maturity classifications for the species range. LIST Hydline and Hydarea layers.
Model status	Model tested and used in the REM.
Known issues	V1.6 of the FPA document was released after the model was developed. The previous description did not include the criteria listed after ("In terms of using mapping layers...".

Species: Plomleys Trapdoor Spider
Migas plomleyi

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Plomleys trapdoor spider is a 750 m (radius) buffer centred on the known sites.
Known range	N/A
Potential habitat	Potential habitat for the Plomleys trapdoor spider is native vegetation (but can be disturbed) with extensive rock exposures that have well developed moss and/or lichen cover.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	Land systems components that are steep mid slopes within 750 m of recorded locations, excluding urban areas (Tasveg FUR)/
Notes	Potential Range polygon not available on NVA website.
Data	Land systems components layer (NRP layer).
Model status	Model has not been developed as species occurs well outside FT area of interest.

Species: Ptunarra Brown Butterfly
Oreixenica ptunarra

Species attribute	Definition
FPA attributes	
Core range	The core range of the Ptunarra brown butterfly is the areas in which all known colonies are located.
Potential range	The potential range of the Ptunarra brown butterfly includes the core range and specialist-defined extensions of the core range based on habitat characteristics but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the Ptunarra brown butterfly is native grasslands, sedgelands, heathlands, shrublands or grassy woodlands with tussock grass (*Poa*) cover of more than 20%.
Significant habitat	Significant habitat for the Ptunarra brown butterfly is all potential habitat within the core range.
Other habitat definitions	N/A
CARSAG habitat model	APUs of dry eucalypt forest and other native vegetation types likely to contain Poa tussocks in areas mapped for the species by Dr Phil Bell. Exclusions: Veg types MBU, SHS, DOB, DCO.

Species attribute	Definition
Other information	N/A
REM habitat model	Native vegetation within the Core Range likely to contain tussocks of *Poa* grasses at more than 20% cover. Tasveg communities included in the attribution are: native grasslands ("G" codes); dry eucalypt forests ("D" codes excluding DCO, DOB, DVS}; MGH; NBA; and heathlands HHE and HSE.
Notes	HHE and HSE are variable communities in terms of *Poa* tussock grasses. They are included as some substantial areas of the Core Range are dominated by these communities.
Data	
Model status	Model tested and used in the REM.

Species: Salt Lake Slater
Haloniscus searlei

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the salt lake slater is the immediate catchment of salt lakes, lagoon and pans in the Midlands (which includes the two known sites at Tunbridge Lagoon and Bat Lagoon).
Known range	N/A
Potential habitat	Potential habitat for the salt lake slater is all inland saline waters (salt lakes, lagoon and pans) in the Midlands (which includes the two known sites at Tunbridge Lagoon and Bar Lagoon).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	The Potential Range.
Notes	
Data	
Model status	No additional modelling required. Habitat is modelled off NVA records in the standard REM modelling process. However, species occurs outside FT area of interest.

Species: Saltmarsh Looper Moth
Dasybela achroa

Species attribute	Definition
FPA attributes	
Core range	The core range of the saltmarsh looper moth is a 500 m (radius) buffer centred on the known sites.
Potential range	The potential range of the saltmarsh looper moth includes the core range and specialist defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (mainly the South Arm peninsula).
Known range	N/A
Potential habitat	Potential habitat for the saltmarsh looper moth is saltmarshes, saltpans, and adjacent grasslands and grassy forest/woodland (within the same catchment as, and adjacent to saline habitats).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	Native vegetation within the Core Range.
Notes	
Data	
Model status	Modelled not developed. Species occurs outside FT area of interest.

Species: Scottsdale Burrowing Crayfish
Engaeus spinicaudataus

Species attribute	Definition
FPA attributes	
Core range	The core range of the Scottsdale burrowing crayfish is a minimum convex polygon around known sites.
Potential range	The potential range of the Scottsdale burrowing crayfish includes the core range and specialist-defined extensions of the core range that may support the species but are as yet largely unsurveyed.
Known range	N/A
Potential habitat	Potential habitat for the Scottsdale burrowing crayfish includes any poorly drained habitats such as streams (of any class and disturbance history), seepages (e.g. springs in forest or pasture, outflows of farm dams), low-lying flat swampy areas and vegetation (e.g. buttongrass and heathy plains, marshy areas, boggy areas of pasture), drainage depressions, ditches (artificial and natural, including roadside ditches, pasture drains, etc.).

Species attribute	Definition
Significant habitat	Significant habitat for the Scottsdale burrowing crayfish is all native vegetation in the immediate catchments of sites where the species is known to occur.
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Riparian zones within 200 m of NVA record locations. 2. Native vegetation within riparian zones or within 100 m of streamlines that is within the Core Range and in CFEV river section catchments with a bed slope <2.3 degrees.
Notes	The Core Range would be better described as the Known Range. There is a strong association with the bed slope of streams – 85% of river sections on which the species have been recorded have a bed slope of <2.3 degrees, and all are less than 5 degrees. There is no clear association between stream class and record locations. There is some association between record location and landform – 65% of the land component polygons that contain records are lower plains or gentle lower slopes. There is an association between record location and vegetation type – 91% of records are located in native vegetation
Data	LIST Hydline and Hydarea layers. CFEV rivers data (contains bed slope attribution).
Model status	Model tested and used in the REM.

Species: Schayers Grasshopper
Schayera baiulus

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Schayers grasshopper is a 5 km (radius) buffer centred on the known sites.
Known range	N/A
Potential habitat	Potential habitat for the Schayers grasshopper is poorly understood. Based on the habitat at the two known sites (Cape Grim and Red Hills), the species may occupy a range of habitats including poorly-drained pasture, regenerating cleared land (e.g. swamp paperbark and sagg over old pasture), coastal scrub and heath and open heathy woodland.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	APUs of native vegetation within 500 m or accurate location records.
Other information	N/A

Species attribute	Definition
REM habitat model	Areas within 500 m of recorded locations.
Notes	The Known Range polygon available on the NVA is a 500 m buffer, not 5km..
Data	
Model status	The model is operational within the NVA-based modelling procedure of the REM.

Species: Simsons Stag Beetle
Hoplogonus simsoni

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	N/A
Known range	The known range of the Simsons stag beetle is a minimum convex polygon around known sites.
Potential habitat	Potential habitat for the Simsons stag beetle is all wet forest types (including mixed forest/rainforest) within the known range. (v1.5 update of FPA document – see previous description in Notes).
Significant habitat	Significant habitat for the Simsons stag beetle is all wet eucalypt forest, mixed forest and rainforest <500 m altitude with a leaf litter layer of at least 1cm and a slope <20%, within the known range. (v1.5 update of FPA document – see previous description in Notes).
Other habitat definitions	N/A
CARSAG habitat model	APUs of wet forest and rainforest in good biophysical condition which intersect that part of the model within the species known range, but excluding all but one APU coded for H. bornemisszai where the two species occur together (Richards 1999[20]). Plus also such APUs intersecting known locations.
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Wet eucalypt forest ("W" codes) or rainforest ("R" codes) in areas of optimal and sub-optimal habitat within the Known Range.
Notes	The definitions of potential and significant habitat have been altered since the model was developed. Previous terms were: "Potential habitat for the Simsons stag beetle is all wet forest types (including mixed forest/rainforest) within the known range. Potential habitat of the species is further divided into three classes of potential habitat quality based on the predicted frequency of occurrences of individuals (numbers/ha): optimal (high), suboptimal (medium) and marginal

[20] Richards, K. (1999). Occurrence of *Hoplogonus bornemisszai* (Bornemisszas Stag Beetle) & *H. vanderschoori* (Vanderschoors Stag Beetle) in priority coupes, north-east Tasmania. A report to Forestry Tasmania & Forest Practices Board, Hobart.

Species attribute	Definition
	(low). Maps are available of the predicted habitat quality." "Significant habitat for the Simsons stag beetle is all potential habitat where the species occurs in highest numbers (optimal habitat and sub-optimal habitat categories as defined by Meggs et al. 2003[21]) within the known range." "Significant habitat for the Simsons stag beetle is all potential habitat where the species occurs in highest numbers (optimal habitat and sub-optimal habitat categories as defined by Meggs et al. 2003[22]) within the known range."
Data	FPA layer of predicted habitat quality for the species.
Model status	Model tested and used in the REM.
Known issues	Reference to the species habitat model was removed from the FPA description after the model described here had been developed. The model will likely require review and modification in a future revision.

Species: Skemps Snail
Charopidae sp. "Skemps"

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Skemps snail is a specialist-defined zone based on sites supporting the highest reported densities of the species (Myrtle Bank and Whites Mill Road areas).
Known range	N/A
Potential habitat	Potential habitat for the Skemps snail is wet sclerophyll forest, closed broadleaf shrubbery, mixed forest, rainforest, and wet or damp forest gullies in predominantly dry forest.
Significant habitat	Significant habitat for the Skemps snail is all potential habitat within the potential range.
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. Tasveg wet forest ("W" codes), rainforest ("R" codes), SBR and riparian dry forest ("D" codes) within the Potential Range.
Notes	There are no strong landform associations for this species.
Data	

[21] Meggs, J.M., Munks, S.A., Corkrey, R. & Richards, K. (2004). Development & evaluation of predictive habitat models to assist the conservation planning of a threatened lucanid beetle, *Hoplogonus simsoni*, in north-east Tasmania. Biological Conservation, 118(4):501-511.

[22] Meggs, J.M., Munks, S.A., Corkrey, R. & Richards, K. (2004). Development & evaluation of predictive habitat models to assist the conservation planning of a threatened lucanid beetle, *Hoplogonus simsoni*, in north-east Tasmania. Biological Conservation, 118(4):501-511.

Species attribute	Definition
Model status	Model tested and used in the REM.

Species: Southern Hairy Red Snail
Chloritobadistes victoriae

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the southern hairy red snail is an expert defined boundary incorporating known sites with a buffer.
Known range	N/A
Potential habitat	Potential habitat for the southern hairy red snail is tall mature *Banksia/Leptospermum/Melaleuca* scrub and tall wet sclerophyll forest.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	APUs of native vegetation within 200 m of record locations on King Island.
Other information	N/A
REM habitat model	1. Areas within 100 m of known locations. 2. The Tasveg communities DOV, DVS, WBR, WGK; NME and SSC within the Potential Range.
Notes	One NVA record is located significantly outside the Potential Range. The NVA also now includes a Core Range polygon, however its derivation is not known.
Data	
Model status	Model tested and used in the REM.

Species: Southern Sandstone Cave Cricket
Micropathus kiernani

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the southern sandstone cave cricket is the catchment of Bates Creek.
Known range	N/A
Potential habitat	Potential habitat for the southern sandstone cave cricket includes any vegetation type within the catchment of Bates Creek, and specifically sandstone caves, crevices and rock overhangs (known as pseudokarst).
Significant habitat	N/A

Species attribute	Definition
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	The Potential Range.
Notes	Habitat features are at too fine a scale to model, hence a precautionary model has been adopted.
Data	
Model status	Model not developed. Species range is marginal to FT area of interest. NVA point based model used as default.

Species: Tasmanian Hairstreak Butterfly
Pseudalmenus chlorinda tax. *myrsilus*

Species attribute	Definition
FPA attributes	
Core range	The core range of the Tasmanian hairstreak butterfly is a 2 km (radius) buffer centred on the known sites.
Potential range	The potential range of the Tasmanian hairstreak butterfly includes the core range and specialist-defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (i.e. most of the Tasman and Forestier peninsulas).
Known range	N/A
Potential habitat	Potential habitat for the Tasmanian hairstreak butterfly is dry forest and woodland with *Eucalyptus viminalis* (white gum) present (any amount) in close association (usually within 50 m) with *Acacia* species, including *A. dealbata* (silver wattle), *A. mearnsii* (black wattle) or *A. melanoxylon* (blackwood).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	Dry eucalypt forests (Tasveg “D”) within the Core Range.
Notes	The species listed in Potential Habitat occur widely in a range of forest communities.
Data	
Model status	Model not developed. Species occurs outside FT area of interest.

Species: Tunbridge Looper Moth
Chrysolarentia decisaria

Species attribute	Definition
FPA attributes	
Core range	The core range of the Tunbridge looper moth is a 500 m (radius) buffer centred on the known sites.
Potential range	The potential range of the Tunbridge looper moth includes the core range and specialist defined extensions of the core range that may support the species based on habitat characteristics but are as yet largely unsurveyed (relatively small areas around the known sites at Tunbridge Lagoon and Lauderdale).
Known range	N/A
Potential habitat	Potential habitat for the Tunbridge looper moth is saltmarshes, saltpans, and adjacent grasslands and grassy forest/woodland (within the same catchment as and adjacent to saline habitats).
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	Native vegetation within the Core Range.
Notes	The Core Range polygon includes an outlier on the summit of Mount Ossa. This needs to be confirmed.
Data	
Model status	Model not developed. Species occurs outside FT area of interest.

Species: Vanderschoors Stag Beetle
Hoplogonus vanderschoori

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	N/A
Known range	The known range of the Vanderschoors stag beetle is a minimum convex polygon around known sites.
Potential habitat	Potential habitat for the Vanderschoors stag beetle is mature wet eucalypt forest, mixed forest, rainforest, including gullies supporting such habitat surrounded by otherwise unsuitable dry forest habitat. Habitat quality may improve with increasing moisture content, leaf litter depth, proportion of coarse woody debris, etc. (v1.5 update of FPA document – see Notes).

Species attribute	Definition
Significant habitat	Significant habitat for the Vanderschoors stag beetle is all potential habitat within the known range.
Other habitat definitions	N/A
CARSAG habitat model	APUs mapped as in good biophysical condition and containing wet forest and rainforest in the catchment of the South George River and Mount Albert Rivulet above Saint Columba Falls.
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Tasveg wet eucalypt forests ("W" codes) with biophysical naturalness classes 4 or 5 or PI-type mapping indicating old growth, mature or predominantly mature; rainforest ("R" codes excluding RFE); or wet scrubs (SBR) within the Known Range.
Notes	v1.5 update of FPA document added habitat quality description to potential habitat.
Data	PI-type data with mature and regrowth cover codes. Biophysical naturalness is stored in the NRP Atomic Planning Units layer, and has been updated for State Forests using PI-type disturbance data.
Model status	Model tested and used in the REM.

Species: Weldborough Forest Weevil *Enchymus* sp. nov.

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Weldborough forest weevil is a 3 km (radius) buffer centred on the known locality (4.4 km SE of Weldborough - presumed to be the Weldborough Pass Forest Walk).
Known range	N/A
Potential habitat	Potential habitat for the Weldborough forest weevil includes mixed forest and rainforest.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Areas within 200 m of known locations. 2. Areas in the Potential Range with Tasveg rainforest ("R" codes), wet eucalypt forest codes indicating a rainforest understorey (WRE) and other Tasveg wet eucalypt forest with PI-type coding indicating Myrtle (various "M" codes) or Blackwood ("Tb") in the understorey.
Notes	

Species attribute	Definition
Data	PI-type data for the Potential Range.
Model status	Model developed and tested.

2.5 Mammals

Species: Eastern Barred Bandicoot
Perameles gunnii

Species attribute	Definition
FPA attributes	
Core range	The core range of the eastern barred bandicoot is the lowlands of the southern, northern and eastern Midlands, extending to coastal areas in the southeast, east and north.
Potential range	The potential range of the eastern barred bandicoot includes the core range and specialist-defined extensions of the core range (mainly in the northwest, north and northeast) that may support the species based on occurrence of potential habitat and frequency of sightings.
Known range	N/A
Potential habitat	Potential habitat for the eastern barred bandicoot is open vegetation types including woodlands and open forests with a grassy understorey, native and exotic grasslands, particularly in landscapes with a mosaic of agricultural land and remnant bushland.
Significant habitat	Significant habitat for the Eastern Barred Bandicoot is dense tussock grass-sagg-sedge swards, piles of coarse woody debris and denser patches of low shrubs (especially those that are densely branched close to the ground providing shelter) within the core range of the species. (v1.5 update of FPA document – not previously described).
Other habitat definitions	N/A
CARSAG habitat model	Areas of grassy non-forest and dry eucalypt forests within 1,000 m of recorded locations.
Other information	N/A
REM habitat model	Dry eucalypt forest ("D" codes), dry non-eucalypt forest and woodlands ("N" codes NAD, NAL, NAV, NBA and NBS only) and native grasslands ("G" codes) that are on land system components that are gentle lower slopes, lower plains or adjoining locally elevated plains and are within 5 kilometres of recorded locations and of the same components on which records have been made.
Notes	The vast majority of NVA records of the species are associated with roads. There is some association of this species with landforms – 72% of records (<=1,000 m accuracy) are on land system components lower in the landscape (gentle lower slopes, lower plains and adjoining locally elevated plains). The interim model described is designed to select similar habitat types within reasonable proximity to those on which the species has been recorded. Individual species locations are not considered significant, however outliers may need to be assessed. Native vegetation is treated as the important habitat due to it providing shelter; foraging occurs on virtually any suitable land. The default point-based model in the REM (native vegetation within 2.5 kilometres of post-1980 recorded locations) will be used with a further restriction to include only native grasslands ("G" codes), dry eucalypt forests ("D" codes) and dry non-eucalypt forest and woodlands (NAD, NAV, NBA, NBS, NCR).
Data	Land systems components data (NRP layer).
Model status:	Difficulties in generating a reliable model of this species were identified. The NVA point based modelling process is used as the default.

Species: Flinders Island Wombat
Vombatus ursinus subsp. ursinus

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Flinders Island wombat is the whole of Flinders Island and Clarke Island.
Known range	N/A
Potential habitat	Potential habitat of the Flinders Island wombat is virtually any vegetation type including farmland, forest, woodland and scrub habitats.
Significant habitat	N/A
Other habitat definitions	N/A
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	No habitat-based model is proposed at this stage. The default point-based model in the REM is native vegetation within one kilometre of recorded locations.
Notes	Only five NVA records of the species have a positional accuracy <1,000 m. All are located in or close to the Wingaroo Nature Reserve and Foochow Conservation Area.
Data	
Model status:	Model is operational within the NVA point models in the REM. Species range is well outside FT area of interest, so REM not populated with this species.

Species: New Holland Mouse
Pseudomys novaehollandiae

Species attribute	Definition
FPA attributes	
Core range	The core range of the New Holland mouse is a 3 km (radius) buffer centred on the known sites.
Potential range	The potential range of the New Holland mouse includes the core range and specialist-defined extensions of the core range that may support the species but are as yet largely unsurveyed (extends to within c. 15 km inland) from between Boltons Beach (east coast) around to East Devonport (north coast), including the Furneaux islands.
Known range	N/A
Potential habitat	Potential habitat for the New Holland mouse is heathlands (mainly dry heathlands but also where dry heathlands form a mosaic with other heathland, moorland and scrub complexes), heathy woodlands (i.e. eucalypt canopy cover 5-20%), *Allocasuarina*-dominated forests on sandy substrates (not dolerite or basalt), and vegetated sand dunes. Key indicator plant species include (but are not restricted to) *Aotus ericoides, Lepidosperma concavum, Hypolaena fastigiata* and *Xanthorrhoea* spp. (v1.5 update of FPA document – see Notes).

Species attribute	Definition
Significant habitat	Significant habitat for the New Holland mouse is all potential habitat within the core range of the species.
Other habitat definitions	N/A
CARSAG habitat model	APUs of potentially heathy coastal natural vegetation (Use_BN >=2) within 500 m or recorded sites with good locational accuracy.
Other information	N/A
REM habitat model	Areas within the Core Range with the following characteristics: - dry heathlands and scrubs (SAC, SCA, SCH, SCW, SDU, SHG, SHL, SHU); - dry eucalypt forests coded by Tasveg as woodlands, or having PI-type density classes "d" or "f" for mature eucalypt (<20% crown cover) or "f" for regrowth eucalypt (<10% crown cover); - Tasveg communities NAL, NAV and on geology that is not dolerite or basalt.
Notes	V1.5 update of FPA document added indicator plant species.
Data	PI-type data for mature and regrowth cover within Core Range. MRT geological mapping, 1:25k where available, 1:250k elsewhere.
Model status	Model not developed. Species occurs only peripherally to one part of the FT area of interest (west Tamar). Adequacy of model difficult to assess unless larger area covered.

Species: Spotted-tailed Quoll
Dasyurus maculatus

Species attribute	Definition
FPA attributes	
Core range	The core range of the spotted-tailed quoll is currently mapped from the work of Jones & Rose (1996[23]), but is soon to be updated on the basis of ongoing survey and modelling work by Troy *et al.*[24]
Potential range	The potential range of the spotted-tailed quoll is the whole of mainland Tasmania.
Known range	N/A
Potential habitat	Potential habitat for the spotted-tailed quoll is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex and steep rocky areas are present, and includes remnant patches in cleared agricultural land .
Significant habitat	Significant habitat for the spotted-tailed quoll is all potential denning habitat within the core range of the species. (v1.5 update of FPA document – not previously described).

[23] Jones, M.E. & Rose, R.K. (1996). Preliminary assessment of distribution & habitat associations of the Spotted-tailed Quoll (*Dasyurus maculatus maculatus*) & Eastern Quoll (*D. viverrinus*) in Tasmania to determine conservation & reservation status. Report to the Tasmanian Regional Forest Agreement Environment & Heritage Technical Committee, November 1996. Tasmanian Public Land Use Commission, Hobart.
[24] PhD thesis in preparation.

Species attribute	Definition
Other habitat definitions	Potential denning habitat for the spotted-tailed quoll includes 1) any forest remnant (>0.5ha) in a cleared landscape that is structurally complex (high canopy, with dense understorey and ground vegetation cover), free from the risk of inundation, or 2) a rock outcrop, rock crevice, rock pile, burrow with a small entrance, hollow logs, large piles of coarse woody debris and caves. (v1.5 update of FPA document – not previously described).
CARSAG habitat model	High quality habitat: Patches of natural forest >300ha in size within core areas of species distribution model (170-255) and within 5km of post-1970 accurately recorded locations. Moderate habitat: Patches of natural forest >300ha not in core distribution not in Category 2, plus patches of same size class within 2km of post-1970 accurately recorded locations.
Other information	N/A
REM habitat model	1. Den sites: Land within 500 m of NVA records of species den sites. No habitat-based model is proposed at this stage. The default point-based model in the REM is native vegetation within 2.5 kilometres of recorded locations.
Notes	The den sites component of the model has been developed to distinguish known dens, which may be sensitive, and habitat which occurs very extensively across Tasmania. The model by Troy *et al.* has been reviewed but has not been tested in the REM. It appears in many areas similar to the RFA model of Jones and Rose with major differences arising in the choice of threshold to be used (+/- the median value of the model). This needs further investigation. Ongoing review will be required as only one den is recorded in the NVA at the time of writing.
Data	
Model status	NVA-based default model in use for habitat. Model developed and tested for den sites; however only one den is recorded in the NVA.

Species: Tasmanian Devil
Sarcophilus harrisii

Species attribute	Definition
FPA attributes	
Core range	N/A
Potential range	The potential range of the Tasmanian devil is the whole of mainland Tasmania, Robbins Island and Maria Island. (v1.6 update of FPA document).
Known range	N/A
Potential habitat	Potential habitat for the Tasmanian devil is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (4- 27 km2). Potential maternal denning habitat is areas of burrowable, well drained soil or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass.

Species attribute	Definition
Significant habitat	Significant habitat is a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range (Pemberton 1990[25]). (v1.5 update to FPA document – not previously described).
Other habitat definitions	Potential denning habitat for the Tasmanian devil is areas of burrowable, well-drained soil or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass. (v1.5 update to FPA document).
CARSAG habitat model	N/A
Other information	N/A
REM habitat model	1. Den sites: Land within 500 m of NVA records of species den sites. No habitat-based model is proposed at this stage. The default point-based model in the REM is native vegetation within 2.5 kilometres of post-2005 recorded locations.
Notes	Recent sightings are used as a surrogate for extant populations.
Data	
Model status:	Species model is operational within the NVA point models of the REM.

[25] Pemberton D. (1990). Social organisation & behaviour of the Tasmanian devil, *Sarcophilus harrisii*. PhD thesis, University of Tasmania, Hobart.