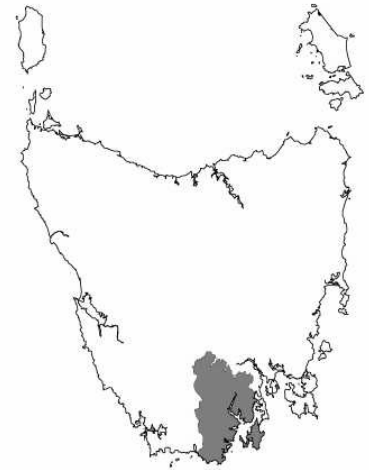




FOREST BOTANY MANUAL

MODULE 6

D'ENTRECASTEAUX REGION



2005

FPA
FOREST PRACTICES AUTHORITY

**FOREST BOTANY MANUAL:
MODULE 6 – D'ENTRECASTEAUX REGION**

2005

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Phone: (03) 6233 7966; Fax: (03) 6233 7954

Email: info@fpa.tas.gov.au; Website: www.fpa.tas.gov.au

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INTRODUCTION

Tasmania is divided into eight bioregions on the basis of the State's biogeography. Separate Forest Botany Modules have been developed for these regions.

This module deals with the D'Entrecasteaux Region. It covers subjects relevant to conservation of flora, as required by the Tasmanian *Forest Practices Code* (2000), the *Forest Practices Act* and other legislation and processes.

The module is designed to assist Forest Practices Officers (FPOs), and others involved with forest management, to prepare Forest Practices Plans (FPPs) for sites within the region. The information can also be used for other purposes (e.g. management planning for reserves, preparation of property plans).

The module is divided into six sections, which follow the format of the FPP *Flora Evaluation Sheet*:

Section 1 gives a brief overview of D'Entrecasteaux Region.

Section 2 provides keys to forest and non-forest vegetation, and more detailed keys to forest communities. Tables indicate conservation priorities for forest communities.

Section 3 lists plant species that have a priority for conservation in the region - most of these are species listed on the Tasmanian *Threatened Species Protection Act 1995*.

Section 4 indicates sites of potential significance for flora conservation. These are environments that are often associated with species or communities that have a priority for conservation.

Section 5 discusses some other issues (e.g. weed and disease management) that may need to be considered by FPOs, to ensure that the operation complies with botanical requirements of the *Forest Practices Code* and other policies.

Section 6 summarises the evaluation process and indicates the steps that need to be taken after a FPO has assessed the FPP area. It also indicates whether specialist advice is required.

The processes used to determine if communities, species and sites of potential significance are present in an area, will also capture those National Estate flora values (as identified in the Tasmanian Regional Forest Agreement) that have the potential to be affected by operations requiring FPPs.

Module 1 of the *Forest Botany Manual* gives background information relevant to users of the regional modules. The Manual is supported by information on the Forest Practices Authority (FPA) website, including a gallery containing images of many threatened species, and species used to identify vegetation types and forest communities. An ongoing series of Flora Technical Notes also covers aspects of vegetation management in Tasmanian forests. The Manual provides links to several external websites – the FPA website will maintain updates to these sites, and should be consulted if there are problems accessing the links given in the Manual.

Queries and comments about the format or content of the *Forest Botany Manual* should be referred to the FPA's Senior Botanist. Queries and notifications about vegetation in operational areas should generally be referred to the Senior Ecologist.

Contact details for the Forest Practices Authority's Botany and Ecology programs:

Forest Practices Authority,
30 Patrick Street,
Hobart, Tasmania 7000

Phone: (03) 62337804 (Botany); (03) 62164454 or 62337870 (Ecology)

Fax: (03) 62337954

Email: info@fpa.tas.gov.au ; Website: www.fpa.tas.gov.au

Section 1 OVERVIEW OF D'ENTRECASTEAUX REGION

D'Entrecasteaux Region covers much of the country south and west of the Derwent Valley, the Derwent Estuary and D'Entrecasteaux Channel. The region includes some of Tasmania's best-known landscape features, including Mt Wellington, Precipitous Bluff, Hartz Mountains, South Bruny Island and the Channel itself.

The diversity of native vegetation within the region is related to variation in altitude, rock types and landforms, as well as climatic gradients operating at a regional scale (from the humid south and west to the drier north and east) and locally (relating to drainage and exposure to insolation, wind and frost). Land use and fire history have also influenced the extent, structure and composition of the vegetation.

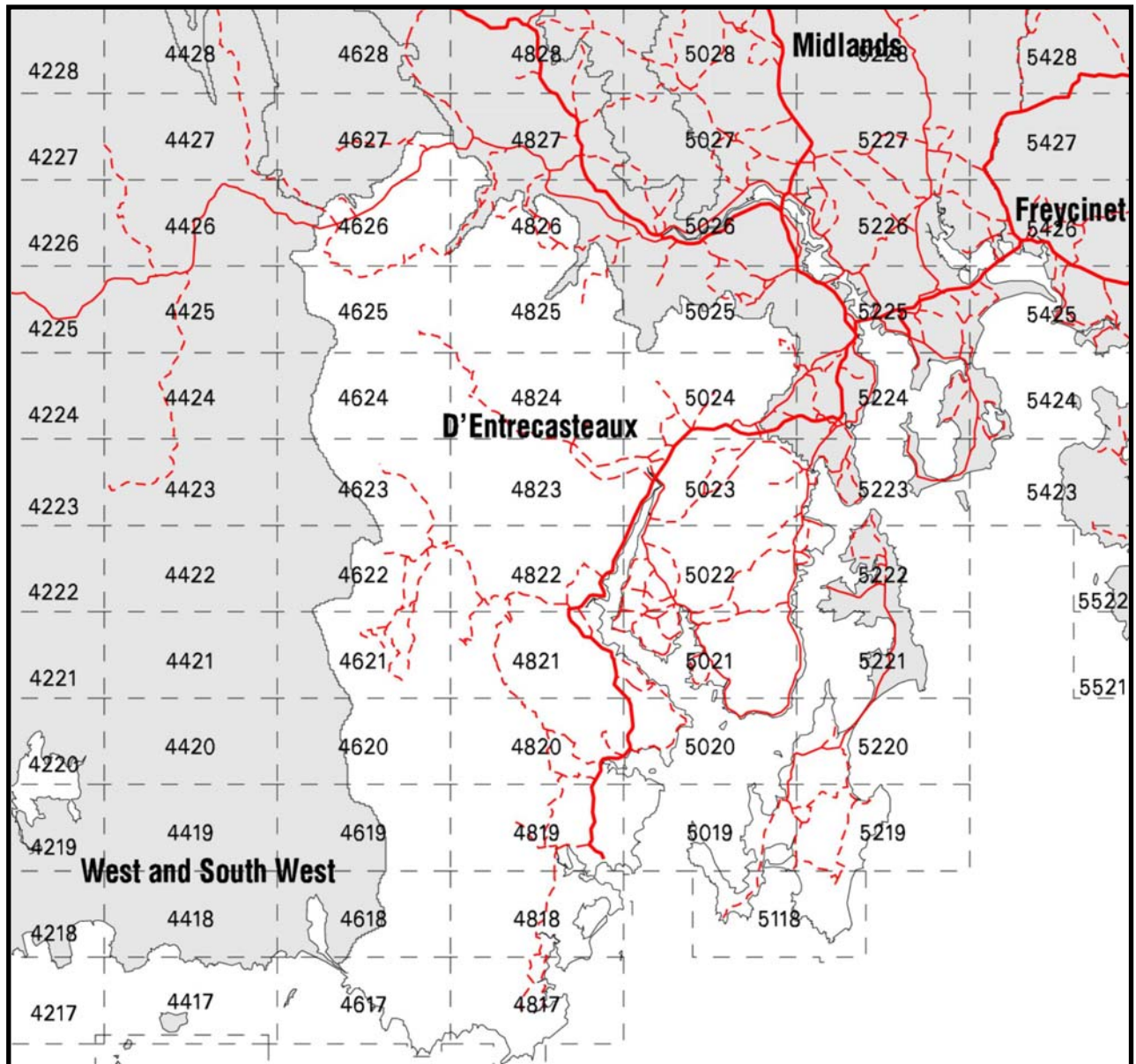
Rainforest and mixed forest (eucalypt forest with a rainforest understorey) are mainly found in moist environments in the south and west of the region. *Eucalyptus regnans* trees in mixed forest in the Styx Valley include the world's tallest flowering plants – exceeding 95 m. Within a few kilometres, dwarf *E. vernicosa* withstand far more hostile conditions on the Snowy Range. High altitude rainforest communities occur locally in alpine and subalpine environments that have escaped wildfire. Wet sclerophyll forest is widespread on moist shaded sites at lower altitudes, and is the main forest type used for wood production in the region. Subalpine wet and dry forest communities also occur on exposed, rocky sites at higher altitudes, where they grade into various non-forest communities. Lowland dry sclerophyll forest is mainly found on drier and more exposed sites in the north of the region and the Channel. Non-forest vegetation occurring in D'Entrecasteaux Region includes highland and lowland heath, scrub, moorland, native grasslands and wetlands.

The D'Entrecasteaux Region contains about 900 species of vascular plants that are native to Tasmania. The region contains over 25% of Tasmania's endemic species, with a high proportion being associated with subalpine and alpine environments, rainforests on infertile substrate, dry or exposed sites on dolerite and high energy coastal environments. Some species have their only recorded distribution in D'Entrecasteaux Region. Several threatened species occur in the region. The non-vascular flora of the region (i.e. mosses, liverworts and lichens) is poorly known compared to the vascular flora, though some taxa have been researched more thoroughly in recent years. Non-vascular diversity is highest in rainforest, mixed forest and high altitude communities. The original collection localities (type localities) of numerous Tasmanian species are located in D'Entrecasteaux Region, as a result of the activities of French and British botanists before and in the early years of European settlement. Botanical research has continued over the years, with the Wellington Range, and more recently the Southern Forests (and in particular the Warra area), being foci for investigations.

Much of the region still supports native vegetation. Clearance for agriculture and settlement has mainly occurred in the Channel area. There has been a long history of logging in accessible forests (initially those that could be accessed by ship), including forests that are now reserved. More recently, plantations (mainly hardwood) have been established on public and private land, particularly in parts of the Styx and Derwent Valleys and favourable environments in the Channel, Huon and Hastings-Esperance area.

A substantial proportion of the D'Entrecasteaux Region is formally reserved. Larger reserves include the Southwest National Park and Hartz Mountains NP (both forming part of the Western Tasmania World Heritage Area), South Bruny NP, Wellington Park and Snug Tiers Nature Recreation Area. Recent additions to the public reserve system have improved the conservation status of many species and communities in the region. Some well reserved species and communities remain threatened because of their susceptibility to wildfire. Other threatened species and communities with a high priority for conservation are associated with commercial forests, and require additional protection through prescription or reservation on public land (e.g. through Special Management Zoning on State forest) and private land (e.g. through agreements developed through the Private Forest Reserves Program).

An overview of the vegetation of D'Entrecasteaux Region and its relationship with the environment is given in Davies (1988); Pemberton (1989) and Smith and Banks (1993). Several other references describe the vegetation of sites within the region. Some useful references on plant species and vegetation types are given in *Flora Technical Note 2*.



Location of D’Entrecasteaux Region

Tasmania's coastline forms the southern and southeastern boundaries of the region. The western boundary approximates the geological contact between quartzite (west) and dolerite (east). This line trends north from New River Lagoon to the northern side of the Tyenna River to Nicholls Spur, 5 km west of Maydena. From here the northern boundary follows the 300 m contour line, trending northeast (to near Westerway). At the point where this contour turns sharply to the northwest, the boundary heads due south, crossing the Tyenna River until it picks up the 300 m contour line on the southern side of the river, near Nations Hill. The 300 m contour is followed in a southeast direction, skirting the valleys of the Styx and Plenty Rivers, until it reaches Mt Lloyd Road, where it heads southeast through the township of Glenfern, until it picks up the 600 m contour line near Swamp Gum Hill. This contour is then followed as it skirts the northern and eastern sides of the Wellington Range, until it reaches North West Bay Rivulet. The rivulet is followed downstream to the coast. South Bruny Island is included in the region.

Numbers refer to 1:25000 Tasmap sheets.



Section 2 FOREST COMMUNITIES

This section provides keys to the native vegetation types and native forest communities occurring within D’Entrecasteaux Region. Tables indicate the potential conservation priority of forest communities. The explanatory notes should be read before the keys and tables are used. The FPP *Flora Evaluation Sheet* indicates when FPOs need specialist botanical advice, when communities that may have a priority for conservation could be affected by forestry operations.

The keys are based on species and other vegetation characteristics that should be familiar to FPOs and field workers. Illustrations of species used in the keys are given in several publications listed in *Flora Technical Note 2*. The FPA website also carries scanned images of diagnostic species. The common and scientific names of all species used in the keys are listed in Appendix 6 of Module 1.

This section does not cover existing plantations (hardwood or softwood) or areas of exotic vegetation (e.g. pasture). Botanical advice relating to communities is not needed if the proposed operation will only affect these vegetation types. However, FPOs need to consider if other botanical values (e.g. threatened species) have the potential to occur on such sites.

Some non-forest vegetation in D’Entrecasteaux Region has a high priority for conservation, contains threatened species or is very susceptible to disturbance or disease. There are guidelines in the *Forest Practices Code* to avoid disturbance to localised environments that contain these vegetation types. Seek botanical advice in all cases where native non-forest vegetation will be affected by forestry operations.

USING THE KEYS AND TABLES

The forests occurring in D’Entrecasteaux Region have been divided into several broad forest types:

- Rainforest;
- Swamp forest and related forest or scrub;
- Other forest or scrub;
- Mixed forest (eucalypt forest with rainforest species also prominent);
- Wet sclerophyll forest;
- Dry sclerophyll forest and woodland.

Different researchers have classified each forest type into several communities, on the basis of the composition and structure of the overstorey and understorey. In the Manual these are called **floristic communities**. The floristic communities can be allocated to the forest communities that were described and mapped for the RFA - these are called **RFA communities** in the Manual. There is generally good correlation between floristic communities and RFA communities, but this is not always the case.

Use the keys to determine:

- **The forest types and non-forest vegetation types present in the area;**
- **The floristic communities present in each forest type.**

Use the associated tables to determine:

- **The RFA communities present (based on the floristic communities identified);**
- **The conservation priority of each of the floristic communities and RFA communities.**

Some forest communities are particularly susceptible to the root rot pathogen *Phytophthora cinnamomi* – these are also identified in the tables (see discussion on page 10).

A typical native forest coupe in D’Entrecasteaux Region is likely to contain 3 to 5 floristic communities, the number being largely related to variation in the environment (e.g. landform, rock type, disturbance history). There are usually more floristic communities than RFA communities in any given area, because the RFA communities are less finely differentiated. It is important to identify the floristic communities, as they give a much better picture of the variation in the region’s forests than the RFA community classification. For example, in D’Entrecasteaux Region there are nine mixed forest floristic communities dominated by *E. delegatensis*. These are all included in the RFA “tall *E. delegatensis* forest”. Most of the *E. delegatensis* floristic communities are well reserved in the region, but two are poorly reserved.

It is important to recognise that any system of vegetation classification imposes a taxonomy on something that varies continuously in nature. In addition, our knowledge of Tasmania's vegetation is far from complete. Consequently, FPOs will inevitably come across forest vegetation that does not key out easily. There are a few reasons for this. They include:

- the community may not have been previously recorded from D'Entrecasteaux Region;
- the community may be close to a particular community given in the key, but in the area assessed may lack a species or other characteristic that allows it to be keyed out to that community (this may happen if fire or other disturbance has altered the structure or composition of the vegetation);
- the community may be intermediate between two communities given in the keys (this may happen if vegetation is sampled in transition zones).

It is essential that proposed operational areas are field assessed to determine the range of forest and non-forest vegetation that they contain. Using a combination of the RFA vegetation map, PI maps, aerial photographs, geology maps, topographic maps and local information, will give a good indication of where different communities may occur in an FPP area.

Contact the FPA Botanist or FPA Ecologist if you have problems identifying communities, providing details of the vegetation and site. References given for each forest type also contain useful information.

CONSERVATION PRIORITIES

Conservation priorities for forest communities are based on the requirements and findings of the RFA and associated processes (e.g. identification of communities as Rare, Vulnerable or Endangered) and known distribution of communities in formal reserves (see Module 1).

FPA advice regarding a priority community in an operational area will depend on many factors. They include: conservation status and distribution of the community; the condition of the vegetation; the nature of the proposed operation; presence of other values; and legislative or policy requirements. In some cases, no changes to plans will be needed, in others prescriptions or reservation will be required.

Conservation priorities for floristic communities

Priority	Explanation	General course of action
A	Community may be inadequately reserved in Tasmania, and/or may have a very high conservation priority in the region.	Seek botanical advice in all cases if an area is thought to contain a Priority A community.
B	Community may be inadequately reserved in the region, but is adequately reserved elsewhere in Tasmania.	Seek botanical advice if an area is thought to contain a Priority B community <u>and</u> the site will not be regenerated to native forest.
Non-priority (np)	Community is adequately reserved in Tasmania and in the region.	Unless priority species (Section 3) or other flora values are thought to be present, there is generally no need to seek botanical advice if an area only contains non-priority communities.

Conservation priorities for RFA communities

Priority	Explanation	General course of action
Y	The RFA has identified that additional Statewide conservation is required for the community (oldgrowth and non-oldgrowth).	Seek botanical advice in all cases if an area is thought to contain a Priority Y community.
Yog	The RFA has identified that additional Statewide conservation is required for the oldgrowth component of the community.	Seek botanical advice where the community is oldgrowth, or other flora values are thought to be present.
Non-priority (N)	The RFA has not identified that additional Statewide conservation is required for the community.	Unless priority species (Section 3) or other flora values are thought to be present, there is generally no need to seek botanical advice if an area only contains non-priority communities.

RFA processes have identified communities that are Rare (R), Vulnerable (V) or Endangered (E) at a Statewide level. These are identified (*) in the tables that indicate the conservation priorities and attributes of the different forest types (see column dealing with conservation status of the RFA community). RVE communities in Tasmania are listed in Module 1 (Appendix 3).

The RFA lists several forest communities that require further protection on public land in Tasmania. Most of these communities also have a high priority for conservation on private land.

The table below lists all RVE communities, and other communities that require protection on public land, that have been recorded from D'Entrecasteaux Region.

- R E *Notelaea ligustrina* and/or *Pomaderris apetala* closed forest
- E *E. viminalis* wet forest
- E Shrubby *E. ovata* - *E. viminalis* forest
- R V *E. viminalis* and/or *E. globulus* coastal shrubby forest
- R V King Billy pine forest with deciduous beech
- V King Billy pine forest
- V *E. amygdalina* forest on sandstone
- V *E. brookeriana* forest
- V Inland *E. tenuiramis* forest
- V Grassy *E. globulus* forest
- E. viminalis* grassy forest / woodland
- E. rodwayi* forest
- Allocasuarina verticillata* forest
- E. amygdalina* forest on mudstone (oldgrowth only)
- E. viminalis* - *E. ovata* - *E. amygdalina* - *E. obliqua* damp sclerophyll forest (oldgrowth only).

The tables in this section of the D'Entrecasteaux Module indicate that all occurrences of these communities need to be referred to FPA. The other RFA communities that require referral to FPA have been identified through other analyses as having some priority for conservation within the region.

There are constraints on conversion of RVE forest communities (and RVE non-forest communities). There will be restrictions on further conversion of other forest communities if their clearance approaches the limits set by Tasmania's Permanent Forest Estate Policy (monitored by FPA).

EXPLANATORY NOTES

Some additional notes that will help FPOs to assess areas and use the keys and tables are given below.

Sources of information

There are many sources of information to indicate which vegetation types and forest communities occur in a FPP area. Assessments and surveys conducted prior to preparing FPPs will generally provide enough information to identify the communities. Published and unpublished reports and botanical data from various databases may also be useful. Distribution notes given in the tables may help confirm community identifications.

Broad scale vegetation maps such as the RFA Forest Communities Map and TASVEG maps are available through DPIWE GTSpot database and Forestry Tasmania's NewCONSERVE database. Details for accessing these databases are given in Module 1. These maps may give a useful indication of the vegetation in a FPP area, but the scale of mapping means that they are often inaccurate at the coupe level. They rarely pick up localised occurrences of communities (which may have high conservation significance), and they will not allow floristic communities to be identified.

Further information about the different forest types is provided in the major references cited in the text. *Flora Technical Note 2* provides other references on forest and non-forest vegetation.

How big is a forest community?

In preparing FPPs, the **minimum** area of forest that should be identified as a distinct community is **1 ha** (this includes contiguous areas of the community that extend beyond the FPP boundary). However, botanical advice should be sought for smaller areas of non-forest vegetation (e.g. *Sphagnum* peatlands).

Small areas of communities can be easily missed during surveys of FPP areas, though the chances of this are reduced by good sampling across the range of environments in the area. It is important to survey localised habitats within the FPP area. Communities with a high priority for conservation often occupy distinctive habitats (e.g. rocky knolls, poorly drained flats) or have fairly distinctive features (e.g. the white trunks of *E. viminalis* in *E. viminalis* wet forests contrast with the fibrous trunks of *E. obliqua* and *E. delegatensis*, the more widespread wet eucalypt forest dominants).

FPOs should try to identify a community occupying a small area (<1 ha) if:

- the forest in the small area is significantly different to the adjacent forest; or
- the forest community in the small area may be a priority community.

FPOs can subsume a community occupying a small area into the adjacent community if:

- the forest in the small area has obvious affinities to the forest community in the adjacent area (e.g. the same canopy dominants); and
- the forest community in the small area is not a priority community.

For RFA communities that only require additional conservation of oldgrowth occurrences, FPA should be notified for all oldgrowth patches exceeding 3 ha (including areas that extend beyond the FPP area).

There are particular problems in dealing with transitional vegetation and the RFA damp sclerophyll forest community (see discussion below). FPOs should take care not to confuse vegetation in transition zones with distinct communities.

When small areas of priority forest communities are referred to FPA, the advice given will be determined on a case-by-case basis. Factors that may be relevant include: requirements under the RFA and other policies; location within a coupe (e.g. whether adjacent to streamside reserve or in the middle of a proposed plantation); proposed silvicultural practices; presence of other values; and the local context of the community.

Qualifications in the tables

There are many grey areas in classifying vegetation and determining conservation priorities. The tables give qualifications for some communities, when the conservation priority of the community will depend on particular circumstances. For example, some floristic communities can be allocated to more than one RFA community, depending on vegetation characteristics (e.g. tree height) and site characteristics (e.g. rock type). Floristic communities dominated by *E. amygdalina*, in particular, can be allocated to several RFA communities.

More on community names and relationships

The systems of classifying floristic communities differ between forest types. This is because the classifications were undertaken by different researchers at different times. Most communities have an abbreviated name (used in the keys) and a more detailed name (used in the tables) that indicates some typical species or characteristics of the community. However, some stands of a particular community may not contain all the “typical” species given in the more detailed name of the community.

Most floristic communities can be readily allocated to RFA communities, but this is not always the case. Most RFA communities contain two or more floristic communities. In some cases, the RFA community names may seem inappropriate for some forest communities. For example, areas of wet sclerophyll forest dominated by *E. dalrympleana* are included in the RFA community “*E. delegatensis* forest”, and wet sclerophyll forest dominated by *E. globulus* is allocated to the RFA community “*E. regnans* forest.”

Dominance in forest communities

Accurate determination of the dominant canopy (overstorey) species and understorey characteristics is needed to classify communities. Most areas of forest contain one or more shrub layers below the canopy, and a ground layer of grasses, sedges, ferns or some combination of these. The dominant component of a vegetation layer is the species (or group of species) that supply most of the cover.

Overstorey dominance

Identifying the dominant overstorey species is one of the first steps in keying out most forest communities. This can be difficult in forests containing more than one species of eucalypt. However, in most situations, one species is clearly dominant while the others are subdominant or minor. An example: *E. ovata* provides about 60% cover on a poorly drained flat with an understorey dominated by sedges; the flat also carries *E. amygdalina* and *E. viminalis*. The floristic community is sedgy *E. ovata* dry sclerophyll forest and the correlated RFA community is shrubby *E. ovata* - *E. viminalis* forest.

Two species occasionally occur as codominants, having about equal cover in the community. The community should be keyed out using both dominants as options. Botanical advice may be needed if one of those options is a priority community. An example: if *E. obliqua* and *E. viminalis* are codominant in a wet sclerophyll forest, the community can be identified as an *E. obliqua* wet sclerophyll forest community or an *E. viminalis* wet sclerophyll forest community. The latter community has a high priority for protection in all regions of Tasmania, and the operation needs to be referred to FPA. If neither community is a priority community (e.g. *E. obliqua* and *E. delegatensis* codominant in wet sclerophyll forest), the operation does not need to be referred to the FPA botanist unless other flora values are present. FPOs should exercise their own judgement (e.g. by taking account of associated vegetation and site characteristics) when allocating such forest to floristic and RFA communities.

Understorey dominance

Within a broad forest type, some communities key out simply on the basis of their overstorey dominants. However, most floristic communities are keyed out by the presence or absence of understorey species (e.g. most wet sclerophyll forest communities) or by characteristics of the dominant understorey layer (e.g. most dry sclerophyll forest communities). For example, shrubs exceeding 2 m in height will be the most conspicuous understorey layer in a shrubby dry sclerophyll forest community. Grasses or sags are the most conspicuous understorey components in a grassy dry sclerophyll forest.

FPOs may need to make allowance if land uses or events have temporarily changed the nature of the understorey. For example, a recent fire may remove the shrub layer from a heathy forest, but if the vegetation in nearby areas or other evidence suggests that short shrubs are typically present, the community should be allocated to a heathy dry sclerophyll forest community. Section 2.6 gives more information on identifying the dominant understorey characteristics in dry sclerophyll communities.

Distinguishing eucalypt species

Correct identification of eucalypt species is essential as they are the main tree species used to identify most dry sclerophyll, wet sclerophyll and mixed forest communities. Identification can sometimes be difficult because eucalypts hybridise readily. Seek botanical advice if you find unusual or outlying occurrences of eucalypts, as these may be genetically important.

The FPA website contains scanned images of Tasmanian eucalypts; a key to species and notes on distinguishing between some closely-related species (*E. viminalis* and *E. dalrympleana*; and *E. brookeriana* and *E. ovata*) associated with communities with a high priority for conservation. Useful references for identifying eucalypts are also listed in *Flora Technical Note 2*.

FPOs may need to collect material or take notes to determine the identity of a species. Bark characteristics, fruit, buds and adult and juvenile leaves can all be important for diagnosis. Juvenile leaves may be needed to identify some species (e.g. *E. viminalis* and *E. dalrympleana*).

Oldgrowth

Oldgrowth forests have over-mature to senescent trees contributing over 30% of the crown cover to the overstorey, and have not been significantly affected by man-made disturbance. Fire does not preclude classification as oldgrowth, providing other oldgrowth characteristics are present. Oldgrowth forests generally contain a greater range of habitats than regrowth forests and consequently support a different (and generally more diverse) suite of species. Oldgrowth forest is discussed in *Flora Technical Note 7*.

Generally, oldgrowth forests have a higher conservation value than non-oldgrowth forests of the same community. Areas of oldgrowth forest, or areas containing oldgrowth trees, should be preferentially located in retained areas, if this is an option under the proposed silvicultural regime. Some RFA communities require additional protection for the oldgrowth component of the community only. For these communities, the practical minimum patch size that requires notification to FPA is 3 hectares (including areas extending beyond the coupe boundary).

Transition zones

Transition zones often occur between adjacent forest types or adjacent forest communities, with vegetation of these zones being intermediate in structure and composition. Transition zones should be avoided when communities are being identified. Some forest communities (e.g. damp sclerophyll forest communities) are inherently intermediate in character and occupy relatively large areas - see below.

Damp sclerophyll forest communities

Some eucalypt-dominated forests have an understorey with a similar proportion of wet sclerophyll species (e.g. broad-leaved shrubs and wet ferns) and dry sclerophyll species (e.g. narrow-leaved shrubs and grasses). An example of a damp sclerophyll understorey could include dogwood, blanket bush, prickly mo, prickly beauty, guitar plant and sagg. Such vegetation is sometimes described as damp sclerophyll forest. In this section, it should be keyed to its floristic community using the dry sclerophyll forest key (where it will generally key out as a shrubby dry sclerophyll community).

One of the RFA communities is *E. viminalis* - *E. ovata* - *E. amygdalina* - *E. obliqua* damp sclerophyll forest (DSC). The community has a damp sclerophyll understorey and *E. amygdalina* and/or *E. obliqua* are both prominent in the overstorey. *E. viminalis* and *E. ovata* may be present as subdominant or minor species or may dominate very small patches within a mosaic of forest dominated by *E. amygdalina* or *E. obliqua*. This community is mapped inconsistently on the RFA Forest Communities Map. On most sites mapped as DSC, the vegetation can be better allocated to other RFA communities (e.g. dry *E. obliqua* forest, tall *E. obliqua* forest, *E. amygdalina* forest on dolerite, shrubby *E. ovata* - *E. viminalis* forest).

Inland *E. amygdalina* forest

In 2005, the RFA community Inland *E. amygdalina* forest (AI) was split into two distinct communities. Inland *E. amygdalina* - *E. viminalis* - *E. pauciflora* forest/woodland on Cainozoic deposits (AIC) is associated with Recent and Tertiary sediments – it occurs mainly on private land and is listed as a Vulnerable community. It has not been recorded from D'Entrecasteaux Region. *E. amygdalina* forest on mudstone (AM) occurs locally on dry sites on Permian mudstone in the region – it is not identified as a threatened community, though oldgrowth stands require protection on public land.

Forest communities that are susceptible to *Phytophthora cinnamomi*

Some communities are very susceptible to the root rot pathogen *Phytophthora cinnamomi* because they:

- contain many species of susceptible plants, including threatened species;
- occur in warm, moist environments that are conducive to establishment of *Phytophthora*;
- occur in locations where spores can be transferred into uninfected sites by land use.

Forest communities that are highly susceptible to *Phytophthora* are identified (#) in the tables indicating conservation priorities of the different forest types (see column dealing with conservation status of the floristic community). Most are lowland dry sclerophyll forest communities – many are also Priority A communities. Several non-forest communities are also susceptible to *Phytophthora* – these should be referred to FPA if they are in operational areas (see below). Information on *Phytophthora* and its management in Tasmanian forests is given in Section 6 of this module and in *Flora Technical Note 8*.

Non-forest vegetation

Native non-forest vegetation (e.g. moorland, heath, wetland and native grassland) may be associated with native forests (and sometimes plantations). Some of these vegetation types have a high priority for conservation, contain threatened species or are very susceptible to disturbance or disease. There are specific guidelines in the *Forest Practices Code* to avoid disturbance to localised environments (e.g. swamps, rocky knolls, streambanks) that often contain these vegetation types. The key on the following page will allow FPOs to identify broad non-forest vegetation types. Seek botanical advice in all cases where native non-forest vegetation will be affected by forestry operations.

When to seek advice

This section of the module, and the FPP *Flora Evaluation Sheet*, indicates when botanical advice is needed because of the presence of particular communities in areas proposed for forestry operations. However, there is no shortage of grey areas in the natural world. Specialist advice should be sought if FPOs are uncertain about identification of communities or their conservation priority.

KEY TO VEGETATION TYPES AND FOREST COMMUNITIES

Use the key to forest and non-forest types to identify the vegetation types present in the coupe, then go to the indicated section (forest types only) to identify the floristic communities. The table following the key will allow the floristic communities to be related to the RFA communities.

Each key should be followed through sequentially. A true/false decision should be made for each statement bearing the same number (e.g. ❶). If true, proceed to the next numbered statement immediately below (❷). If false (or there is some degree of doubt), proceed to the next statement of the same number (❶) in the key.

The keys are based on species or understorey types that will be familiar to most field workers. Understoreys are defined by their dominant species, although species typical of other vegetation types may be present. Information on species and other characteristics used to distinguish communities is provided in Module 1, *Flora Technical Note 2* and on the FPA Website.

Transitional vegetation may not key out easily. If the forest is intermediate between two recognisable floristic communities, assess the conservation priorities for both communities. Contact the FPA Botanist or Ecologist if a vegetation type or forest community does not key out.

KEY TO FOREST TYPES

Use when vegetation is dominated by trees exceeding 5 metres, or with potential to exceed 5 metres

❶ Eucalypts absent or less than 5% cover

- ❷ Myrtle, sassafras, leatherwood, celery-top pine, horizontal, Huon pine, King Billy pine or deciduous beech dominant Rainforest (go to 2.1)
- ❷ Blackwood, tea-trees or paperbarks dominant Swamp forest and related forest or scrub (go to 2.2)
- ❷ Forest or tall scrub with other species dominant Other forest or scrub (go to 2.3)

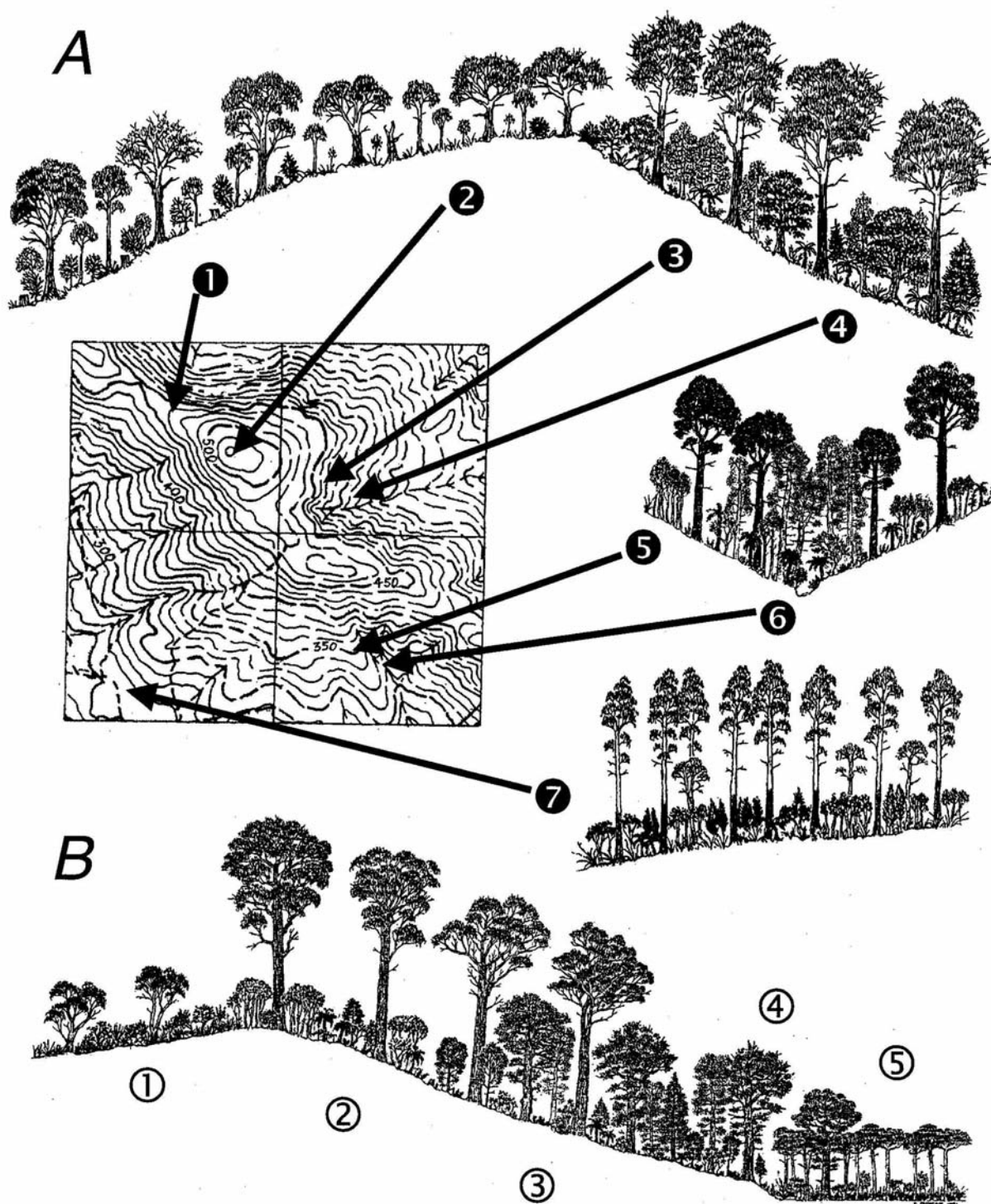
❶ Eucalypts present with greater than 5% cover

- ❷ Rainforest species (above) prominent as secondary trees or shrubs Mixed forest (go to 2.4)
- ❷ Understorey dominated by tall tea-trees or paperbarks Wet sclerophyll forest (go to 2.5)
- ❷ Understorey dominated by broad-leaved (soft-leaved) shrubs Wet sclerophyll forest (go to 2.5)
- ❷ Understorey dominated by an equal mixture of broad-leaved and narrow-leaved shrubs Dry sclerophyll forest/woodland (go to 2.6)
- ❷ Understorey dominated by grasses, sedges, heaths or narrow-leaved (hard-leaved) shrubs (generally under 2 m in height) Dry sclerophyll forest/woodland (go to 2.6)

KEY TO NON-FOREST TYPES

Seek advice from FPA in all cases if operations may affect native non-forest vegetation.

- ❶ Dominated by shrubs over 2m Scrub
- ❶ Dominated by shrubs under 2 m, usually infertile or exposed sites Heathland
- ❶ High altitude sites dominated by a mixture of low species such as cushion plants Alpine vegetation
- ❶ Dominated by sedges or buttongrass; low to high altitudes, often on the boundary of sedgy woodland or tea-tree scrub forest Moorland/sedgeland
- ❶ Dominated by native grasses and saggs; often herb-rich; lowland to upland sites Native grassland
- ❶ Dominated by *Sphagnum* moss; shrubs (e.g. tea-tree or richea) may be sparse or locally dense; often in high altitude soaks or drainage lines *Sphagnum* peatland
- ❶ Aquatic vegetation or vegetation submerged seasonally, generally dominated by graminoids, herbs or succulent species Wetland



Diagrams showing relationships between forest types and typical Tasmanian forest environments:

A: Moderate rainfall site: soils of moderate fertility (e.g. dolerite); site varying in landform and fire history

1 – shrubby *E. amygdalina* dry sclerophyll forest (exposed slope); 2 – grassy *E. amygdalina* dsf (exposed ridgeline); 3 – *E. delegatensis* wet sclerophyll forest (shaded slopes at higher altitudes); 4 – *E. delegatensis* mixed forest (humid slope, infrequently burnt); 5 – *E. obliqua* wsf and mixed forest (shaded slopes at lower altitudes); 6 – callidendrous rainforest (humid fire-shadow gully); 7 – *E. regnans* wsf (regrowth on humid site after wildfire or intensive logging).

B: High rainfall site, low altitude: site varying greatly in soil fertility and drainage

1 – heathy *E. amygdalina* dry sclerophyll forest (infertile substrate); 2 – *E. obliqua* wet sclerophyll forest (shaded slope); 3 – *E. obliqua* mixed forest (humid slope, infrequently burnt); 4 – callidendrous rainforest (humid, well-drained lower slope; fire-shadow site); 5 – *Leptospermum lanigerum* swamp forest (poorly-drained flat).

2.1 RAINFOREST COMMUNITIES

Major References: Jarman, Brown and Kantvilas (1984); Jarman, Kantvilas and Brown (1991); Neyland (1991); *Flora Technical Note 4*.

Tasmanian cool temperate rainforest is defined as vegetation with trees taller than 8 m, dominated by the following species: myrtle, deciduous beech, sassafras, leatherwood, horizontal, celery-top pine, King Billy pine, Huon pine, Cheshunt pine or pencil pine. Callidendrous rainforest dominated by myrtle and sassafras is found on relatively fertile and moist sites in D’Entrecasteaux Region, generally at lower altitudes. It forms mosaics with mixed forest and wet sclerophyll forest in high rainfall areas such as the Southern Forests and Styx Valley, but is largely restricted to fire-shadow situations (e.g. gullies and creeklines) in drier parts of the region (e.g. South Bruny Island and the Wellington Range).

Callidendrous rainforest grades into thamnian rainforest in many areas. Thamnian and implicate rainforests, characterised by the presence of endemic species (e.g. leatherwood, horizontal, celery-top pine) are most extensive and diverse on infertile substrates in the humid western and southern parts of the region. Gallery rainforest containing Huon pine is restricted to the banks of major rivers in the south. Montane rainforest, dominated by deciduous beech and King Billy Pine, occur in fire-shadow situations at higher altitudes (e.g. Mt Bobs, Lake Skinner). Wildfires have reduced the extent of montane rainforest in the region.

Most rainforest communities in D’Entrecasteaux Region are well reserved. However, the susceptibility of rainforest communities to fire, particularly in high altitude areas, needs to be taken into account in planning for forestry operations in the region.

KEY TO RAINFOREST COMMUNITIES

- ❶ **Generally forest of tall to moderate height (>20m, except at high altitudes or exposed situations); myrtle or sassafras dominant; understorey open**
 - ❷ Myrtle dominant or common; sassafras often present
 - ❸ Musk common..... RAIN-C3.1
 - ❸ Musk sparse or absent
 - ❹ Celery-top pine or native laurel present..... RAIN-CT1
 - ❹ Celery-top pine and native laurel absent..... RAIN-C1.1
 - ❷ Sassafras dominant; myrtle usually sparse or absent
 - ❸ Musk common..... RAIN-C3.2
 - ❸ Musk sparse or absent
 - ❹ Celery-top pine or native laurel present..... RAIN-CT1
 - ❹ Celery-top pine and native laurel absent..... RAIN-C1.2
- ❶ **Generally forest of moderate height; myrtle usually dominant or subdominant, leatherwood or celery-top pine usually prominent; understorey shrubby but distinct from tree layer**
 - ❷ King Billy pine dominant or codominant; myrtle often subdominant
 - ❸ Understorey dominated by archeriaRAIN-T4.3
 - ❸ Understorey dominated by dwarf leatherwoodRAIN-T5.2
 - ❸ Understorey dominated by scopariaRAIN-T9.1
 - ❷ King Billy pine not dominant or codominant; myrtle generally dominant
 - ❸ Huon pine presentRAIN-T3.1
 - ❸ Huon pine absent.....RAIN-T3.2
 - ❹ Understorey dominated by horizontal
 - ❺ Pandani presentRAIN-T1.2
 - ❺ Pandani absentRAIN-T1.1
 - ❹ Understorey dominated by native laurel.....RAIN-T3.1
 - ❹ Understorey dominated by archeria.....RAIN-T4.1
 - ❹ Understorey dominated by native plum.....RAIN-T8.1

- ❶ Forests of low to moderate height with broken, uneven canopies and tangled understoreys
 - ❷ King Billy pine present
 - ❸ Deciduous beech present; scoparia absent..... RAIN-I2.1
 - ❸ Deciduous beech absent; scoparia usually present RAIN-I1.4
 - ❷ King Billy pine absent (often dominated by celery-top pine)
 - ❸ Tea-tree or paperbark common; trochocarpa sparse or absent RAIN-I1.1
 - ❸ Tea-tree or paperbark sparse or absent; trochocarpa common RAIN-I4.1
- ❶ Forests containing riverine tea-tree (*Leptospermum riparium*) growing along watercourses.....RAIN-G1.1
- ❶ Dwarf forests growing along the coastal foreshore; with typical rainforest and wet sclerophyll forest species Dwarf littoral forest / OTHER-14

RELICT RAINFOREST

Relict rainforest comprises isolated patches of rainforest that occur locally in humid or fire-shadow environments, outside the normal range of Tasmanian rainforest. All areas of rainforest on Bruny Island are considered as relict rainforest. Grid references and further details of some sites are given in Neyland 1991 and *Flora Technical Note 4*. Other patches of relict rainforest may occur in the region (e.g. gullies on the drier slopes of the Wellington Range), most likely on sites with a PI type containing S or T.

Areas of relict rainforest that could be affected by forestry operations need to be referred to FPA. Prescriptions for protection of relict rainforest are given in *Flora Technical Note 4*.

CONSERVATION PRIORITIES AND ATTRIBUTES OF RAINFOREST COMMUNITIES

Note: * – Community identified as Rare, Vulnerable or Endangered at a Statewide level through RFA processes

Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
OTHER-14	Dwarf littoral forest		—	Non-forest	A	—	Sheltered coastal environments (e.g. swales) from South Cape Bay to New River Lagoon.
RAIN-C1.1 Callidendrous	<i>Nothofagus cunninghamii</i> - <i>Atherosperma moschatum</i> over <i>Dicksonia</i> and/or <i>Polystichum proliferum</i>	Relict patch	M+	Callidendrous & thamnic rainforest on fertile sites	A	N	Humid and relatively fertile sites, in west and south (e.g. Arve, Mt Field area) and local in gullies) in drier areas (e.g. Wellington Range).
		Other sites			np		
RAIN-C1.2 Callidendrous	<i>Atherosperma moschatum</i> over <i>Dicksonia antarctica</i> - <i>Polystichum proliferum</i> - <i>Blechnum wattsii</i>	Relict patch	M+	Callidendrous & thamnic rainforest on fertile sites	A	N	Not recorded from region but may occur locally in protected gullies and along creeks, often in drier environments than RAIN-C1.1.
		Other sites			B		
RAIN-C3.1 Callidendrous	<i>Nothofagus cunninghamii</i> - <i>Atherosperma moschatum</i> over <i>Olearia argophylla</i> with <i>Dicksonia antarctica</i> and/or <i>Polystichum proliferum</i>	Relict patch	M+	Callidendrous & thamnic rainforest on fertile sites	A	N	Occasional in humid gullies and other protected low altitude sites, mainly towards the southeastern part of the region.
		Other sites			np		
RAIN-C3.2 Callidendrous	<i>Atherosperma moschatum</i> over <i>Olearia argophylla</i> with <i>Dicksonia antarctica</i> - and/or <i>Polystichum proliferum</i>	Relict patch	M+	Callidendrous & thamnic rainforest on fertile sites	A	N	Occasional in humid gullies and other protected low altitude sites, where it may occur in relict patches (e.g. Wellington Range).
		Other sites			B		
RAIN-CT1 Callidendrous – thamnic	Varies	Relict patch	M+	Callidendrous & thamnic rainforest on fertile sites	A	N	Transition zones between callidendrous and thamnic rainforest. May occur as relict patches (e.g. Mt Midway, Saintys Creek, South Bruny).
		Other sites			np		
RAIN-G1.1 Gallery	<i>Leptospermum riparium</i> scrub	Huon pine present	H	Huon pine forest	A	N	Riverine sites on major rivers subject to periodic flooding (e.g. Huon River).
		Huon pine absent	M-	Thamnic rainforest on less fertile sites	np	N	
RAIN-I1.1 Implicate	<i>Phyllocladus aspleniifolius</i> - <i>Nothofagus cunninghamii</i> - Myrtaceae species over a diverse tangle with <i>Agastachys odorata</i>		M–	Thamnic rainforest on less fertile sites	np	N	Locally common on infertile sites below 500 m altitudes (e.g. South Cape Range, lower slopes of Adamsons Peak).
RAIN-I1.4 Implicate	<i>Athrotaxis selaginoides</i> over a tangle with <i>Agastachys odorata</i> - <i>Richea scoparia</i>		X	King Billy pine forest	A	Y*	Occasional at high altitude sites (above 650 m) (e.g. Mt Bobs).
RAIN-I2.1 Implicate	<i>Athrotaxis selaginoides</i> (- <i>Diselma archeri</i>) over a diverse tangle with <i>Nothofagus gunnii</i>		F	King Billy pine with deciduous beech	A	Y*	Occurs as a fragmented form in Mt Bobs area.

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Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
RAIN-I4.1 Implicate	<i>Phyllocladus aspleniifolius</i> - <i>Nothofagus cunninghamii</i> over <i>Trochocarpa</i> species - <i>Prionotes cerinthoides</i>		M–	Thamnic rainforest on less fertile sites	np	N	Occasional on infertile sites at low to mid altitude sites (e.g. Lower Weld River Valley).
RAIN-T1.1 Thamnic	<i>Nothofagus cunninghamii</i> - <i>Eucryphia lucida</i> - (<i>Phyllocladus aspleniifolius</i>) over <i>Anodopetalum biglandulosum</i>	Trees >20 m over sparse u/s	M+	Callidendrous & thamnic rainforest on fertile sites	np	N	Widespread on less fertile sites at lower altitudes (usually below 600 m); often associated with creeks (e.g. Isabella Creek, South Weld FR).
		Trees <20 m over dense u/s	M–	Thamnic rainforest on less fertile sites			
RAIN-T1.2 Thamnic	<i>Nothofagus cunninghamii</i> - <i>Eucryphia lucida</i> - over <i>Anodopetalum biglandulosum</i> - <i>Richea pandanifolia</i>		M–	Thamnic rainforest on less fertile sites	np	N	Occasional on well drained sites on slopes and benches; recorded from Russell River headwaters, Southwest NP
RAIN-T3.1 Thamnic	<i>Nothofagus cunninghamii</i> - <i>Eucryphia lucida</i> - (<i>Phyllocladus aspleniifolius</i>) over <i>Anopterus glandulosus</i>	Trees >20 m over a sparse u/s	M+	Callidendrous & thamnic rainforest on fertile sites	np	N	May extend into the south and west of the region on low altitude sites of low to moderate fertility. Often associated with creeks.
		Trees <20 m over dense u/s	M–	Thamnic rainforest on less fertile sites			
RAIN-T3.2 Thamnic	<i>Lagarostrobos franklinii</i> - (<i>Nothofagus cunninghamii</i>) over <i>Anopterus glandulosus</i>		H	Huon pine forest	A	N	May occur locally on banks of major rivers (e.g. Picton River, Huon River).
RAIN-T4.1 Thamnic	<i>Nothofagus cunninghamii</i> - <i>Eucryphia lucida</i> over <i>Archeria</i> species		M–	Thamnic rainforest on less fertile sites	np	N	Local on low altitude sites of low to moderate fertility (e.g. South Cape Range).
RAIN-T4.3 Thamnic	<i>Athrotaxis selaginoides</i> - <i>Nothofagus cunninghamii</i> - <i>Eucryphia</i> species over <i>Archeria</i> species – <i>Richea pandanifolia</i>		X	King Billy pine forest	A	Y*	Moderate fertility sites above 600 m (e.g. Lake Skinner, Lake Sydney, Mt Bobs). There is an unusual eastern occurrence on Bermuda Road.
RAIN-T5.2 Thamnic	<i>Athrotaxis selaginoides</i> (and/or <i>Nothofagus cunninghamii</i>) - over <i>Trochocarpa gunnii</i> - <i>Richea pandanifolia</i>	Myrtle dominant	M–	Thamnic rainforest on less fertile sites	B	N	Occasional on mountain slopes above 700 m (e.g. Adamsons Peak area).
		KB pine dominant	X	King Billy pine forest	A	Y*	
RAIN-T8.1 Thamnic	<i>Nothofagus cunninghamii</i> - <i>Phyllocladus aspleniifolius</i> – <i>Eucryphia lucida</i> over <i>Cenarrhenes nitida</i>		M–	Thamnic rainforest on less fertile sites	np	N	Occasional on less fertile sites at altitudes below 600 m.
RAIN-T9.1 Thamnic	<i>Athrotaxis selaginoides</i> over <i>Richea scoparia</i> - <i>Nothofagus cunninghamii</i>		X	King Billy pine forest	A	Y*	Dolerite mountains in south of region at altitudes above 750 m.

2.2 SWAMP FOREST AND RELATED FOREST OR SCRUB COMMUNITIES

Major Reference: Pannell (1992); Kirkpatrick, Barker, Brown, Harris and Mackie (1995)

Swamp forests have a closed canopy of blackwood, tea-trees or paperbarks, and typically occupy poorly drained flats. Most communities are confined to low altitude parts of Tasmania, with their greatest extent and diversity being found in the far Northwest (Woolnorth Region). Riparian blackwood forests contain typical wet sclerophyll shrubs and occur on better drained riparian environments, extending to slopes on disturbed sites that previously supported rainforest. Most late-successional stage swamp forest communities grade into rainforest.

In the D’Entrecasteaux Region, these forest types are mainly associated with larger rivers in the Esperance – Huon area and some long-unburnt coastal environments. Substantial areas of swamp forest would have been cleared for agriculture in the southeast of the region. Scrubs dominated by tea-tree or paperbark are relatively widespread and well reserved, particularly in coastal and hinterland environments in the south of the region in the World Heritage Area. Montane tea-tree forests may occur locally at higher altitudes.

The key includes some communities that have not been recorded in the region, but have the potential to be present, based on their habitats. Most sites containing swamp forest are potentially important for conservation.

KEY TO SWAMP FOREST AND RELATED FOREST / SCRUB COMMUNITIES

❶ Blackwood, paperbark or woolly tea-tree dominant; leatherwood, celery-top pine or horizontal absent; understorey open with ferns or cutting grass common; mainly found on poorly drained sites

❷ Myrtle common in canopy or subcanopy

❸ Manfern common SWAMP-A5

❸ Manfern sparse or absent SWAMP-A4

❷ Myrtle sparse or absent in canopy or subcanopy

❸ Sassafras common..... SWAMP-A2

❸ Sassafras sparse or absent

❹ Woolly tea-tree common

❺ Scented paperbark present; cutting sedge absent SWAMP-A1

❺ Scented paperbark absent; cutting sedge presentSWAMP-C4

❹ Woolly tea-tree sparse or absent..... SWAMP-A3

❶ Blackwood, paperbark or woolly tea-tree dominant; leatherwood, celery-top pine or horizontal present; understorey often shrubby; mainly found on poorly drained sites

❷ Horizontal present

❸ Manfern common; scented paperbark usually absent.....SWAMP-B2

❸ Manfern sparse or absent; scented paperbark present

❹ Cutting grass commonSWAMP-B1

❹ Cutting grass sparse or absentSWAMP-B3

❷ Horizontal absent

❸ Trochocarpa present

❹ Fishbone fern or cutting sedge common; celery-top pine sparse or absentSWAMP-B4

❹ Fishbone fern and cutting sedge sparse or absent; celery-top pine commonSWAMP-B5

❸ Trochocarpa absent

❹ Manfern common; scented paperbark usually absent.....SWAMP-B1

❹ Manfern sparse or absent; scented paperbark present.....SWAMP-B2

- ❶ **Blackwood dominant or codominant; dogwood, cheesewood, musk, cathead fern or bracken prominent in understorey; mainly found on better drained flats, riparian sites and slopes**
 - ❷ Myrtle common
 - ❸ Dogwood common SWAMP-D5
 - ❸ Dogwood sparse or absent
 - ❹ Leatherwood present; celery-top pine often present SWAMP-D7
 - ❹ Leatherwood and celery-top pine absent; open understorey SWAMP-D6
 - ❷ Myrtle sparse or absent
 - ❸ Silver wattle common; woolly tea-tree often present; dogwood sparse or absent SWAMP-D2
 - ❸ Silver wattle and woolly tea-tree sparse or absent; dogwood common SWAMP-D4
- ❶ **Woolly tea-tree dominant and montane sites (usually above 500 m)**
 - ❷ Myrtle sparse or absent
 - ❸ Silver wattle codominant or commonSWAMP-E1
 - ❸ Silver wattle sparse or absentSWAMP-E1
 - ❷ Myrtle codominant or common (silver wattle sparse or absent)SWAMP-E2
- ❶ **Tea-tree (manuka) usually dominant or codominant; usually lowland sites**
 - ❷ Rainforest trees (e.g. myrtle, leatherwood, celery-top pine, horizontal) present SWAMP-F3
 - ❷ Rainforest trees absent SWAMP-F1
- ❶ **Shiny tea-tree dominant**OTHER-01
- ❶ **Glaucous tea-tree dominant or co-dominant with tea-tree (manuka)**OTHER-02

CONSERVATION PRIORITIES AND ATTRIBUTES OF SWAMP FOREST AND RELATED FOREST OR SCRUB COMMUNITIES

Note: * – Community identified as Rare, Vulnerable or Endangered at a Statewide level through RFA processes

Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
OTHER-01	<i>Leptospermum nitidum</i> closed forest/scrub		—	Non-forest	np	—	Riparian vegetation, mainly at lower altitudes along major rivers in south of region.
OTHER-02	<i>Leptospermum glaucescens</i> - <i>Leptospermum scoparium</i> closed forest/scrub		L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	B	N	Localised thickets on infertile sites (e.g. quartzite) mainly in coastal areas.
SWAMP-A1	Depauperate callidendrous swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Poorly drained flats on fertile sites that have been disturbed or burnt within last 50 years (e.g. Arve River flats).
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats			
SWAMP-A2	Callidendrous sassafras swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Later successional stage of SWAMP-A1, recorded from Recherche Bay area.
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats			
SWAMP-A3	Depauperate callidendrous fern swamp forest		BF	<i>Acacia melanoxylon</i> forest on flats	A	N	Later successional stage of SWAMP-A1, recorded from Recherche Bay area.
SWAMP-A4	Callidendrous myrtle swamp forest		BF	<i>Acacia melanoxylon</i> forest on flats	A	N	Poorly drained flats on fertile sites that have not been burnt or disturbed for a long period (e.g. D’Entrecasteaux River floodplain).
SWAMP-A5	Callidendrous fern swamp forest		BF	<i>Acacia melanoxylon</i> forest on flats	A	N	Not recorded from region - similar habitat to SWAMP-A4 but on better drained sites.
SWAMP-B1	Thamnic leatherwood swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Less fertile swamp sites and extending to gullies in far south of region (e.g. Lune River flats, Ti Tree Hill area).
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats			
SWAMP-B2	Thamnic fern swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Often associated with SWAMP-B1; but usually on sites with better peat development.
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats			
SWAMP-B3	Thamnic horizontal swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	np	N	Relatively widespread in the region on poorly drained, low fertility sites (e.g. Montagu and Plains Creek Swamps).
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats			

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Floristic community code and name		Qualification		RFA community code and name		Cons. priority		Distribution in D'Entrecasteaux Region
						Floristic	RFA	
SWAMP-B4	Thamnic <i>Trochocarpa</i> swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Poorly drained infertile flats with patchy peat (e.g. D'Entrecasteaux River floodplain).	
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats				
SWAMP-B5	Thamnic celery-top pine swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Poorly drained infertile flats with deep peat (e.g. D'Entrecasteaux River floodplain, Arve River flats).	
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats				
SWAMP-C4	Coastal tea-tree/ <i>Carex</i> swamp forest	Tea-tree or scented paperbark dominant	L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	A	N	Not recorded from region but likely to occur in coastal and sub-coastal swamps and flats in the far south.	
		Blackwood dominant	BF	<i>Acacia melanoxylon</i> forest on flats				
SWAMP-D2	Riparian blackwood/wattle forest	On flats	BF	<i>Acacia melanoxylon</i> forest on flats	A	N	Not recorded from region but likely to occur on well-drained flats, gullies and disturbed slopes that previously supported rainforest.	
		On rises	BR	<i>Acacia melanoxylon</i> forest on rises				
SWAMP-D4	Riparian blackwood/dogwood forest	On flats	BF	<i>Acacia melanoxylon</i> forest on flats	np	N	Local in gullies and on moist fertile lowland flats, where drainage is not too impeded (e.g. flats along Huon River).	
		On rises	BR	<i>Acacia melanoxylon</i> forest on rises				
SWAMP-D5	Riparian blackwood myrtle/dogwood forest	On flats	BF	<i>Acacia melanoxylon</i> forest on flats	A	N	Later successional stage of SWAMP-D4.	
		On rises	BR	<i>Acacia melanoxylon</i> forest on rises				
SWAMP-D6	Riparian blackwood rainforest	Myrtle dominant		M+	Callidendrous and thamnic rainforest on fertile sites		A	Later successional stage of SWAMP-D4. Not recorded from region but may occur locally on well-drained, fire-protected flats on fertile substrate along major river systems and associated gullies and slopes.
		Myrtle not dominant	On flats	BF	<i>Acacia melanoxylon</i> forest on flats	A	N	
			On rises	BR	<i>Acacia melanoxylon</i> forest on rises			
SWAMP-D7	Riparian blackwood/leatherwood rainforest			M+	Callidendrous and thamnic rainforest on fertile sites		A	Not recorded from region, but may occur on floodplains of major rivers on less fertile sites.
SWAMP-E1	Depauperate montane tea-tree forest	Silver wattle common		SI	<i>Acacia dealbata</i> forest		B	Local on fertile flats, after failed attempts at clearing wetter forest types.
		Silver wattle sparse or absent		L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest		B	Local on flats with impeded drainage, mainly in fertile upland areas.
SWAMP-E2	Montane myrtle tea-tree forest			M+	Callidendrous and thamnic rainforest on fertile sites		np	Later successional stage of SWAMP-E1, often forming a mosaic with rainforest.

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Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D'Entrecasteaux Region
					Floristic	RFA	
SWAMP-F1	Depauperate tea-tree scrub forest		L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	np	N	Common on poorly drained sites, on infertile substrate in coastal and upland areas (e.g. Snug Tiers, Southport Lagoon, Catamaran River, Raminea, Fishers Point).
SWAMP-F3	Tea-tree mesophytic scrub forest		L	<i>Leptospermum</i> species - <i>Melaleuca squarrosa</i> swamp forest	np	N	Later successional stage of SWAMP-F1, occurring in similar habitat.

2.3 OTHER FOREST OR SCRUB COMMUNITIES

Major Reference: Kirkpatrick, Barker, Brown, Harris and Mackie (1995)

This section covers an array of forest communities that are not dominated by rainforest species, eucalypts, tea-trees or paperbarks. They occupy a wide environmental range, from humid sites capable of supporting rainforest, to dry rocky gorges. Most of these communities occur as localised patches in other forest types. Examples include small stands (or groves) of native olive associated with rocky sites in wet sclerophyll forest. Most of the communities have a high priority for conservation, because of their localised distribution. Some are associated with threatened species. The exception is silver wattle (*Acacia dealbata*) forest, which is found locally where inadequate regeneration of eucalypts has followed land clearing, wildfire or logging.

Some communities covered in this section have not been recorded from D’Entrecasteaux Region, but may occur locally at lower altitudes within the region.

KEY TO OTHER FOREST OR SCRUB COMMUNITIES

Note: These communities may have a sparse (<5%) cover of eucalypts or other tree species.

- ❶ Bull-oak dominant DRY-LIT
- ❶ She-oak dominant
 - ❷ Coastal environments, coast wattle may be present DRY-coVERT
 - ❷ Non coastal environments; coast wattle absent DRY-inVERT
- ❶ Dogwood (native pear) dominant OTHER-03
- ❶ Blanket bush dominant OTHER-06
- ❶ Native olive (dorrel) dominant OTHER-07
- ❶ Silver wattle dominant OTHER-10
- ❶ Yellow bottlebrush (*Callistemon pallidus*) dominant OTHER-11

CONSERVATION PRIORITIES AND ATTRIBUTES OF OTHER FOREST OR SCRUB COMMUNITIES

Note: * – Community identified as Rare, Vulnerable or Endangered at a Statewide level through RFA processes

Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D'Entrecasteaux Region
					Floristic	RFA	
DRY-LIT	<i>Allocasuarina littoralis</i> forest		check	check	A	check	May occur locally on dry sites, mainly on siliceous sediments
DRY-VERT coastal	Coastal <i>Allocasuarina verticillata</i> low forest		AV	<i>Allocasuarina verticillata</i> forest	B	Y	Local in drought-prone and exposed coastal areas (e.g. Coningham, Bruny Neck).
DRY-VERT inland	Inland <i>Allocasuarina verticillata</i> low forest		AV	<i>Allocasuarina verticillata</i> forest	A	Y	May occur locally at low altitudes in on exposed and rocky dolerite sites that are drought-prone (e.g. She Oak Hill, Derwent Valley).
OTHER-03	<i>Pomaderris apetala</i> - <i>Beyeria viscosa</i> - <i>Asterotrichion discolor</i> closed forest/scrub	Site disturbed by heavy logging or clearing	varies	Treat as associated forest community or non-forest scrub (no referral needed)	np	N	Occasional where very poor eucalypt regeneration has occurred following logging or clearing of wet forest.
		Not as above	NP	<i>Notelaea ligustrina</i> and/or <i>Pomaderris apetala</i> closed forest	A	Y*	Shaded creeks and gullies in drier areas, but also occurring as localised patches on moist slopes (e.g. Mt Mangana, lower slopes of Wellington Range).
OTHER-06	<i>Bedfordia salicina</i> - <i>Olearia argophylla</i> closed forest/ scrub	Site disturbed by heavy logging or clearing	varies	Treat as associated forest community or non-forest scrub (no referral needed)	np	N	Occasional where very poor eucalypt regeneration has occurred following logging or clearing of wet forest.
		Not as above	—	None appropriate	A	—	Shaded creeks and gullies in drier areas, but also occurring as localised patches on moist slopes. Mainly on dolerite, in upland areas (e.g. slopes of Wellington Range).
OTHER-07	<i>Notelaea ligustrina</i> closed forest		NP	<i>Notelaea ligustrina</i> and/or <i>Pomaderris apetala</i> closed forest	A	Y*	May occur locally in rocky fire-shadow gullies and on rocky sites in wet forest.
OTHER-10	<i>Acacia dealbata</i> forest		SI	<i>Acacia dealbata</i> forest	B	N	Usually created by successive fires, poor eucalypt regeneration or failed attempts at clearing on moist sites. (e.g. Waterloo, settled areas around Geeveston).
OTHER-11	<i>Callistemon pallidus</i> closed forest		—	None appropriate	A	—	Recorded from South Bruny Island – may occur locally elsewhere in region.

2.4 MIXED FOREST COMMUNITIES

Major Reference: Kirkpatrick, Peacock, Cullen and Neyland (1988)

Mixed forest comprises vegetation with an understorey of rainforest species and an overstorey of eucalypts that becomes sparse as the forest approaches maturity. Often only one species of eucalypt is present, with trees frequently exceeding 50 m in mature forest. The eucalypts tend to be even-aged, and are usually of one or two age classes, which relate to period since fire or other major disturbance. Mixed forests have a minimum eucalypt canopy cover of 5% - if eucalypt cover is less than 5% the forest is considered as rainforest. Mixed forests represent a transition (in space or time) between the rainforests and the wet sclerophyll forests into which they grade.

Mixed forests are extensive and diverse in D’Entrecasteaux Region. They are widespread in high rainfall areas, including the Southern Forests, the Styx Valley and parts of the World Heritage Area. In drier parts of the region, they mainly occur on humid, fire-shadow sites. Most mixed forest communities are adequately reserved in the region. The main mixed forest communities used for wood production are *E. delegatensis* forest, *E. obliqua* forest and *E. regnans* forest.

KEY TO MIXED FOREST COMMUNITIES

- ❶ **Dominated by *E. coccifera***
 - ❷ Horizontal, dwarf leatherwood or climbing heath present; tussock grass (Poa) absent WET-COC11
 - ❷ Horizontal, dwarf leatherwood or climbing heath absent; tussock grass (Poa) present WET-COC01
- ❶ **Dominated by *E. cordata*** WET-CORD1
- ❶ **Dominated by *E. dalrympleana*** WET-DAL10
- ❶ **Dominated by *E. delegatensis***
 - ❷ Leatherwood, horizontal or native laurel common
 - ❸ Goldeywood or lancewood common; cutting grass sparse or absent. WET-DEL1011
 - ❸ Goldeywood and lancewood sparse or absent; cutting grass common WET-DEL1010
 - ❷ Leatherwood, horizontal and native laurel sparse or absent
 - ❸ Silver wattle, manfern or musk common; waratah and pink mountain berry sparse or absent
 - ❹ Celery-top pine or cutting grass common
 - ❺ Dogwood, musk or bracken common
 - ❻ Stinkwood, goldeywood or lancewood common; blanket bush and musk sparse or absent WET-DEL0111
 - ❻ Stinkwood, goldeywood and lancewood sparse or absent; blanket bush or musk often common WET-DEL0110
 - ❺ Dogwood, musk and bracken sparse or absent WET-DEL1001
 - ❹ Celery-top pine and cutting grass sparse or absent
 - ❺ Silver wattle or bracken common; epiphytic ferns sparse or absent
 - ❻ Stinkwood, goldeywood or lancewood present; blanket bush and musk sparse or absent WET-DEL0111
 - ❻ Stinkwood, goldeywood and lancewood absent; blanket bush or musk often common WET-DEL0110
 - ❺ Silver wattle and bracken sparse or absent; epiphytic ferns often common ... WET-DEL1000
 - ❸ Silver wattle, manfern and musk sparse or absent ; waratah or pink mountain berry common
 - ❹ Hakea, blanket bush or bauera common; cathead fern usually absent
 - ❺ Lancewood, prickly beauty or cutting grass common; dogwood and musk sparse or absent WET-DEL1110
 - ❺ Lancewood, prickly beauty and cutting grass sparse or absent; dogwood or musk common WET-DEL2
 - ❹ Hakea, blanket bush and bauera sparse or absent; cathead fern present WET-DEL1100

- ❶ Dominated by *E. johnstonii*..... WET-JOHN1
- ❶ Dominated by *E. nitida*
 - ❷ Horizontal, trochocarpa or native pepper common; manfern and dogwood sparse or absent. WET-NIT0
 - ❷ Horizontal, trochocarpa and native pepper sparse or absent; manfern or dogwood common. WET-NIT1
- ❶ Dominated by *E. obliqua*
 - ❷ Manfern, cathead fern or leathery shield fern common
 - ❸ Cutting grass usually common; epiphytic ferns usually sparse or absent
 - ❹ Leatherwood, celery-top pine, horizontal or native laurel common; dogwood, musk, lancewood and prickly mo sparse or absent WET-OB1100
 - ❹ Leatherwood, celery-top pine, horizontal and native laurel sparse or absent; dogwood, musk, lancewood or prickly mo common WET-OB101
 - ❸ Cutting grass sparse or absent; epiphytic ferns usually common
 - ❺ Leatherwood, celery-top pine, horizontal or native laurel present; musk absent; usually less fertile sites WET-OB1001
 - ❺ Leatherwood, celery-top pine, horizontal and native laurel absent; musk often present; usually more fertile sites WET-OB1000
 - ❷ Manfern, cathead fern and leathery shield fern sparse or absent
 - ❸ Leatherwood or horizontal common
 - ❹ Huon pine present WET-OB11011
 - ❹ Huon pine absent WET-OB11010
 - ❸ Leatherwood or horizontal sparse or absent
 - ❹ Prickly mo, lancewood or coral fern common; native willow and dogwood sparse or absent WET-OB1110
 - ❹ Prickly mo, lancewood or coral fern sparse or absent; native willow or dogwood common WET-OB1111
- ❶ Dominated by *E. regnans*
 - ❷ Silver wattle or blackwood present; dogwood common; epiphytic ferns generally sparse or absent WET-REG101
 - ❷ Silver wattle and blackwood absent; dogwood sparse or absent; epiphytic ferns common
 - ❸ Leathery shield fern, musk or kangaroo fern present; celery-top pine and lancewood absent; more fertile sites WET-REG110
 - ❸ Leathery shield fern, musk and kangaroo fern absent; celery-top pine or lancewood present; less fertile sites WET-REG111
- ❶ Dominated by *E. subcrenulata*
 - ❷ Native plum, pandani, waratah or native pepper common; leatherwood usually absent WET-SUB1000
 - ❷ Native plum, pandani, waratah and native pepper sparse or absent; leatherwood often present WET-SUB1001
- ❶ Dominated by *E. urnigera* WET-URN1

CONSERVATION PRIORITIES AND ATTRIBUTES OF MIXED FOREST COMMUNITIES

Note: * – Community identified as Rare, Vulnerable or Endangered at a Statewide level through RFA processes

Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
WET-COC01	<i>E. coccifera</i> / <i>E. delegatensis</i> - <i>Geranium potentilloides</i> subalpine mixed forest		C	<i>E. coccifera</i> forest	np	N	Lower altitudes than WET-COC00; <i>E. coccifera</i> typically a tree to 25 m (e.g. Mt Wellington).
WET-COC11	<i>E. coccifera</i> – <i>Trochocarpa cunninghamii</i> - <i>Cyathodes glauca</i> subalpine mixed forest		C	<i>E. coccifera</i> forest	np	N	Well-drained subalpine dolerite sites, often rocky (e.g. Hartz Mountains NP, Mt Wellington, Snowy Range).
WET-DAL10	<i>E. dalrympleana</i> - <i>Tasmania lanceolata</i> - <i>Dicksonia antarctica</i> mixed forest	Make sure dominant is not <i>E. viminalis</i> – contact FPA if unsure	DT	Tall <i>E. delegatensis</i> forest	A	N	Very local on midslopes and benches on dolerite – associated with <i>E. delegatensis</i> forest (e.g. Wellington Range).
WET-DEL0110	<i>E. delegatensis</i> - <i>Atherosperma moschatum</i> - <i>Olearia argophylla</i> wsf/mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Occasional on moist, shaded slopes, gullies and drainage headwaters on fertile sites in upland areas (e.g. Wellington Range).
WET-DEL0111	<i>E. delegatensis</i> - <i>Zieria arborescens</i> - <i>Hydrocotyle sibthorpioides</i> wsf/mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Occasional on less fertile substrates such as sandstone and mudstone (e.g. Springs area, Mt Wellington; Mt Mangana area).
WET-DEL1000	<i>E. delegatensis</i> - <i>Nothofagus cunninghamii</i> - <i>Grammitis billardierei</i> mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Localised but fairly common on moist, shaded slopes and creeklines on fertile upland sites protected from fire.
WET-DEL1001	<i>E. delegatensis</i> - <i>Nothofagus cunninghamii</i> - <i>Gahnia grandis</i> mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Humid sites on less fertile substrates than WET-DEL1000 often on flatter sites with poorer drainage (e.g. Hartz Mountains).
WET-DEL1010	<i>E. delegatensis</i> - <i>Phyllocladus aspleniifolius</i> - <i>Anodopetalum biglandulosum</i> mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Relatively infertile upland sites in wetter parts of the region (e.g. slopes of Snowy Range).
WET-DEL1011	<i>E. delegatensis</i> - <i>Monotoca glauca</i> - <i>Hymenophyllum rarum</i> mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Relatively infertile upland sites in wetter parts of the region (e.g. slopes of Snowy Range, Mt Mangana area).
WET-DEL1100	<i>E. delegatensis</i> - <i>Telopea truncata</i> - <i>Pittosporum bicolor</i> subalpine mixed forest		DT	Tall <i>E. delegatensis</i> forest	B	N	Not recorded from region, but may occur at higher altitudes on rocky dolerite sites.

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Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
WET-DEL1110	<i>E. delegatensis</i> - <i>Hakea lissosperma</i> - <i>Monotoca glauca</i> subalpine mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Not recorded from region, but may occur at higher altitudes on less fertile sites.
WET-DEL2	<i>E. delegatensis</i> - <i>Phyllocladus aspleniifolius</i> - <i>Cyathodes juniperina</i> mixed forest		DT	Tall <i>E. delegatensis</i> forest	B	N	Not recorded from region, but may occur at higher altitudes on rocky dolerite sites in west of region.
WET-JOHN1	<i>E. johnstonii</i> mixed forest	Grades into <i>E. subcrenulata</i> forest	SU	<i>E. subcrenulata</i> forest	B	N	Local on wet, acid soils mainly on sandstone at 400-700 m (e.g. Hartz Road).
WET-NIT0	<i>E. nitida</i> - <i>Anodopetalum biglandulosum</i> - <i>Leptospermum glaucescens</i> wsf/mixed forest		NT	Tall <i>E. nitida</i> forest	np	N	Localised at low and mid altitudes on fire-shadow sites on infertile substrate (e.g. South Cape – Southeast Cape).
WET-NIT1	<i>E. nitida</i> - <i>Pomaderris apetala</i> - <i>Dicksonia antarctica</i> wsf/mixed forest		NT	Tall <i>E. nitida</i> forest	np	N	Localised at low and mid altitudes on fire-shadow sites on more fertile substrate than WET-NIT1 (e.g. South Cape – Southeast Cape).
WET-OB1000	<i>E. obliqua</i> - <i>Nothofagus cunninghamii</i> - <i>Polystichum proliferum</i> - <i>Hymenophyllum flabellatum</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	np	N	Lower altitudes on humid slopes and gullies with deep soils and good drainage (e.g. Reuben Falls, Warra, Hastings Caves area).
WET-OB1001	<i>E. obliqua</i> - <i>Nothofagus cunninghamii</i> - <i>Anopterus glandulosus</i> - <i>Hymenophyllum flabellatum</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	np	N	Common on humid slopes and gullies on less fertile sites than WET-OB1000 (e.g. Tahune area, Warra, Picton Valley, Mt Midway).
WET-OB101	<i>E. obliqua</i> - <i>Nothofagus cunninghamii</i> - <i>Monotoca glauca</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	np	N	Common on low to mid altitude sites often on drier sites and less fertile sites than WET-OB1000.(e.g. Recherche Bay, Wellington Range, South Bruny)
WET-OB1100	<i>E. obliqua</i> - <i>Atherosperma moschatum</i> - <i>Cenarrhenes nitida</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	np	N	Occasional at low altitudes on less fertile sites (e.g. South Weld FR, Lune River area, Arve).
WET-OB11010	<i>E. obliqua</i> – <i>Orites diversifolia</i> – <i>Cyathodes juniperina</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	B	N	Less fertile, rocky sites, with seasonal poor drainage (e.g. glacial moraines in Picton Valley).
WET-OB11011	<i>E. obliqua</i> – <i>Lagarostrobos franklinii</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	A	N	Riparian forest fringing major rivers (e.g. Huon River, Picton River).

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Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
WET-OB1110	<i>E. obliqua</i> - <i>Anopterus glandulosus</i> - <i>Acacia verticillata</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	np	N	Localised on less fertile sites with poor drainage (e.g. South Cape area, Picton Valley).
WET-OB1111	<i>E. obliqua</i> – <i>Acacia mucronata</i> – <i>Nothofagus cunninghamii</i> mixed forest		OT	Tall <i>E. obliqua</i> forest	np	N	Less fertile sites with poor drainage in west of region (e.g. South Weld FR).
WET-REG101	<i>E. regnans</i> - <i>Atherosperma moschatum</i> - <i>Acacia dealbata</i> - <i>Olearia argophylla</i> wsf/mixed forest		R	<i>E. regnans</i> forest	np	N	Common in low altitude sheltered valleys with deep soils and good drainage (e.g. Tahune FR, Mt Midway, Russell Falls).
WET-REG110	<i>E. regnans</i> - <i>Nothofagus cunninghamii</i> - <i>Atherosperma moschatum</i> mixed forest		R	<i>E. regnans</i> forest	B	N	Sheltered valleys and slopes with deep soils and good drainage at low to mid altitudes (e.g. Styx Valley, Hastings Cave area).
WET-REG111	<i>E. regnans</i> - <i>Atherosperma moschatum</i> mixed forest		R	<i>E. regnans</i> forest	B	N	Sheltered valleys and slopes on less fertile sites than REG-101 and REGD-110 (e.g. Styx Valley).
WET-SUB1000	<i>E. subcrenulata</i> - <i>Richea pandanifolia</i> - <i>Cyathodes glauca</i> mixed forest		SU	<i>E. subcrenulata</i> forest	B	N	Local at high altitude benches on sandstone, drainage impeded (e.g. Hartz Mountains, Snowy Range).
WET-SUB1001	<i>E. subcrenulata</i> / <i>E. delegatensis</i> - <i>Grammitis billardiarei</i> mixed forest		R	<i>E. regnans</i> forest	np	N	Moderately infertile sites, where drainage is better than sites supporting SUB1000 (e.g. Snowy Range, Maydena Range).
WET-URN1	<i>E. urnigera</i> subalpine mixed forest		C	<i>E. coccifera</i> forest	A	N	Localised on poorly drained upland dolerite sites (e.g. Mt Wellington, Mt Bounty).
WET-VIM111	<i>E. viminalis</i> - <i>Nothofagus cunninghamii</i> - <i>Atherosperma moschatum</i> - <i>Dicksonia antarctica</i> mixed forest		VW	<i>E. viminalis</i> wet forest	A	Y*	Not recorded from region, but may occur locally in humid, fire-shadow sites associated with gullies and fertile river flats.

2.5 WET SCLEROPHYLL FOREST COMMUNITIES

Major Reference: Kirkpatrick, Peacock, Cullen and Neyland (1988)

Wet sclerophyll forests are typically dominated by eucalypts and have an understorey dominated by broad-leaved (soft-leaved) shrubs. Trees in mature forest generally exceed 40 m in height. As with the related mixed forest, wet sclerophyll forests typically contain only one or two eucalypt age classes - these relate to period since fire or other major disturbance (including intensive logging and regeneration burning). Often only one species of eucalypt is present. The shrub understorey is dominated by broad-leaved shrubs and is generally dense, preventing continuous regeneration of shade-intolerant species such as eucalypts. Ferns are often prominent in the ground layer.

Wet sclerophyll communities are extensive in D’Entrecasteaux Region, particularly at lower altitudes in higher rainfall areas. They are also common in shaded and fire-shadow environments in drier parts of the region. Wet sclerophyll forest grades into mixed forest (as rainforest species become more prominent in the understorey) and into dry sclerophyll forest (often through a damp sclerophyll transition zone) as sites become more exposed to drought and fire.

Most wet sclerophyll forest communities are well reserved, but some that have been extensively converted on more fertile sites conducive to agriculture or plantation establishment have a higher priority for conservation (e.g. communities dominated by *E. viminalis*, *E. ovata* or *E. globulus*).

KEY TO WET SCLEROPHYLL FOREST COMMUNITIES

- ❶ Dominated by *E. amygdalina* WET-AM1
- ❶ Dominated by *E. brookeriana* WET-BR11
- ❶ Dominated by *E. dalrympleana*
 - ❷ Guitar plant, prickly beauty or sagg common; manfern and musk sparse or absent..... WET-DAL00
 - ❷ Guitar plant, prickly beauty and sagg sparse or absent; manfern or musk often present WET-DAL01
- ❶ Dominated by *E. delegatensis*
 - ❷ Guitar plant or prickly beauty common
 - ❸ Mountain currant, waratah or tussock grass common; rocky subalpine sites WET-DEL0010
 - ❸ Mountain currant, waratah and tussock grass sparse or absent; not on rocky subalpine sites
 - ❹ Dogwood, manfern or cutting grass common
 - ❺ Stinkwood or goldeywood common; blanket bush absent..... WET-DEL0111
 - ❺ Stinkwood and goldeywood sparse or absent; blanket bush often present WET-DEL0100
 - ❹ Dogwood, manfern and cutting grass sparse or absent..... WET-DEL0001
 - ❷ Guitar plant and prickly beauty sparse or absent
 - ❸ Cutting grass or sword sedge common
 - ❹ Woolly tea-tree common; goldeywood or stinkwood sparse or absent WET-DEL3
 - ❹ Woolly tea-tree sparse or absent; goldeywood or stinkwood common WET-DEL0111
 - ❸ Cutting grass and sword sedge sparse or absent
 - ❹ Mountain currant, waratah or tussock grass common; rocky subalpine sites WET-DEL0010
 - ❹ Mountain currant, waratah and tussock grass sparse or absent; not on rocky subalpine sites
 - ❺ Dwarf musk, viscid daisy bush or bracken common; drier sites..... WET-DEL0101
 - ❺ Dwarf musk, viscid daisy bush and bracken sparse or absent; moister sites (myrtle or sassafras may be present)..... WET-DEL0110
- ❶ Dominated by *E. globulus*
 - ❷ Tussock grass (*Poa*), sagg or prickly mo common
 - ❸ Cutting grass or musk present; viscid daisy bush sparse or absent WET-GLOB0101
 - ❸ Cutting grass and musk sparse or absent; viscid daisy bush often present..... WET-GLOB1

- ② Tussock grass (*Poa*), sagg and prickly mo sparse or absent
 ③ Manfern, kangaroo fern or epiphytic ferns present; cutting grass absent WET-GLOB001
 ③ Manfern, kangaroo fern and epiphytic ferns absent; cutting grass often present
 ④ Blanket bush or pinkwood common, tea-tree and paperbark sparse or absent..... WET-GLOB0100
 ④ Blanket bush and pinkwood sparse or absent; tea-tree or paperbark often present..... WET-GLOB0101
① Dominated by *E. johnstonii* WET-JOHN2
① Dominated by *E. nitida*
 ② Dogwood, manfern or bracken common WET-NIT1
 ② Dogwood, manfern and bracken sparse or absent WET-NIT0
① Dominated by *E. obliqua*
 ② Bauera common WET-OB3
 ② Bauera sparse or absent
 ③ Guitar plant or prickly beauty common; drier sites WET-OB010
 ③ Guitar plant and prickly beauty sparse or absent; moister sites
 ④ Paperbark, tea-tree, sword sedge or cutting grass common WET-OB0111
 ④ Paperbark, tea-tree, sword sedge and cutting grass sparse or absent WET-OB0110
① Dominated by *E. ovata*
 ② Understorey dominated by paperbark or tea-tree; cutting grass or sword sedge usually common WET-OV00
 ② Understorey dominated by broad-leaved shrubs; cutting grass and sword sedge usually sparse or absent..... WET-OV01
① Dominated by *E. regnans*
 ② Bracken, cutting grass or sword sedge common; (myrtle or sassafras generally absent)
 ③ Dwarf musk, prickly mo, stinkwood or goldeywood common..... WET-REG1000
 ③ Dwarf musk, prickly mo, stinkwood and goldeywood sparse or absent..... WET-REG1001
 ② Bracken, cutting grass and sword sedge sparse or absent; (myrtle or sassafras often present)..... WET-REG101
① Dominated by *E. urnigera* WET-URN2
① Dominated by *E. viminalis*
 ② Paperbark or tea-tree common; *E. ovata* often present; poorly drained sites WET-VIM2
 ② Paperbark or tea-tree sparse or absent; *E. ovata* absent; well-drained sites
 ③ Native cherry, guitar plant or little prickly common; drier sites..... WET-VIM0011
 ③ Native cherry, guitar plant and little prickly sparse or absent; moister sites
 ④ Prickly mo or dolly bush common; blanket bush and manfern sparse or absent WET-VIM0100
 ④ Prickly mo and dolly bush sparse or absent; blanket bush or manfern common . WET-VIM0101

CONSERVATION PRIORITIES AND ATTRIBUTES OF WET SCLEROPHYLL FOREST COMMUNITIES

Note: * – Community identified as Rare, Vulnerable or Endangered at a Statewide level through RFA processes

Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
WET-AM1	<i>E. amygdalina</i> - <i>E. viminalis</i> - <i>Lomandra longifolia</i> wsf	On dolerite	AD	<i>E. amygdalina</i> forest on dolerite	B	N	May occur locally in drier parts of region on damp dolerite slopes and gullies.
		On other substrates	check	check	check	check	May occur locally in region on moist sites in drier areas.
WET-BR11	<i>E. brookeriana</i> - <i>E. obliqua</i> - <i>Bedfordia salicina</i> wsf		BA	<i>E. brookeriana</i> wet forest	A	Y*	Very localised in drainage headwaters – recorded from South Bruny Island.
WET-CORD1	<i>E. cordata</i> wsf		DT	Tall <i>E. delegatensis</i> forest	A	N	Very local on moist upland dolerite sites (e.g. Snug Tiers – Grey Mountain area).
WET-DAL00	<i>E. dalrympleana</i> / <i>E. delegatensis</i> - <i>Lomatia tinctoria</i> wsf	Make sure dominant is not <i>E. viminalis</i> – contact FPA if unsure.	DT	Tall <i>E. delegatensis</i> forest	A	N	May occur locally on upland dolerite benches in drier parts of region.
WET-DAL01	<i>E. dalrympleana</i> - <i>Pomaderris apetala</i> - <i>Bedfordia salicina</i> wsf		DT	Tall <i>E. delegatensis</i> forest	A	N	May occur locally on upland dolerite benches in association with <i>E. delegatensis</i> wet forest.
WET-DEL0001	<i>E. delegatensis</i> - <i>Acacia melanoxylon</i> - <i>Bedfordia salicina</i> wsf		DT	Tall <i>E. delegatensis</i> forest	B	N	Lower altitudes for <i>E. delegatensis</i> forest, often on rocky dolerite slopes (e.g. Wellington Range).
WET-DEL0010	<i>E. delegatensis</i> - <i>Olearia phlogopappa</i> - <i>Olearia viscosa</i> subalpine wsf		DT	Tall <i>E. delegatensis</i> forest	B	N	High altitude block streams and scree slopes on drier dolerite mountains (e.g. Wellington Range).
WET-DEL0100	<i>E. delegatensis</i> - <i>E. viminalis</i> - <i>Acacia melanoxylon</i> wsf		DT	Tall <i>E. delegatensis</i> forest	B	N	Lower altitude sites for <i>E. delegatensis</i> forest, often disturbed (e.g. Wellington Range).
WET-DEL0101	<i>E. delegatensis</i> - <i>E. obliqua</i> - <i>Acaena novae-zelandiae</i> wsf		DT	Tall <i>E. delegatensis</i> forest	np	N	Lower altitude sites for <i>E. delegatensis</i> forest, often disturbed (e.g. Wellington Range).
WET-DEL0110	<i>E. delegatensis</i> - <i>Atherosperma moschatum</i> - <i>Olearia argophylla</i> wsf/mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	More humid slopes and creeklines on more fertile substrates (e.g. Wellington Range, Kermadie Divide). Grades into DEL0110 mixed forest.
WET-DEL0111	<i>E. delegatensis</i> - <i>Zieria arborescens</i> - <i>Hydrocotyle sibthorpioides</i> wsf/mixed forest		DT	Tall <i>E. delegatensis</i> forest	np	N	Occasional on less fertile sites such as sandstone (e.g. Wellington Range, South Bruny).

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Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
WET-DEL3	<i>E. delegatensis</i> - <i>Leptospermum lanigerum</i> - <i>Gahnia grandis</i> wsf		DT	Tall <i>E. delegatensis</i> forest	A	N	Regrowth community associated with drainage headwaters and poorly drained flats (e.g. Warra).
WET-GLOB001	<i>E. globulus</i> - <i>Dicksonia antarctica</i> - <i>Ctenopteris heterophylla</i> wsf		R	<i>E. regnans</i> forest	B	N	Humid slopes and gullies on dolerite at low altitudes (e.g. Coningham, Fords Pinnacle).
WET-GLOB0100	<i>E. globulus</i> - <i>Bedfordia salicina</i> - <i>Beyeria viscosa</i> wsf		R	<i>E. regnans</i> forest	B	N	Humid slopes and gullies on dolerite at low altitudes (e.g. South Bruny, Channel area).
WET-GLOB0101	<i>E. globulus</i> – <i>Acacia dealbata</i> – <i>Acacia melanoxydon</i> – <i>Cassinia aculeata</i> wsf		R	<i>E. regnans</i> forest	B	N	Drier lowland areas, mainly on dolerite; often on disturbed sites (e.g. Margate area, South Bruny).
WET-GLOB1	<i>E. globulus</i> - <i>Poa labillardierei</i> - <i>Hypochoeris radicata</i> wsf		check	check	check	check	Moist slopes and gullies in drier parts of region (e.g. Lutregala Creek, Coningham, Fletchers Hill).
WET-JOHN2	<i>E. johnstonii</i> wsf		SU	<i>E. subcrenulata</i> forest	B	N	Sheltered slopes and benches mainly on sandstone; drainage may be impeded (e.g. Mt Mangana).
WET-NIT0	<i>E. nitida</i> - <i>Anodopetalum biglandulosum</i> - <i>Leptospermum glaucescens</i> wsf/mixed forest		NT	Tall <i>E. nitida</i> forest	np	N	Low and mid altitudes on fire-shadow sites on infertile substrate (e.g. South Cape – Southeast Cape)
WET-NIT1	<i>E. nitida</i> - <i>Pomaderris apetala</i> - <i>Dicksonia antarctica</i> wsf/mixed forest		NT	Tall <i>E. nitida</i> forest	np	N	Low and mid altitudes on fire-shadow sites on more fertile sites than WET-NIT1 (e.g. South Cape – Southeast Cape).
WET-OB010	<i>E. obliqua</i> - <i>Olearia lirata</i> - <i>Pultenaea juniperina</i> wsf		OT	Tall <i>E. obliqua</i> forest	np	N	Moister aspects of dry hills and on wetter sites grazed or burnt frequently. May form transition zone between wet and dry sclerophyll forest.
WET-OB0110	<i>E. obliqua</i> - <i>Acacia dealbata</i> - <i>Olearia argophylla</i> wsf		OT	Tall <i>E. obliqua</i> forest	np	N	Widespread community, growing on moist sites in areas receiving moderate rainfall (e.g. Judbury,) and on drier sites in wetter areas (e.g. Arve).
WET-OB0111	<i>E. obliqua</i> - <i>Melaleuca squarrosa</i> - <i>Monotoca glauca</i> wsf		OT	Tall <i>E. obliqua</i> forest	np	N	Common regrowth community on less fertile sites at low altitudes, generally drainage impeded (e.g. Warra, Picton Valley).
WET-OB3	<i>E. obliqua</i> - <i>Phebalium squameum</i> - <i>Bauera rubioides</i> wsf		OT	Tall <i>E. obliqua</i> forest	B	N	Local on lower slopes and flats on less fertile sites at low altitudes (e.g. Picton Valley).
WET-OV00	<i>E. ovata</i> - <i>Leptospermum</i> species - <i>Melaleuca</i> species wsf		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A	Y*	May occur locally on poorly drained lowland flats, which have escaped fire for a long period.

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Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
WET-OV01	<i>E. ovata</i> - <i>Acacia dealbata</i> - <i>Pomaderris apetala</i> wsf		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A	Y*	May occur locally on fertile lowland flats; better drained than most <i>E. ovata</i> communities.
WET-REG1000	<i>E. regnans</i> - <i>E. obliqua</i> - <i>Pomaderris apetala</i> - <i>Olearia lirata</i> wsf		R	<i>E. regnans</i> forest	B	N	Local on shaded slopes and gully flanks, in transition zone between <i>E. obliqua</i> and <i>E. regnans</i> wsf. Mainly occurs as a regrowth community (e.g. South Bruny, Tyenna River).
WET-REG1001	<i>E. regnans</i> - <i>Acacia dealbata</i> - <i>Pomaderris apetala</i> wsf		R	<i>E. regnans</i> forest	B	N	Occupies moist sheltered slopes with more sheltered aspects than WET-REG1000. Mainly occurs as a regrowth community. (e.g. Lonnavele, South Bruny, Esperance)
WET-REG101	<i>E. regnans</i> - <i>Atherosperma moschatum</i> - <i>Acacia dealbata</i> - <i>Olearia argophylla</i> wsf/mixed forest		R	<i>E. regnans</i> forest	np	N	Moist, sheltered sites with deep soils and good drainage at low altitudes (e.g. Arve Valley, Tahune, Mt Midway, Russell Falls area). Grades into mixed forest.
WET-URN2	<i>E. urnigera</i> wsf		C	<i>E. coccifera</i> forest	A	N	Local on rocky dolerite sites, sometimes with impeded drainage, at 700-1000 m altitude (e.g. Mt Bounty, Wellington Range).
WET-VIM0011	<i>E. viminalis</i> - <i>Bedfordia salicina</i> - <i>Pultenaea juniperina</i> wsf	<i>E. amygdalina</i> or <i>E. obliqua</i> codominant or subdominant	DSC	<i>E. viminalis</i> - <i>E. ovata</i> - <i>E. amygdalina</i> - <i>E. obliqua</i> damp sclerophyll forest	A	Yog	Wet sclerophyll - dry sclerophyll transition community that may occur locally on dolerite slopes (e.g. Channel area).
		Not DSC	VW	<i>E. viminalis</i> wet forest	A	Y*	
WET-VIM0100	<i>E. viminalis</i> - <i>Acacia dealbata</i> - <i>Pomaderris apetala</i> wsf		VW	<i>E. viminalis</i> wet forest	A	Y*	Local on moist, fertile sites often associated with creeks or rivers (e.g. Fletchers Hill).
WET-VIM0101	<i>E. viminalis</i> - <i>Acacia dealbata</i> - <i>Dicksonia antarctica</i> wsf		VW	<i>E. viminalis</i> wet forest	A	Y*	Local on humid slopes or gullies, mainly at low altitudes in north of region (e.g. Wellington Range).
WET-VIM2	<i>E. viminalis</i> - <i>Leptospermum lanigerum</i> - <i>Melaleuca squarrosa</i> wsf		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A	Y*	May occur locally in lowland areas on better drained sites adjacent to flats with <i>E. ovata</i> forest.

2.6 DRY SCLEROPHYLL FOREST AND WOODLAND COMMUNITIES

Major Reference: Duncan and Brown (1985)

Dry sclerophyll forests and woodlands are typically dominated by eucalypts under 40 m in height, and have a multi-layered understorey dominated by hard-leaved shrubs, including eucalypt regeneration. The eucalypts often form mixed species stands, and generally several age classes of eucalypts are present. The ground layer varies, but bracken, grasses and graminoids (sedges) are typical components. Many grassy communities are described in Kirkpatrick, Gilfedder and Fensham (1988).

Dry sclerophyll forest communities are classified by their overstorey dominants and the broad characteristics of their understorey. The understorey types are grassy (g), sedgy (sd), scrubby (sc), shrubby (sh) and heathy (h); they are described below. Inevitably, many areas will support vegetation with intermediate understoreys. FPOs need to use a precautionary approach when determining the conservation priority of such forests. Land use practices (e.g. frequent or recent firing) can also modify the structure or composition of dry sclerophyll understoreys. For example, frequent firing can lead to bracken displacing a diverse heathy understorey. FPOs should allow for land use practices when determining floristic communities.

Dry sclerophyll communities are moderately widespread and diverse in the drier northern and eastern parts of D'Entrecasteaux Region, with dominant and understorey species varying in response to altitude, substrate and drainage. They are mainly found on infertile and exposed sites in the more humid southern and western parts of the region. At lower altitudes, dry sclerophyll forest grades into wet sclerophyll forest as sites become progressively more humid and less frequently burnt. At higher altitudes, subalpine dry sclerophyll communities form mosaics with wet eucalypt forest, rainforest and non-forest.

Most dry sclerophyll communities within D'Entrecasteaux Region are well reserved. Those with the highest priority for conservation are located in areas that have been most extensively cleared for agriculture or settlement.

There are difficulties with allocating some dry sclerophyll floristic communities to RFA communities. These problem communities are not encountered in many FPP areas. The tables indicate when FPOs need to check with FPA for guidance on community affinities, priorities and prescriptions.

Many lowland dry sclerophyll communities in D'Entrecasteaux Region, particularly on siliceous substrates and poorly drained sites, are highly susceptible to *Phytophthora cinnamomi*. These are indicated in the tables. Specialist advice will be needed if prescriptions in *Flora Technical Note 8* cannot be applied to operations in these communities.

RECOGNISING THE DIFFERENT DRY SCLEROPHYLL UNDERSTOREYS

Each understorey type is recognised by the dominance or prominence of a distinctive suite of species. Species from other understorey types may also be present, and these communities will grade into one another in some situations, so it is important to note which species are the most dominant, rather than just which species are present. Eucalypt regrowth can be present in all understorey types.

Grassy forests

Grasses or saggs are the dominant or most prominent feature of the understorey. Typical species include tussock grass, kangaroo grass, wallaby grass and sagg (*Lomandra longifolia*). Note that buttongrass and cutting grass are actually sedges, and forests with understoreys dominated by these species should be considered as sedgy communities. The ground layer generally contains a high diversity of herbs, most evident when they are flowering in spring and summer. Small trees and shrubs (e.g. black wattle, she-oak, prickly box) are widespread on drier lowland sites. The eucalypt canopy is often fairly open; common species in D'Entrecasteaux Region include *E. delegatensis*, *E. amygdalina* and *E. pulchella*. *E. globulus* and *E. ovata* are occasional dominants in near-coastal areas (e.g. South Bruny Island). Grassy forests are largely restricted to fertile substrate (e.g. dolerite) and well drained sites in the northeastern and eastern part of the region, including the Channel area.

Sedgy forests

Sedges or rushes are the dominant or most prominent feature of the understorey. Typical species include sword sedge, cutting grass, buttongrass and rushes. Coral ferns are often present. Shrubs such as tea-trees and paperbarks are present on many sites. The eucalypt canopy is often fairly open. Common species in D’Entrecasteaux Region include *E. amygdalina*, *E. nitida* and *E. ovata*. Sedgy forests grade into scrubby forests as shrub cover increases (in the absence of fire) and sedges reduce in cover. Sedgy forests occur on sites with impeded drainage, often on sites that have been burnt frequently or recently.

Scrubby forests

Shrubs (typically tea-trees and paperbarks) are the dominant or most prominent feature of the understorey. They form a moderately dense to dense cover, generally over a sedgy ground layer. Other common shrub species include prickly mo, banksia, hakea and a range of legumes and heath species. The ground layer contains species typical of sedgy forest, though it is generally sparser, particularly under a dense shrub layer. The eucalypt canopy is typically fairly open. Common species in D’Entrecasteaux Region include *E. amygdalina*, *E. nitida* and *E. ovata*. Scrubby forests mainly occur on flats with impeded drainage, generally on sites that have not been burnt or severely disturbed for many years. They often intergrade or form a mosaic with sedgy communities.

Heathy forests

Shrubs less than 2 m in height are the dominant or most prominent feature of the understorey, though in frequently burnt sites this shrub layer can be displaced by bracken. Occasional taller shrubs are also often present in heathy forests. Shrub species include many heaths (e.g. *Epacris* species), legumes, wattles, *Allocasuarina* species, banksia, tea-tree and paperbarks. Bracken is the most widespread ground layer species, but saggs, sedges and colourful herbs (e.g. orchids, lilies) are often conspicuous. Eucalypt height and density varies in response to site conditions. Most heathy forest communities in Tasmania occur on siliceous sites in coastal and subcoastal environments. In D’Entrecasteaux Region, heathy forests, mainly dominated by *E. amygdalina* and *E. tenuiramis*, occur locally on sandstone, mainly in the eastern part of the region. Heathy communities dominated by *E. nitida* are common on infertile siliceous substrates (e.g. quartzite) in the southwest.

Shrubby forests

Shrubs more than 2 m in height are the dominant or most prominent feature of the understorey. Several shrub layers are often present, often containing a mixture of wet sclerophyll (broad-leaved) and dry sclerophyll (narrow-leaved) shrubs. Shrubby forests are synonymous with damp sclerophyll forests when wet sclerophyll and dry sclerophyll shrubs are present in similar proportions. Shrub species present vary greatly, depending on site conditions. Common species include native cherry, wattles, blanket bush, mountain berry, banksia, prickly beauty, guitar plant and hakea. Ground layer species include bracken and other ferns, flax lily, sagg and grasses, though their cover is often sparse. Eucalypts are typically taller and denser than in other dry sclerophyll forest communities. In D’Entrecasteaux Region they include *E. delegatensis* (widespread), *E. obliqua* and *E. amygdalina* (low altitude sites), and *E. coccifera* (high altitudes). Lowland shrubby forests tend to occupy more fertile sites, or more shaded and humid environments, than other dry sclerophyll types.

KEY TO DRY SCLEROPHYLL FOREST AND WOODLAND COMMUNITIES

Note: Exclude eucalypt regeneration in assessing dominance of understorey layers.

- ❶ Understorey dominated by grasses and saggs; small trees or shrubs generally sparse; mainly on drier sites on basalt, dolerite or other fertile substrates
 - ❷ *E. amygdalina* dominant DRY-gAMYG
 - ❷ *E. dalrympleana* dominant DRY-gDAL
 - ❷ *E. delegatensis* dominant DRY-gDEL
 - ❷ *E. globulus* dominant DRY-gGLOB
 - ❷ *E. ovata* dominant DRY-gOV
 - ❷ *E. pulchella* dominant DRY-gPUL
 - ❷ *E. rubida* dominant DRY-gRUB
 - ❷ *E. tenuiramis* dominant DRY-gTEN
 - ❷ *E. viminalis* dominant DRY-gVIM

- ❶ Understorey dominated by sedges, cutting grass or buttongrass or tea-trees or paperbarks; mainly on sites with impeded drainage (e.g. flats and marsh edges)
 - ❷ Sedges, cutting grass or buttongrass prominent
 - ❸ *E. amygdalina* dominant..... DRY-sdAM
 - ❸ *E. gunnii* dominant DRY-sdGUN
 - ❸ *E. nitida* dominant DRY-sdNIT
 - ❸ *E. ovata* dominant..... DRY-sdOV
 - ❸ *E. rodwayi* dominant DRY-sdROD
 - ❷ Tea-trees or paperbarks prominent
 - ❸ *E. amygdalina* dominant..... DRY-scAM
 - ❸ *E. gunnii/archeri* dominant..... DRY-scGUN
 - ❸ *E. nitida* dominant DRY-scNIT
 - ❸ *E. ovata* dominant..... DRY-scOV
 - ❸ *E. rodwayi* dominant DRY-scROD
- ❶ Understorey dominated by bracken or low shrubs (generally less than 2 m), notably heaths, legumes, wattles, tea-trees, bull-oak and banksia; mainly on well drained sites on sand, sandstone and quartzite
 - ❷ *E. amygdalina* dominant DRY-hAM
 - ❷ *E. nitida* dominant..... DRY-hNIT
 - ❷ *E. obliqua* dominant DRY-hOB
 - ❷ *E. ovata* dominant DRY-hOV
 - ❷ *E. pulchella* dominant DRY-gPUL or DRY-shPUL
 - ❷ *E. tenuiramis* dominant..... DRY-hTEN
 - ❷ *E. viminalis* dominant..... DRY-hVIM
- ❶ Understorey dominated by shrubs over 2 m (excluding tea-trees and paperbarks), often including broad-leaved species; bracken or other ferns sometimes dense; mainly on well drained or sheltered sites of moderate fertility (e.g. dolerite)
 - ❷ *E. amygdalina* dominant DRY-shAM
 - ❷ *E. coccifera* dominant..... DRY-shCOC
 - ❷ *E. cordata* dominant..... DRY-shCORD
 - ❷ *E. dalrympleana* dominant DRY-shDAL
 - ❷ *E. delegatensis* dominant DRY-shDEL
 - ❷ *E. globulus* dominant DRY-shGLOB
 - ❷ *E. gunnii* dominant..... DRY-shGUN
 - ❷ *E. nitida* dominant..... DRY-shNIT
 - ❷ *E. obliqua* dominant DRY-shOB
 - ❷ *E. ovata* dominant DRY-shOV
 - ❷ *E. pulchella* dominant DRY-shPUL
 - ❷ *E. subcrenulata* dominant DRY-shSUB
 - ❷ *E. tenuiramis* dominant DRY-shTEN
 - ❷ *E. viminalis* dominant..... DRY-shVIM

CONSERVATION PRIORITIES AND ATTRIBUTES OF DRY SCLEROPHYLL FOREST / WOODLAND COMMUNITIES

Notes: # – Community highly susceptible to *Phytophthora cinnamomi* – specialist advice needed if prescriptions in *Flora Technical Note 8* cannot be applied

* – Community identified as Rare, Vulnerable or Endangered at a Statewide level through RFA processes

Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
DRY-gAM	Grassy <i>E. amygdalina</i> forest/woodland	Substrate dolerite or basalt	AD	<i>E. amygdalina</i> forest on dolerite	A	N	May occur locally at lower altitudes in northern part of region.
		Substrate mudstone	AM	<i>E. amygdalina</i> forest on mudstone	check	check	Local on flats and lower slopes on dry sites in north and east of region.
		Substrate other	check	check	check	check	Local on flats and lower slopes on dry sites in north and east of region.
DRY-gDAL	Grassy <i>E. dalrympleana</i> forest/woodland	Make sure dominant is not <i>E. viminalis</i> - contact FPA if unsure	D	Dry <i>E. delegatensis</i> forest	B	N	May occur locally on dry upland dolerite tiers and benches, often growing with <i>E. delegatensis</i> forest.
DRY-gDEL	Grassy <i>E. delegatensis</i> forest/woodland		D	Dry <i>E. delegatensis</i> forest	B	N	May occur on dry dolerite sites from 600-1000 m, often subject to frost, grazing or frequent fire.
DRY-gGLOB	Grassy <i>E. globulus</i> forest/woodland	<i>E. pulchella</i> present as codominant	P	<i>E. pulchella</i> - <i>E. globulus</i> - <i>E. viminalis</i> grassy shrubby forest	np	N	Local on dolerite ridges and exposed slopes adjacent to Derwent Valley (e.g. Moogara area) and in dry coastal areas (e.g. Coningham, Simpsons Point).
		<i>E. pulchella</i> present as subdominant or minor species or absent	GG	Grassy <i>E. globulus</i> forest	A	Y*	Similar to above, but generally on more humid or less exposed sites.
DRY-gOV	Grassy <i>E. ovata</i> forest/woodland		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A [#]	Y*	Local on poorly drained flats and associated slopes in drier lowland parts of the region (e.g. Sandfly).
DRY-gPUL	Grassy <i>E. pulchella</i> forest/woodland	May occur locally with a heathy understorey	P	<i>E. pulchella</i> - <i>E. globulus</i> - <i>E. viminalis</i> grassy-shrubby forest	B	Yog	Common on dry dolerite knolls and slopes at low altitudes in north and east of region (e.g. Moogara, Coningham, Fluted Cape, Sandfly).
DRY-gRUB	Grassy <i>E. rubida</i> forest/woodland		V	<i>E. viminalis</i> grassy forest/woodland	A	Y	May occur locally on flats, saddles and frost hollows in the Derwent Valley.
DRY-gTEN	Grassy <i>E. tenuiramis</i> forest/woodland		TI	Inland <i>E. tenuiramis</i> forest	A [#]	Y*	Locally common on low altitude mudstone sites in drier parts of region (e.g. Bruny Neck, Randalls Bay, Lachlan area).
DRY-gVIM	Grassy <i>E. viminalis</i> forest/woodland		V	<i>E. viminalis</i> grassy forest/woodland	A	Y	Occasional on dry dolerite hills and exposed slopes in drier parts of region.

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Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
DRY-hAM	Heathy <i>E. amygdalina</i> forest	Substrate sand, quartzite or alluvium in (sub)coastal areas	AC	Coastal <i>E. amygdalina</i> forest	np	N	Local in coastal areas (e.g. Southport Lagoon, Labillardière Peninsula).
		Substrate sandstone (mainly Triassic)	AS	<i>E. amygdalina</i> forest on sandstone	A [#]	Y*	Local on slopes of the Wellington Range, and elsewhere in SE of the region (e.g. Coningham).
		Substrate mudstone	AM	<i>E. amygdalina</i> forest on mudstone	check	check	Local on dry slopes in lower Derwent Valley and Channel area.
		Substrate other	check	check	check	check	
DRY-hNIT	Heathy <i>E. nitida</i> forest		N	Dry <i>E. nitida</i> forest	np [#]	N	Common on infertile substrate (e.g. quartzite) in south and west of region (e.g. Glovers Plain, Arve Road, South Coast Track, Raminea).
DRY-hOB	Heathy <i>E. obliqua</i> forest		O	Dry <i>E. obliqua</i> forest	np [#]	N	Common on well drained siliceous sites at low altitudes, particularly in southeast of region (e.g. Denison Ridge, Kettering area, Southport Lagoon).
DRY-hOV	Heathy <i>E. ovata</i> forest/woodland		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A [#]	Y*	Local on poorly drained flats in SE coastal areas (e.g. Labillardière Peninsula, Channel area).
DRY-hTEN	Heathy <i>E. tenuiramis</i> forest		TI	Inland <i>E. tenuiramis</i> forest	A [#]	Y*	Slopes and flats on mudstone and sandstone in drier parts of region (e.g. Chuckle Head, Labillardière Peninsula, Judbury, Fords Pinnacle).
DRY-hVIM	Heathy <i>E. viminalis</i> coastal forest	Substrate coastal sand	G	<i>E. viminalis</i> and/or <i>E. globulus</i> coastal shrubby forest	A [#]	Y*	Very localised on well drained sites on Recent sand in coastal areas (e.g. Bruny Neck).
		Substrate other	check	check	check	check	
DRY-sdAM and DRY-scAM	Sedgy <i>E. amygdalina</i> forest/woodland	Substrate dolerite	AD	<i>E. amygdalina</i> forest on dolerite	np [#]	N	Local around drainage lines and margins of marshes on a range of substrates, in the northeast and east of the region (e.g. Bruny Neck).
	Scrubby <i>E. amygdalina</i> forest/woodland	Substrate sand, quartzite or alluvium in (sub)coastal areas	AC	Coastal <i>E. amygdalina</i> forest	np [#]	N	
		Substrate sandstone	AS	<i>E. amygdalina</i> forest on sandstone	A [#]	Y*	
		Substrate other	check	check	check	check	

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Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
DRY-sdGUN <u>and</u> DRY-scGUN	Sedgy <i>E. gunnii</i> forest/woodland Scrubby <i>E. gunnii</i> forest/woodland		C	<i>E. coccifera</i> forest	A	N	Restricted to poorly drained flats and frost hollows (e.g. Snug Tiers).
DRY-sdNIT <u>and</u> DRY-scNIT	Sedgy <i>E. nitida</i> forest/woodland Scrubby <i>E. nitida</i> forest/woodland		N	Dry <i>E. nitida</i> forest	np [#]	N	Drainage lines and poorly drained flats on infertile lowland sites (quartzite) in the far south of region. Usually associated with wet heath, scrub or moorland (e.g. South Cape, Glovers Plains).
DRY-sdOV <u>and</u> DRY-scOV	Sedgy <i>E. ovata</i> forest/woodland Scrubby <i>E. ovata</i> forest/woodland		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A [#]	Y*	Local on poorly drained flats, at low altitudes in southeast of region (e.g. South Bruny Island, Channel area, Egg Islands).
DRY-sdROD <u>and</u> DRY-scROD	Sedgy <i>E. rodwayi</i> forest/woodland Scrubby <i>E. rodwayi</i> forest/woodland		RO	<i>E. rodwayi</i> forest	A	Y	Very localised in region on poorly drained flats and frost hollows (e.g. Snug Tiers).
DRY-shAM	Shrubby <i>E. amygdalina</i> forest	Understorey with similar amount of wet and dry sclerophyll shrubs <u>and</u> <i>E. obliqua</i> or <i>E. viminalis</i> subdominant or codominant	DSC	<i>E. viminalis</i> - <i>E. ovata</i> - <i>E. amygdalina</i> - <i>E. obliqua</i> damp sclerophyll forest	B	Yog	Found on sites intermediate between wet and dry sclerophyll forest. May occur locally on shaded slopes in east of region (e.g. Cygnet, Middleton, Margate).
		Not DSC and substrate dolerite	AD	<i>E. amygdalina</i> forest on dolerite	B	N	Local on dry, rocky slopes (e.g. Fords Pinnacle).
		Not DSC and substrate sandstone	AS	<i>E. amygdalina</i> forest on sandstone	A [#]	N	Shaded siliceous sites in north and east of region (e.g. Lachlan, Mt Lloyd, Coningham area).
		Not DSC and substrate mudstone	AM	<i>E. amygdalina</i> forest on mudstone	check	check	Moderately shaded slopes mainly in southeast of region (e.g. Margate, Woodbridge).
		Not DSC and substrate other	check	check	check	check	May occur locally on shaded sites in SE of region.
DRY-shCOC	Shrubby <i>E. coccifera</i> forest		C	<i>E. coccifera</i> forest	np	N	Rocky dolerite sites, near tree line (e.g. Mt. Wellington, Snug Tiers, Hartz Mountains).
DRY-shCORD	Shrubby <i>E. cordata</i> forest		check	check	A	N	Local on dolerite tiers (e.g. Mt Lloyd, Snug Tiers) or mudstone (e.g. Penguin Island).

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Floristic community code and name		Qualification	RFA community code and name		Cons. priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
DRY-shDAL	Shrubby <i>E. dalrympleana</i> forest	Make sure dominant is not <i>E. viminalis</i> - contact FPA if unsure	D	Dry <i>E. delegatensis</i> forest	B	N	May extend into region on rocky dolerite sites associated with <i>E. delegatensis</i> forest.
DRY-shDEL	Shrubby <i>E. delegatensis</i> forest		D	Dry <i>E. delegatensis</i> forest	np	N	Widespread on upland slopes and tiers, mainly in drier parts of region (e.g. Wellington Range).
DRY-shGLOB	Shrubby <i>E. globulus</i> forest	<i>E. pulchella</i> present as codominant	P	<i>E. pulchella</i> - <i>E. globulus</i> - <i>E. viminalis</i> grassy shrubby forest	B	N	Occasional on shaded, rocky or infrequently burnt dolerite sites (e.g. Channel area).
		Substrate dolerite and <i>E. pulchella</i> present as minor or subdominant species or absent	GG	Grassy <i>E. globulus</i> forest	A	Y*	Similar to above, but generally on more humid or less exposed sites.
		Substrate sand in coastal areas	G	<i>E. viminalis</i> and/or <i>E. globulus</i> coastal shrubby forest	A [#]	Y*	Local on humid or fire-free coastal sites that would normally support heathy <i>E. globulus</i> forest (e.g. Southport Lagoon).
		Not P, GG or G	check	check	check	check	Local on humid or fire-free sites that would normally support more open <i>E. globulus</i> forest..
DRY-shGUN	Shrubby <i>E. gunnii</i> forest		C	<i>E. coccifera</i> forest	A	N	May occur locally adjacent to poorly drained flats and frost hollows (e.g. Snug Tiers).
DRY-shNIT	Shrubby <i>E. nitida</i> forest		N	Dry <i>E. nitida</i> forest	np [#]	N	Local on more shaded or long unburnt sites on infertile substrate (e.g. quartzite) in south of region (e.g. South Cape).
DRY-shOV	Shrubby <i>E. ovata</i> forest		OV	Shrubby <i>E. ovata</i> - <i>E. viminalis</i> forest	A [#]	Y*	Local on sites intermediate between DRY-scOV and wet sclerophyll forest.
DRY-shPUL	Shrubby <i>E. pulchella</i> forest	May occur locally with a heathy understorey	P	<i>E. pulchella</i> - <i>E. globulus</i> - <i>E. viminalis</i> grassy-shrubby forest	B	N	Local on shaded dolerite slopes at low altitudes, mainly in east and southeast (e.g. Longley area).
DRY-shOB	Shrubby <i>E. obliqua</i> forest	Understorey with similar amount of wet and dry sclerophyll shrubs <u>and</u> <i>E. amygdalina</i> or <i>E. viminalis</i> subdominant or codominant	DSC	<i>E. viminalis</i> - <i>E. ovata</i> - <i>E. amygdalina</i> - <i>E. obliqua</i> damp sclerophyll forest	np	N	Found on sites intermediate between wet and dry forest. Occurs locally on shaded slopes in drier parts of the region.
		Not DSC	O	Dry <i>E. obliqua</i> forest	np	N	Common at low altitudes on humid sites in drier parts of region and drier sites in wetter parts of region (e.g. Fluted Cape, Cygnet, National Park).

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Floristic community code and name		Qualification	RFA community code and name		Conservation priority		Distribution in D’Entrecasteaux Region
					Floristic	RFA	
DRY-shSUB	Shrubby <i>E. subcrenulata</i> forest		SU	<i>E. subcrenulata</i> forest	np	N	High altitude dolerite and sandstone areas below the tree line (e.g. Hartz Mountain, Snowy Range).
DRY-shTEN	Shrubby <i>E. tenuiramis</i> forest		TI	Inland <i>E. tenuiramis</i> forest	A [#]	Y*	Local on fire-protected slopes and gully flanks in drier lowland areas, and drier sites in moister areas, mainly on mudstone (e.g. Lachlan, Cygnet, Margate).
DRY-shVIM	Shrubby <i>E. viminalis</i> forest	Understorey with similar amount of wet and dry sclerophyll shrubs <u>and</u> <i>E. amygdalina</i> or <i>E. obliqua</i> subdominant or codominant	DSC	<i>E. viminalis</i> - <i>E. ovata</i> - <i>E. amygdalina</i> - <i>E. obliqua</i> damp sclerophyll forest	A	Yog	May occur locally in dry sclerophyll - wet sclerophyll transition zones, sometimes along creeklines in drier areas.
		Not DSC and substrate dolerite	V	Grassy <i>E. viminalis</i> forest	A	Y	May occur locally on sites that would normally support grassy or heathy <i>E. viminalis</i> forest, but because of moister aspect or a long period without fire a shrub-dominated understorey has developed.
		Not DSC and substrate sand in coastal areas	G	<i>E. viminalis</i> and/or <i>E. globulus</i> coastal shrubby forest	A [#]	Y*	
		Not DSC and substrate other	check	check	check	check	

Section 3 PRIORITY SPECIES

Species listed in this section have some priority for conservation, and are known or likely to occur in the D’Entrecasteaux Region. Most are listed on Schedules of the Tasmanian *Threatened Species Protection Act* 1995, with a small proportion also being listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999. This section also includes a few species (e.g. outliers of biogeographic interest) that are not listed under either Act. Priority species are arranged on the basis of the timber quality of the forests that they typically occupy, but may also occur in other vegetation types. Some priority species have been recorded from plantations.

Much more information is available on the taxonomy, distribution and conservation status of vascular species (ferns, conifers and flowering plants) than non-vascular species (mosses, liverworts and lichens). This is partly because more texts are available on vascular plants, and partly because identification of non-vascular species often requires microscopic examination of specimens.

Our knowledge of the distribution and ecology of threatened species is improving as new information is obtained from targeted studies and from surveys in different areas of Tasmania (including surveys conducted by forest workers). Information from all sources allows the conservation status and requirements of listed species to be reviewed and better prescriptions to be developed.

In many cases, assessments can be directed towards particular environments (e.g. dry rocky knolls) because many threatened species have narrow habitat ranges, and potential occurrences can be predicted from conditions of the physical environment (e.g. geology, aspect, altitude) or biological environment (e.g. dominant tree species, plant community). Many sites containing listed species will be flagged as priority communities (Section 2) or sites of potential significance for flora (Section 4).

Many threatened species are known or likely (based on taxonomic affinities) to be susceptible to *Phytophthora cinnamomi*. These species are indicated in the tables of priority species. Many of these species are found on lowland, siliceous sites. Some of the species play an important role in ecosystem functioning. Particular care is needed in evaluating FPP areas and planning operations in environments that contain *Phytophthora*-susceptible species (see Section 6 and *Flora Technical Note 8*).

The FPP flora evaluation requires that FPOs use databases to determine if threatened species have been recorded from within or close to proposed operational areas. The nominated databases are GTSpot (DPIWE) and NewCONSERVE (Forestry Tasmania). Details of how to access these databases are given in Module 1. Both databases provide other information that may be useful in preparing FPPs. The databases are updated regularly to incorporate new records of threatened species. Updated information on threatened species in this bioregion may also be found on the FPA Website.

The absence of records does not mean that threatened species are not present – many FPP areas will not have been surveyed previously. If new sites containing threatened species are found, details on site location, abundance of the species, and other potentially useful information (e.g. habitat, land use and fire history) should be forwarded to FPA. Material (e.g. photos or scans) can also be sent to the FPA Botany or Ecology programs for confirmation.

Many priority species will not be familiar to FPOs, but some are readily identifiable. Information to help identify many of the listed species is available on the FPA Website and in some of the references in *Flora Technical Note 2*. Further information on threatened plant species can be obtained from the Threatened Flora of Tasmania website (<http://www.gisparks.tas.gov.au/ThreatenedFloraCD/>). This site contains individual PDF files of all plant species listed on Schedules of the *Threatened Species Protection Act*. The files contain an image of the species (which could be useful in field verification) as well as information on habitat, distribution and conservation management.

Contact FPA if any priority species are identified or are likely to occur in an area that could be affected by a forestry operation. Recommendations to take account of such occurrences will be developed in conjunction with DPIWE (Threatened Species Unit). They will depend on characteristics of the species, site and proposed operation. Some sites may need to be excluded from operations, but often the values can be maintained by management prescriptions. In some cases (e.g. for opportunistic species) no changes to the proposed operation will be needed.

PRIORITY SPECIES ARRANGED BY BROAD VEGETATION TYPES

Priority species are arranged by broad vegetation type: corresponding PI typing is also indicated. More information on distribution and habitat can be obtained from the Threatened Flora of Tasmania website (<http://www.gisparks.tas.gov.au/ThreatenedFloraCD/>).

The status of the species refers to its presence on Schedules of the *Threatened Species Protection Act*:

- X Presumed extinct in Tasmania (Schedule 3)
- E Endangered in Tasmania (Schedule 3)
- V Vulnerable in Tasmania (Schedule 4)
- R Rare and at risk in Tasmania (Schedule 5)

Susceptibility of species (in their natural habitat) to *Phytophthora cinnamomi* (Pc) is indicated. This is based on Barker and Wardlaw (1995) and Schahinger *et al.* (2003):

- Hs Highly susceptible: expect >75% mortality of infected plants to be killed
- Ms Moderately susceptible: expect 25-75% mortality of infected plants
- Prb Probably highly or moderately susceptible but no records of *Phytophthora* infection
- Ss Slightly susceptible: symptomless but reduced vigour
- S Susceptible but unable to make a rating
- Rh Resistant host: *Phytophthora* persists but host shows no symptoms.

FOREST QUALITY MODERATE TO HIGH (e.g. E3+, E2, M+)

Life form	Status	Pc	Botanical name	Common name
Trees & shrubs	R		<i>Brachyglottis brunonis</i>	Brown’s tree daisy
		Prb	<i>Cyathodes platystoma</i>	Giant cheeseberry
	R	Hs	<i>Persoonia gunnii</i> subsp. <i>oblanceolata</i>	Gunn’s geebung
	R	Hs	<i>Persoonia muelleri</i> subsp. <i>angustifolia</i>	Mueller’s geebung
	R		<i>Pimelea curviflora</i> var. <i>gracilis</i>	Slender curved rice flower
Ferns	E		<i>Cyathea cunninghamii</i>	Slender tree fern
Herbs	R		<i>Australina pusilla</i> subsp. <i>muelleri</i>	Mueller’s small shade nettle
	R		<i>Senecio velleioides</i>	Forest groundsel
Grasses	R		<i>Deyeuxia benthamiana</i>	Bentham’s bent grass
Other monocots	R		<i>Carex gunniana</i>	Mountain sedge
	R		<i>Thismia rodwayi</i>	Fairy lanterns

FOREST QUALITY LOW TO MODERATE (e.g. E4, E3-)

Note that many species listed above for moderate to high quality forests extend to lower quality forests.

Life form	Status	Pc	Botanical name	Common name
Trees & shrubs	R	Hs	<i>Acacia mucronata</i> subsp. <i>dependens</i>	Variable sawtooth wattle
	R	Hs	<i>Acacia ulicifolia</i>	Juniper wattle
	R	S	<i>Allocasuarina duncanii</i>	Duncan’s she oak
	E		<i>Argentipallium spiceri</i>	Spicer’s everlasting
	R	Ss	<i>Epacris acuminata</i>	Heath
	V	Hs	<i>Epacris virgata</i> ‘Kettering’	Pretty heath
			<i>Eucalyptus cordata</i>	Heart leaved silver gum
	R	S	<i>Monotoca submutica</i> var. <i>autumnalis</i>	Round leaf monotoca
	R	Prb	<i>Pentachondra ericifolia</i>	Matted pentachondra
	V		<i>Pomaderris elachophylla</i>	Small leaf pomaderris
Ferns	R		<i>Westringia angustifolia</i>	Scabrous westringia
			<i>Lindsaea trichomanoides</i>	Oval wedge fern
Herbs	R		<i>Cynoglossum australe</i>	Australian hound’s tongue
	R		<i>Lobelia rhombifolia</i>	Branched lobelia
	R		<i>Stellaria multiflora</i>	Rayless starwort
Orchids	E		<i>Pterostylis atriola</i>	Snug greenhood
Grasses	R		<i>Deyeuxia minor</i>	Small bent grass
	R		<i>Dryopoa dives</i>	Giant mountain grass
	R		<i>Rytidosperma procerum</i>	Tall wallaby grass

Life form	Status	Pc	Botanical name	Common name
Other monocots	R		<i>Aphelia gracilis</i>	Slender aphelia
	R		<i>Arthropodium strictum</i>	Chocolate lily
Non-vascular	V		<i>Melanelia piliferella</i>	Lichen
	V		<i>Xanthoparmelia jarmaniae</i>	Lichen
	R		<i>Xanthoparmelia vicariella</i>	Lichen

FOREST QUALITY VERY LOW OR NON-FOREST (e.g. E5, S, Vz)

Note that many species listed above for low quality forests extend to very low quality forest or non-forest vegetation. Some species listed below have also been recorded within or adjacent to FPP areas.

Life form	Status	Pc	Botanical name	Common name
Trees & shrubs	V	S	<i>Conospermum hookeri</i>	Variable smoke bush
	E	Ms	<i>Epacris stuartii</i>	Stuart’s heath
	R		<i>Hovea tasmanica</i>	Hill hovea
	V		<i>Microstrobos niphophilus</i>	Microstrobos
	R		<i>Orites milliganii</i>	Milligan’s orites
	R		<i>Planocarpa nitida</i>	Shiny cheeseberry
	R		<i>Westringia brevifolia</i> var. <i>raleighii</i>	Native rosemary
Herbs	R		<i>Colobanthus pulvinatus</i>	Cushion colobanth
	R	Prb	<i>Comesperma defoliatum</i>	Leafless milkwort
	R		<i>Cuscuta tasmanica</i>	Native dodder
	R		<i>Crassula moschata</i>	Musky crassula
	R		<i>Euphrasia collina</i> subsp. <i>gunnii</i>	Gunn’s purple eyebright
	E		<i>Euphrasia fragosa</i>	Shy eyebright
	E		<i>Euphrasia gibbsiae</i> subsp. <i>psilantherea</i>	Swamp eyebright
	R		<i>Euphrasia gibbsiae</i> ssp. <i>wellingtonensis</i>	Wellington eyebright
	E		<i>Euphrasia scabra</i>	Yellow eyebright
	R		<i>Geum talbotianum</i>	Mountain geum
	R		<i>Lepidium flexicaule</i>	Springy peppercress
	E		<i>Lepidium hyssopifolium</i>	Peppercress
	R		<i>Lepidium pseudotasmanicum</i>	Peppercress
	R		<i>Myriophyllum crispatum</i>	Curling water milfoil
	R		<i>Parietaria debilis</i>	Pellitory
	V		<i>Phyllangium divergens</i>	Wiry mitrewort
	R		<i>Ranunculus acaulis</i>	Dune buttercup
	R		<i>Ranunculus pumilio</i>	Ferny buttercup
	R		<i>Ranunculus sessiliflorus</i>	Small Australian buttercup
	V		<i>Scleranthus fasciculatus</i>	Knawel
	R		<i>Senecio squarrosus</i>	Rigid grassland groundsel
	V		<i>Velleia paradoxa</i>	Spur velleia
	V		<i>Veronica novae-hollandiae</i>	New Holland veronica
	R		<i>Viola cunninghamii</i>	Cunningham’s violet
	R		<i>Vittadinia cuneata</i>	New Holland daisy
	R		<i>Vittadinia gracilis</i>	Graceful New Holland daisy
Orchids	R		<i>Caladenia caudata</i>	Tailed spider orchid
	R		<i>Caladenia filamentosa</i>	Daddy long legs
	R		<i>Caladenia pusillus</i>	Tiny caladenia
	E		<i>Corunastylis morrisii</i>	Bearded midge orchid
	R		<i>Corunastylis nuda</i>	Tiny midge orchid
	R		<i>Cyrtostylis robusta</i>	Large gnat orchid
	E		<i>Diuris palustris</i>	Swamp diuris
	R		<i>Microtidium atratum</i>	Yellow onion orchid
	E		<i>Prasophyllum amoenum</i>	Dainty leek orchid
	E		<i>Prasophyllum apoxychilum</i>	Tapered leek orchid
	E		<i>Prasophyllum castaneum</i>	Chestnut leek orchid
	E		<i>Prasophyllum pulchellum</i>	Pretty leek orchid
	R		<i>Pterostylis squamata</i>	Ruddy greenhood
	E		<i>Thelymitra bracteata</i>	Leafy sun orchid
	R		<i>Thelymitra holmesii</i>	Holmes sun orchid
	E		<i>Thelymitra jonesii</i>	Azure sun orchid
			<i>Thelymitra sparsa</i>	Wispy sun orchid
	R		<i>Thelymitra mucida</i>	Plum orchid

Life form	Status	Pc	Botanical name	Common name
Grasses	R		<i>Agrostis propinqua</i>	Tasmanian rough bent
	R		<i>Austrodanthonia popinensis</i>	Roadside wallaby grass
	R		<i>Austrostipa bigeniculata</i>	Double-jointed spear grass
	R		<i>Austrostipa nodosa</i>	Knotty spear grass
	R		<i>Deschampsia gracillima</i>	Slender hair grass
	R		<i>Deyeuxia densa</i>	Heath bent grass
	R		<i>Lachnagrostis aequata</i>	Southern bent grass
Other monocots	R		<i>Poa poiiformis</i> var. <i>ramifer</i>	Island poa grass
			<i>Carex longebrachiata</i>	Drooping sedge
			<i>Carex tasmanica</i>	Curly sedge
		Prb	<i>Dianella amoena</i>	Matted flax lily
	R	Hs	<i>Dianella longifolia</i> var. <i>longifolia</i>	Pale or smooth flax lily
	R		<i>Isolepis habra</i>	Habra club rush
	R		<i>Juncus amabilis</i>	Gentle rush
	R		<i>Juncus vaginatus</i>	Clustered rush
	R		<i>Lepidosperma tortuosum</i>	Twisting rapier sedge
	R		<i>Luzula atrata</i>	Dark woodruch
Non-vascular	R		<i>Schoenus brevifolius</i>	Zig zag bog sedge
		Hs	<i>Xanthorrhoea australis</i>	Grass tree / blackboy
	R		<i>Calycideum cuneatum</i>	Lichen
	E		<i>Neofuscelia subloxodella</i>	Lichen
	E		<i>Parmelina pallida</i>	Lichen
	R		<i>Parmelina whinrayi</i>	Lichen
	E		<i>Xanthoparmelia amphixantha</i>	Lichen
	V		<i>Xanthoparmelia mannumensis</i>	Lichen
	R		<i>Xanthoparmelia microphyllizans</i>	Lichen
	E		<i>Xanthoparmelia molliuscula</i>	Lichen
	R		<i>Xanthoparmelia oleosa</i>	Lichen
	R		<i>Cystoseira trinodis</i>	Brown alga

Section 4 SITES OF POTENTIAL SIGNIFICANCE FOR FLORA

Information in this section is oriented towards sites rather than communities or species. It concentrates on environments within the region that have the potential to be directly or indirectly affected by forestry operations. This provides another approach to conservation of flora, which could be particularly useful for gaining an overview of potential botanical issues or values in an area. It could also be useful when there are problems with identifying species or communities in an area of proposed operations. However, it should not be used as a substitute for determining communities (Section 2) and priority species (Section 3) in an FPP area.

Species and communities of high conservation significance are often associated with particular environments. Sites can be identified by features of the physical environment (e.g. geology, altitude, landform) or the vegetation (e.g. dominant eucalypts, P.I. type). Local knowledge, coupled with use of aerial photographs and topographic, geology and P.I. maps, will help identify sites of potential significance. Many of these sites are of low or marginal timber value, and are not suitable for forestry activities or agricultural development. Such sites include dry, rocky environments and high altitude sites. Some of the sites of potential significance in D'Entrecasteaux Region contain species that are susceptible to *Phytophthora cinnamomi*.

Table 4A and 4B indicate forest and woodland sites that have the greatest potential to contain significant flora values.

Table 4A: Sites that are often associated with priority communities or species.

Contact FPA in all cases if proposed operations could affect these sites. The botanical significance of the site can then be evaluated from available information, or a vegetation survey may be needed. Areas of remnant forest that are proposed for conversion are included in this table, though they may not always contain priority communities or species.

Table 4B: Sites that are occasionally associated with priority communities or species.

Assess these environments carefully. Contact FPA if priority species or communities are found in areas that could be affected by proposed operations.

Notes:

1. Sites supporting native non-forest vegetation types (e.g. heath, wetland, native grassland) have not been included in the table, though they may co-occur with forests and woodlands on many of the sites listed. Such vegetation often contains rare species, particularly in areas of the region where little non-forest vegetation remains. Contact FPA if areas of native non-forest vegetation could be affected by the proposed operation.
2. Management of remnant forests and woodlands, which often have important flora values, is treated in Section 6.

Section 4 SITES OF POTENTIAL SIGNIFICANCE FOR FLORA

The sites listed in this section are associated with species or communities with a priority for conservation in D’Entrecasteaux Region. Information in the tables is not a substitute for information given in Section 2 and Section 3 of this module. Botanical advice should be sought for all sites with native non-forest vegetation.

Table 4A: Sites often associated with priority communities or species. Contact FPA in all cases if these sites could be affected by operations.

Site of potential significance	Main dominants	Main understorey	Main PI type	Reason for significance	Example locations
High altitude rainforest and scrub	King Billy pine, deciduous beech	Variable, often shrubby or grassy	S	Priority communities and species. Environment sensitive to disturbance.	Lake Skinner, Adamsons Peak, Mt Bobs
Rainforest on Bruny Island	Myrtle, sassafras	Rainforest	M	Priority communities (relict rainforest) and species (e.g. <i>Lindsaea trichomanoides</i>). Environment extremely sensitive to disturbance.	Simpsons Creek, South Bruny Range
Snug Tiers – Grey Mountain area	Variable	Variable, often scrubby, sedgy or grassy	Variable: E3, E4, S or Wg	Priority communities and species (e.g. <i>Allocasuarina duncanii</i> , <i>Dryopoa dives</i> , <i>Westringia angustifolia</i>); unusual forms of eucalypts	Snug Tiers, Grey Mountain
Flats, frost hollows and marshes at lower altitudes (not buttongrass)	<i>E. ovata</i> , blackwood, woolly tea-tree, paperbark	Variable, often scrubby, sedgy or grassy	Variable, often E4, S or Wg	Priority communities and species (e.g. <i>Pterostylis uliginosa</i>)	D’Entrecasteaux River floodplain, Egg Islands, Little Lagoon (South Bruny Island)
Dry ridges, knolls, and upper slopes often with high rock cover (particularly dolerite and sandstone)	<i>E. amygdalina</i> , <i>E. viminalis</i> , <i>E. pulchella</i> , she-oak	Variable, often grassy, shrubby or almost bare	E4 or E5; S or Wr	Priority communities and species (e.g. <i>Epacris acuminata</i>)	She-oak Hills, Wellington Range
Rocky outcrops including plates, large boulders, cliffs and scree fields	Variable	Grassy, shrubby or bare	E4 or E5; S or Wr	Localised vascular and non-vascular species; susceptibility to disturbance	Alum Cliffs, Gog Range, Dazzler Range
Exposed coastal sites	Variable e.g. wattles, she-oak, tea-tree, paperbark or none	Heathy, scrubby, shrubby, sedgy, or grassy	S, V, W	Priority communities and species (e.g. <i>Diuris palustris</i> , <i>Epacris stuartii</i> , <i>Westringia brevifolia</i> var. <i>raleighii</i>)	Southport Bluff, Bruny Neck

Table 4B: Sites occasionally associated with priority communities or species. Assess these environments carefully. Contact FPA if priority species or communities are found in areas that could be affected by proposed operations.

Site of potential significance	Main dominants	Main understorey	Main PI type	Reason for significance	Example locations
Very humid watercourses	Sassafras, myrtle, (<i>E. regnans</i> , <i>E. obliqua</i> , <i>E. globulus</i>)	Rainforest	S or T; >E3 often present	Priority species, mainly ferns (e.g. <i>Cyathea cunninghamii</i>)	Dalco Creek
Sediments (sandstone, mudstone) in north and southeast of region	<i>E. tenuiramis</i> , <i>E. amygdalina</i> , <i>E. ovata</i>	Variable: grassy, sedgy, heathy or scrubby	E4	Priority communities	Lachlan, Southport Lagoon, Randalls Bay, South Bruny Island
Rocky gorges and creeklines particularly with N or W orientation or aspect	<i>E. pulchella</i> , <i>E. amygdalina</i> , <i>E. globulus</i> , she-oak	Variable, often scrubby or shrubby	Variable	Priority communities and species	North West Bay Rivulet
Exposed high altitude peaks, tiers and knolls	<i>E. coccifera</i> , <i>E. delegatensis</i> , <i>E. subcrenulata</i>	Heathy or scrubby	E4, E5, S	Priority species (e.g. <i>Brachyglottis brunonis</i>)	Mt Wellington, Herringback

Section 5: EVALUATION OF OTHER FLORA ISSUES

Section 5 covers issues that need to be considered by FPOs to ensure that operations comply with the *Forest Practices Code* and other current legislation and policies. Issues discussed in this section will not be relevant to all coupes.

Some topics have already been covered to some extent in previous sections of the module (for example, Section 2 identifies forest communities that may need prescriptions related to *Phytophthora cinnamomi*). However, they are also treated in Section 5, because they are dealt with separately in the FPP *Flora Evaluation Sheet*.

Additional topics may be introduced to this section (and the *Flora Evaluation Sheet*) as information becomes available from research, and if there are changes to legislation, policies and codes of practice.

WEED AND DISEASE MANAGEMENT

Flora values in many forest and scrub communities can be adversely affected by the introduction of disease and exotic plants. Section D3.1 of the *Forest Practices Code* gives guidelines to reduce the risk of weeds and disease being introduced through forestry operations. Quarrying, roading and road use are generally of more concern than logging and regeneration activities.

Diseases and weeds that can seriously threaten flora (and fauna) values are discussed below. Many other weeds and disease can affect wood production and plant species and communities – some of these are detailed in information available from Forestry Tasmania.

Phytophthora cinnamomi

Phytophthora cinnamomi (often called root rot fungus) is a disease that attacks the roots of many native species. Some plants die rapidly (e.g. banksias, grasstrees), while others (e.g. several eucalypt species) only show signs of disease in periods of drought or other stress. Many threatened species are highly susceptible. Open vegetation in relatively moist, lowland environments, such as dry sclerophyll forest, scrub, heath and moorland, are most at risk from *Phytophthora*. The resultant reduction in plant diversity and resources (e.g. nectar, pollen and shelter) has flow-on effects to fauna. Information on *Phytophthora* is given in *Flora Technical Note 8*.

Phytophthora has been recorded from several lowland areas of D'Entrecasteaux Region. Cool soil temperatures in wet forests and at higher altitudes tend to inhibit the disease, but opening up the canopy (e.g. by tracks) can cause local infestations.

Phytophthora has been introduced to many areas by soil carried on vehicles and machinery, but other sources include the boots of wandering people and the feet of wandering animals. Once established, it is impossible to eradicate, and can spread rapidly in surface run-off and groundwater percolation. The risk of spreading *Phytophthora* can be reduced by machinery hygiene, use of *Phytophthora*-free material in road construction, and attention to infrastructure planning (e.g. roads located on ridgelines will place a larger area of susceptible vegetation at risk than roads located on lower slopes).

Over sixty *Phytophthora* Management Areas, containing species or communities that are particularly susceptible to the pathogen, have been delineated – mainly on public land in lowland areas of the State. Several are located in D'Entrecasteaux Region (many in existing reserves).

Location of *Phytophthora* Management Areas and records of *Phytophthora* are given in databases that FPOs need to use to complete the FPP *Flora Evaluation Sheet* (Module 1 details how to access these databases). Forest communities that are susceptible to *Phytophthora* are indicated in *Flora Technical Note 8*. They are also indicated (#) in the community tables in Section 2 of this module.

FPOs need to refer to *Flora Technical Note 8* if:

- *Phytophthora* has been recorded from the proposed operational area;
- the operation will affect a highly susceptible forest community; or
- the operation is located within a *Phytophthora* Management Area.

Specialist advice should be sought if prescriptions in *Flora Technical Note 8* cannot be applied. Non-forest vegetation that could be affected by *Phytophthora* should routinely be referred to FPA.

Myrtle wilt

Myrtle wilt is a disease of myrtle (*Nothofagus cunninghamii*) caused by the fungus *Chalara australis*. It kills infected trees, and can spread to other trees by root contact. Myrtle wilt occurs naturally in undisturbed forest. Operations with the potential to adversely affect rainforest in formal reserves or Special Management Zones (Flora) should be routinely referred to FPA. Buffering and other prescriptions designed to minimise disturbance from operations, including regeneration or plantation establishment treatments, may be needed.

Threatening weed species

Weed species can colonise disturbed sites associated with forestry operations, particularly when operations are close to agricultural land. Some weed species (e.g. thistles) decrease in abundance as understoreys re-establish in the regenerating forest. Other weed species are more persistent in forest – they include species with seeds that remain viable for a long time (e.g. gorse and broom), and species that are capable of vegetative regeneration (e.g. blackberry). Open sites, such as road verges, tracks, landings, quarries and bridge approaches, provide good environments for weeds to establish and persist. Weeds can also take advantage of disturbance (including burns associated with forest management) to establish in areas of non-forest vegetation (e.g. moorlands and native grasslands). Any infestation provides a launching pad, which allows the weed species to colonise other sites in the general area – through seeds dispersed by wind, birds, water movement, livestock or other land use (including road construction and use, and forestry operations).

There are legislative requirements under the Tasmanian *Weed Management Act* for land managers to control declared weed species. The required course of action will depend on the circumstances, including characteristics of the species, and extent of infestation at the site and in the municipality. The DPIWE website (www.dpiwe.tas.gov.au) gives details of the Act and Statutory Weed Management Plans for declared weed species. Declared weed species of most concern in forest environments include gorse, English broom, Spanish heath, ragwort, blackberry and pampas grass. A greater range of declared weed species may be present on plantation sites, or areas of previously cleared land proposed for plantation establishment. Control through hygiene and active management is particularly important where threatening exotics have the potential to spread into reserves or other areas of native forest where they are rare or absent.

REMNANT FOREST AND WOODLAND

The *Forest Practices Code* supports the maintenance of remnant forest in those parts of the state where native vegetation has been extensively cleared. The RFA also requires that the values of remnant vegetation are considered at a regional level as a part of forest practices planning.

For the purpose of assessing FPP flora values, remnant forests and woodlands comprise stands that are:

- greater than 1 ha in area, and
- separated by more than 2 km from the closest area of native forest or woodland that exceeds 20 ha in area.

In some cases, remnant forests in D'Entrecasteaux Region contain communities (e.g. *E. ovata* forest) and species that have a high priority for conservation. Other remnants contain communities that are more widespread and better reserved. Remnant vegetation will differ greatly in its condition – from sites with an understorey dominated by native species, to sites with understoreys having a high proportion of exotic shrubs or pasture grasses. In parts of the region with a long history of modification from agriculture and plantation forestry, such as the Huon Valley, remnant vegetation may be scattered and degraded by a combination of land use, edge effects and attrition of species over the years. However, even substantially disturbed remnants, can play an important role in maintaining flora and fauna at a local to subregional scale.

In all cases, remnants in FPP areas need to be carefully evaluated. Those containing communities (Section 2), species (Section 3) or sites of potential significance (Section 4) need to be referred to FPA for specialist advice. In addition, FPA needs to be contacted for any proposed operation (typically

clearance for plantation or agriculture) involving conversion of remnant vegetation. Advice concerning the operation will take account of the composition, extent, condition and context of the remnant.

MANAGEMENT OF FORESTRY OPERATIONS IN VICINITY OF RESERVES

This section deals with forestry operations (logging, roading, quarrying, plantation establishment, regeneration treatments) that are within or adjacent to formal reserves. Formal reserves are gazetted reserves on public land (e.g. National Parks, State Reserves, Forest Reserves) and reserves on private land that have been registered on property titles (e.g. reserves established through the Private Forest Reserves Program). This section also deals with operations that could affect areas categorised by Forestry Tasmania as Special Management Zones (Flora). Comments may also be relevant for other areas being managed for conservation on public and private land.

Botanical values in reserves adjacent to proposed operational areas will often be identified in the assessments of plant communities (Section 2); priority species (Section 3) and sites of potential significance (Section 4).

Some reserves incorporate buffers or have management systems that are designed to prevent, absorb or reduce disturbance associated with adjacent or nearby land use. However, good forest practices planning needs to take account of potentially adverse effects on botanical values (and other values) in all reserves. Such effects could include:

- introduction or increased incidence of weeds (including wildlings of pines or non-indigenous eucalypts sown or planted in the FPP area);
- introduction or increased incidence of disease (*Phytophthora* and myrtle wilt are of most concern – see above);
- change in microclimate in reserve [this is of most concern when vegetation along the reserve boundary contains localised wet forest vegetation (e.g. rainforest) which is susceptible to warmer and drier conditions];
- increased risk of fire entering the reserve (particularly when vegetation in the reserve is upslope of the forestry operation, and contains fire-sensitive plant communities or species).

The effect of forestry operations will depend on:

- attributes of the FPP area;
- attributes of the adjacent reserve and its vegetation (plant species and communities);
- the type of operation;
- regeneration treatment or post-operational land use.

FPOs need to consider carefully all these factors. Advice should be sought from FPA if the vegetation in the reserve has the potential to be adversely affected by an adjacent forestry operation and subsequent land use. FPA must be notified in all cases where a proposed operation is within a formal reserve or Special Management Zone (Flora).

Section 6 ASSESSING THE FLORA VALUES OF AN AREA

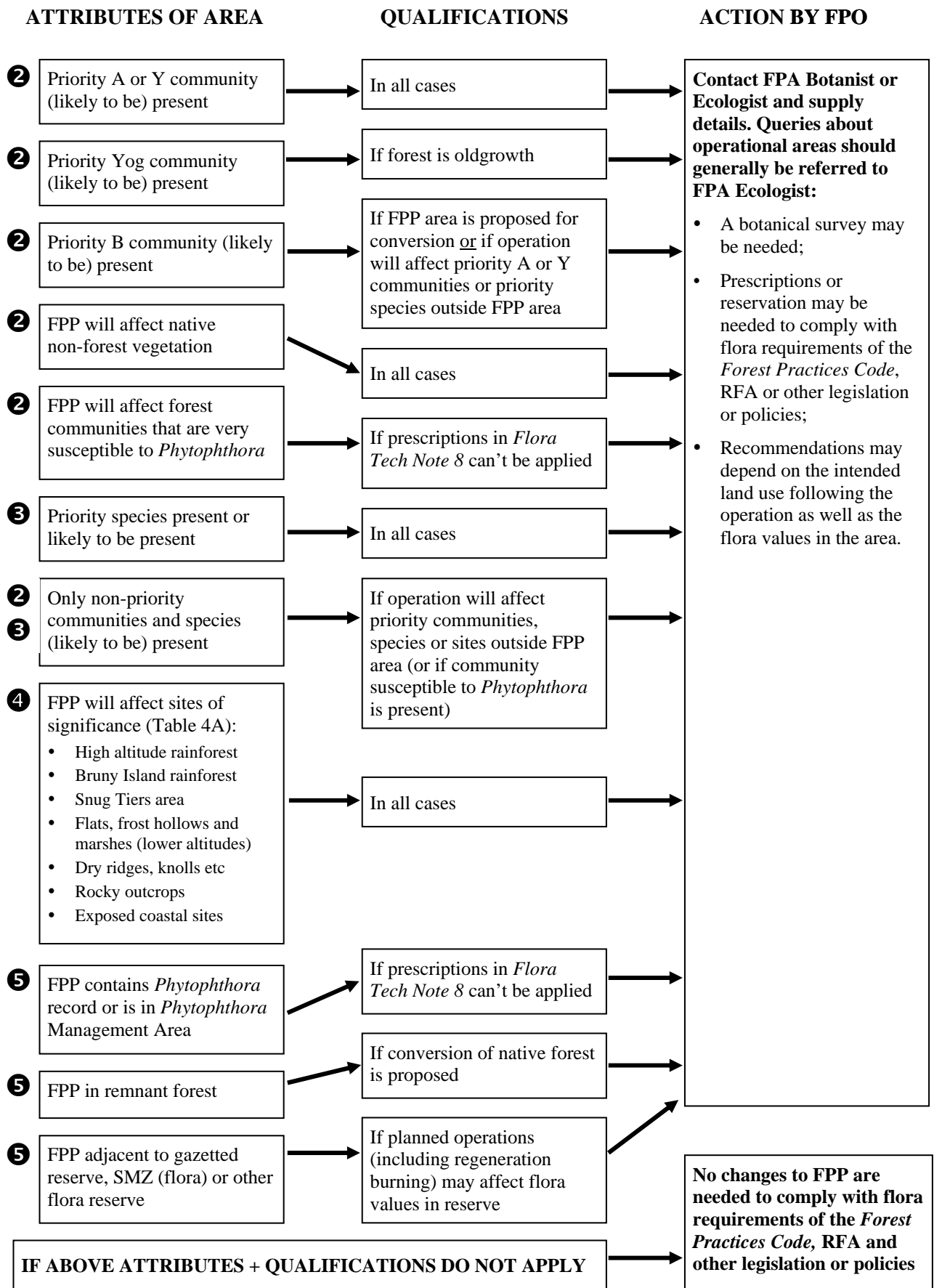
The main aim of the *Forest Botany Manual* is to allow Forest Practices Officers, and others involved with preparing Forest Practices Plans, to comply with the requirements of the *Forest Practices Code* and other policies and legislation. A similar assessment process can also be used for other areas where botanical values need to be considered.

This section uses a flow diagram to summarise the actions FPOs should take after they have assessed the vegetation of an area. It is based on information contained in sections of the module dealing with forest communities (Section 2), priority species (Section 3), sites of potential significance for flora (Section 4) and other flora issues (Section 5). Relevant sections of the manual are indicated on the left side of the flow diagram. The FPP *Flora Evaluation Sheet* has a similar format to the diagram. An example of a completed *Flora Evaluation Sheet* is given in Module 1.

Note the following points:

1. The term ‘FPP area’ is used to describe the area under assessment – this may extend outside the proposed harvest area (e.g. cable tailhold areas).
2. The flora evaluation needs to determine if the operation will affect flora values in adjacent areas. Conversion of native vegetation has greater potential to affect nearby vegetation than native forest operations. The FPA needs to be contacted for any FPP where conversion of native vegetation is proposed next to gazetted reserves (public or private) or Special Management Zones or other informal reserves established to protect flora values.
3. If the assessment indicates that FPA should be contacted:
 - Advice on botanical issues can be sought from the FPA Botany or Ecology programs. A discussion by phone or email may allow the botanical issues to be resolved, or clarified prior to more formal notification.
 - The normal notification process will need to be followed in most situations. Forward the FPP *Flora Evaluation Sheet* to the FPA Ecologist. Additional information that will be useful includes maps showing distribution of priority communities or priority species in the FPP area. Other information that may be needed includes past and proposed land use, site characteristics (e.g. geology) and other natural or cultural values in the area. Some of this information is required for the FPP cover sheet.
 - FPOs need to consider, and discuss with FPA if necessary, if values protected by reservation or prescription would be adversely affected by logging, regeneration practices or other activities related to the forestry operation (e.g. if regeneration burning in a coupe could affect a threatened species in an exclusion zone.)
4. **It is essential that relevant forest planners and workers are aware of agreed recommendations (e.g. exclusion of areas from coupes or roadline; procedures for control of weeds and diseases; fire management prescriptions).**

Section 5 ASSESSING THE FLORA VALUES OF AN AREA



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