Department of Sustainability and Environment

A Field Guide to Rainforest Identification in Victoria

Differential species keys for the delineation of rainforest boundaries

Department of
Sustainability and
Environment

A Field Guide to

Rainforest Identification in Victoria:

Differential species keys for the delineation of rainforest boundaries

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Rainforest protection in Victoria

The Code of Practice for Timber Production (DSE 2007) requires that:

> *'Rainforest communities in Victoria must not be harvested. Rainforest communities must be protected from the impacts of harvesting through the use of appropriate buffers to maintain microclimatic conditions and protect from disease and other disturbance.'*

This requirement applies to rainforest in both public forests and private native forests or plantations. The implementation of these requirements/ policy commitments is dependent on the reliable identification of rainforest and, in particular, on the consistent and unambiguous delineation of rainforest boundaries at operational scales in the field.

Forest identification in Victoria

Traditionally, Victorian forest types have been identified by the dominant tree species or a combination of tree species present, often with an emphasis on commercial species. In eucalypt forests this typically involves the identification of the leading dominant eucalypt species without reference to associated species of *Acacia* or any other associated understorey species. More sophisticated forest classification systems, particularly those devised by botanists, rely either on forest structure and physiognomy or on the identification of character species – those which occur consistently within each forest type at frequencies above certain thresholds.

Victorian rainforests are generally defined (Rainforest Technical Committee 1986, Department of Conservation, Forests and Lands 1989, Cameron 1992, Peel 1999, DSE 2008) as evergreen forest vegetation with a closed canopy dominated by a characteristic suite of tree or vine species which, at maturity, excludes eucalypts or other species such as acacias which characterise sclerophyll forests. Such definitions tend to be both circular and ecologically problematic, particularly in sites which have been recently disturbed and therefore not at equilibrium with environmental site conditions. They are particularly ambiguous in ecotonal vegetation or in seral communities such as Cool Temperate Mixed Forest (where fire or other recurring disturbance events preclude secondary succession to eucalypt-free primary rainforest condition) and at smaller operational scales where reliability and reproducibility are paramount.

To overcome these long-standing deficiencies and ambiguities, floristic field identification keys based on differential species have been developed and extensively trialled across all Victorian rainforest regions. The use of these keys is not intended to replace existing definitions which still apply at appropriate scales for forest management and planning and broad-scale vegetation mapping. Floristic field keys based on differential species comprise an additional tool which provides the most reliable means of identification of rainforest and adjacent forest vegetation at the operational field scale by tuning in to the floristic signal 'emitted' by each forest type.

Tuning in to the floristic signal

Traditional forest classification systems tune in to the most visible elements of the forest community by identifying the dominant tree species present. This approach has the distinct advantage that it is amenable to remote sensing and field recognition at the landscape scale. However, since all communities with a common boundary overlap in their floristic composition within the boundary zone or ecotone, precise delineation of the boundary itself is fraught with issues of priority since the dominant species of the adjacent forest types often occur together within the ecotone. More problematic is the fact that many forest types share dominant species

which are therefore not a unique distinguishing feature of either forest type. In addition, the recognition of forest types based on the association of several key dominants is notoriously prone to misclassification due to the chance absence of a key dominant or the temporary elimination of a dominant species from the tree canopy and/or its temporary replacement by species characteristic of another forest type. For example, Myrtle Wilt may temporarily eliminate mature *Nothofagus cunninghamii* (Myrtle Beech) from Cool Temperate Rainforest stands usually recognised by its dominance (Cameron & Turner 1996) whilst fire ingress can facilitate the temporary invasion into a rainforest stand of *Acacia melanoxylon* (Blackwood), *Acacia dealbata* (Silver Wattle) or various eucalypts which characterise a range of sclerophyll forest types.

Botanically-sophisticated descriptions of vegetation types based on the full complement of species present in each overcome these problems with dominant species definitions but require exhaustive sampling and the comparison of each sample against benchmarks drawn from large quadrat-based datasets. Character species lists drawn from such datasets, while reliable and precise at fine operational scales, are quite impractical in meeting forest management requirements since they rely on a high level of botanical expertise and because they tune in to a very noisy floristic signal. Character species lists published for numerous rainforest and eucalypt forest types illustrate the tendency for many species with broad ecological amplitude to occur routinely across the rainforest-sclerophyll forest divide with only a small subset of species uniquely restricted to a single forest type. Tuning in to strictly exclusive species, defined as species completely or almost completely confined to a single community type (Braun-Blanquet 1932), permits the most powerful floristic diagnosis of any community. Unfortunately, such species are rarely encountered in the field and searching for them is unlikely to produce a strong and convincing signal.

Differential species

The great advantage of using differential species is that they maximise the strength and diagnostic power of the floristic signal by selectively tuning in to those species which occur with sufficiently high frequency within one community type whilst occurring at only a correspondingly low frequency in a designated adjacent community type. The focus on differential species thus eliminates all the noise associated with comprehensive lists of character species. Differential species are selected for their high fidelity to a particular community in relation to another abutting community (Braun-Blanquet 1932). The identification of such species is therefore relevant only to a comparison of the two designated communities in relation to each other. By a judicious selection of species which meet the competing requirements of high fidelity and high frequency, a floristic key can be constructed to distinguish any two abutting forest types. By comparing the strength of the two floristic signals along the gradient from one community to the other, the precise location on the ground of the boundary can be determined within the ecotone, with the boundary defined as the line along which the floristic signals are of equal strength. In the case of Victorian rainforest stands in dissected terrain, the boundary usually follows the contour since environmental determinants of rainforest occurrence, such as fire risk and moisture availability, tend to be correlated with elevation along the local topographic gradient.

Defined in this way, virtually no species are differential for all Victorian rainforest types in relation to all adjacent eucalypt-dominated sclerophyll forest types. A single state-wide differential species floristic key to distinguish

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rainforest from eucalypt forest would therefore produce almost no signal anywhere in the state. Floristic keys developed for each rainforest region and rainforest type and for each adjoining sclerophyll forest type allow the identification of increasing numbers of differential species and therefore the ability to tune in to an increasingly strong and convincing floristic signal. Despite the obvious utility of a single state-wide key and the greater precision offered by a large suite of highly regionalised keys, a compromise needs to be struck between floristic reliability and the abilities of field staff to master the use of more than a single key. The balance struck requires most field staff to become familiar with only a single key or, where their operations span a range of altitudes or a range of climatic zones, two keys. The number of differential species in each key ranges from 21 to 35 with a total of 107 differential species identified across the state in nine regional keys.

Development of floristic field identification keys

The identification of differential species relies on the availability of a reliable quadrat-based dataset which can be analysed to determine the relative frequencies of occurrence and therefore the fidelity of all candidate species to each selected pair of communities at a regional scale. By 1990 a comprehensive dataset had been assembled for the Otway forests and analysed to produce a regional floristic vegetation typology. This ideal dataset facilitated the development by David Cameron (1992) of a floristic field key for the recognition of Cool Temperate Rainforest in the Otways as a case study in rainforest boundary definition which is reproduced on pages 12–15. As a consequence of a lengthy period of regional survey, forest management studies and intensive sampling for both the state-wide rainforest survey (Roberts 1988, Peel 1999) and the Myrtle Wilt monitoring program (Cameron & Turner 1996), the Otway dataset was both comprehensive and balanced with strong representation of both Cool Temperate Rainforest and Wet Forest which are each comparatively homogeneous within a limited elevation range in comparison with other rainforest regions in the state. With minor adjustment to accommodate regional differences in species composition, the Otway key was adapted for use in the Central Highlands rainforest region and also for Cool Temperate Rainforest and Wet Forest in the Strzelecki Ranges in South Gippsland. Extensive field trials over more than a decade have demonstrated the efficacy and reliability of the method and its ability to provide unambiguous determination of the precise location of the rainforest boundary at the metre scale.

As part of a state-wide trial of the method, similar keys were developed for both cool and warm temperate forests in the East Gippsland rainforest region for which extensive quadrat-based datasets were available at the regional and forest management block scales. These have also been found to improve the reliability and reproducibility of rainforest identification and boundary delineation although some difficulty was encountered in accommodating significant differences in vascular plant diversity between cool and warm temperate forest types in the region and the greater diversity of both rainforest and eucalypt-dominated sclerophyll forest types encountered within production forests at warm temperate elevations within the region.

In the course of the state-wide trial it also became apparent that the key provided for the Central Highlands failed to perform adequately in the Alpine Ash forest estate at higher elevations and that regional differences between forests in the south-east and north-west of the region limited the utility of region-wide keys at both higher and lower elevations. Similarly, the modified Otway key proved to be less than satisfactory in the regionally

distinct cool temperate forests of the Strzelecki Ranges while the East Gippsland warm temperate key had little relevance in the warm temperate forests on the lower slopes of the Strzelecki Ranges (Walsh & Cameron 2005) on account of their geographically attenuated floristic composition and severe disturbance history.

The most up-to-date datasets available for the Central Highlands and Strzelecki Ranges have now been analysed and the cool temperate dataset for the Errinundra district in East Gippsland re-analysed to provide regionally-customised keys for each region or sub-region and climate zone. The datasets available for the Central Highlands are somewhat idiosyncratic and those available for the Strzelecki Ranges are quite incomplete, particularly at warm temperate elevations. To compensate for each of the issues subsequently encountered, the methodologically rigorous procedure published by Cameron (1992) and reproduced on pages 12–15 for the Otway case study has been relaxed as required to enable reasonably balanced lists of differential species to be identified despite regional heterogeneity and inadequate sampling. In particular, the requirement that a differential species must be a character species of each floristic sub-community of one community but cannot be a character species of any floristic sub-community of the opposing community has been relaxed when analysing data-deficient datasets in favour of a league table of relative frequencies of occurrence in pooled datasets for each forest type being compared without direct reference to floristically-defined sub-communities. Improved datasets may allow more rigorous criteria to be applied to the selection of differential species for some regions in the future. Consultation with field staff suggests, however, that despite some methodological limitations in the datasets for some regions, the nine regional keys provided in this manual are likely to remain reasonably stable over time.

The warm temperate forests of East Gippsland present a unique challenge for the identification of differential species since three rainforest sub-formations or Ecological Vegetation Classes (EVCs) (Warm Temperate, Gallery and Dry Rainforest), ten floristic rainforest communities defined by Peel (1999) and an even greater diversity of floristic rainforest communities and sub-communities defined by a variety of other floristic studies conducted at a range of scales occur across the region. An even greater diversity of sclerophyll forest EVCs, floristic communities and sub-communities abut these rainforests throughout the region. These communities often occur at the same elevation, within a single catchment and even abut each other within a single rainforest or sclerophyll forest stand throughout the region, defying any realistic attempt to provide customised keys for use in forests defined by geography or elevation alone as in the Central Highlands. Nor is it practical to expect field staff without considerable botanical training to distinguish the various EVCs or floristic communities in the field. Consequently a highly stratified approach has been adopted which relies on floristic communities and sub-communities defined by a judicious selection of published survey reports for four forest management blocks representative of the production forests across the region – the Sardine Forest Block in the foothills to the west (Peacock *et al*. 1992), the Brodribb Forest Block in the more elevated central foothills (Chesterfield *et al*. 1988), the Cooaggalah Forest Block in the eastern headwater foothills (Loyn *et al*. 1992) and the Stony Peak and Genoa Forest Blocks in the lowland forests to the east (Gillespie et al. 1992). The procedure described by Cameron (1992) for the Otway case study was then applied to the data sets and floristic vegetation typology presented in these four published reports. The resulting key has general application across

the production forests of the region but has limited application in forests containing rarer, more specialised or geographically restricted rainforest EVCs, communities or sub-communities rarely encountered in production forests.

Irrespective of the criteria applied to the selection of differential species, the species in each list are ranked on their power of discrimination, with species of highest fidelity and frequency at the top of each list and those of least discriminatory power at the bottom. Each list thus represents a league table of those species which have the greatest ability to differentiate rainforest from sclerophyll forest. As a general guide, the minimum threshold frequency of occurrence which a species must meet to qualify as a differential species is in the 30–40% range, consistent with the threshold frequency for recognition as a character species. Conversely, the maximum threshold frequency of occurrence permissible in the opposing community is in the 15-25% range although priority is always given to species with much lower frequencies of occurrence in the opposing community. These thresholds have been relaxed where necessary to produce balanced lists of sufficient length to permit sufficiently strong floristic signals to be detected in each community. In ranking of species in the fidelity league table considerable attention has been given to the frequency 'gap' between the frequency of occurrence in one community and that in the opposing community rather than insisting only on meeting threshold frequency requirements in either community.

Supplementary differential species

One issue which needs to be addressed is the inherent difference in the number of candidate species for differential species status in adjacent communities in some regions. When first developed, the key for warm temperate forests in East Gippsland included a list of Warm Temperate Rainforest supplementary differential species which have equal merit in terms of fidelity and frequency of occurrence to those in the much shorter list of differential species for East Gippsland Warm Temperate Sclerophyll Forest. This reflects in part the greater diversity of sclerophyll forest types which abut the warm temperate rainforests of the region and the greater uniformity of the predominant warm temperate rainforest types which occur in production forests across the foothills and lowland plains of the region. It also reflects in part the greater congruence of distribution within rainforest stands of the component rainforest flora. In other words, the rich complement of rainforest trees, shrubs, vines, ferns and herbs tend to occur sympatrically, at least within quadrat or stand samples represented within available datasets, and to abate in synchrony as one passes from the rainforest through the ecotone into the adjacent sclerophyll forest. Sclerophyll forest species, on the other hand, tend to be distributed more patchily (at least in representative datasets) throughout the far more extensive open-forest estate in the surrounding catchments, reducing their likelihood of being detected with sufficient frequency for consideration for differential species status. This problem may be overcome by a more rigorous quadrat selection procedure but at the expense of a large and comprehensive dataset. During the trial period of field training provided to field staff the issue of how (and even whether) to use supplementary species was left open, with the possibility that these species may warrant a lower weighting in their contribution to the floristic signal. The observation that keys developed for other regions exhibit similar differences in the number of equally meritorious candidates for differential species status suggests that this results from inherent differences in species diversity and tendencies toward collective small-scale sympatry rather than representing an artefact of methodological procedure or sampling bias. For this reason, it is recommended that all differential species be given equal weight in their

contribution to the floristic signal. Earlier apprehensions that this might favour the community with the longer list of differential species have not been supported by careful scrutiny of regional datasets or field experience.

Anatomy of a rainforest stand

The accompanying figure illustrates the relationship between the rainforest or, conversely, the sclerophyll forest, boundary and the ecotone. The ecotone can be visualised as the zone in which the rainforest and sclerophyll forest floristic signals overlap. At the edge of the rainforest core zone, and throughout the rainforest core zone itself, only differential species for rainforest contribute significantly to the floristic signal. At the edge of the sclerophyll forest core zone, and throughout the sclerophyll core zone itself, only differential species for sclerophyll forest contribute significantly to the floristic signal. As one moves through the ecotone from one community to the other the strength of the floristic signal of one community abates to (near) zero while the floristic signal of the other community increases in strength from (near) zero to the maximum attainable at the site. Where the two signals are numerically equal is defined ecologically as the actual boundary between the two communities. The boundary is where the rainforest margin and the sclerophyll forest margin meet. This is the point at which the rainforest buffer commences and extends, typically upslope, into the sclerophyll forest.

Ecological validity of buffer protection

One of the operational advantages of using floristic keys to identify the rainforest boundary is that floristically-determined boundaries tend to even up or 'iron out' the confusing fine-scale pattern of boundaries determined by structure and leading dominants alone. For example, a history of local fire, storm, disease or flood damage may produce a very jagged boundary to the rainforest closed canopy or the canopy extent of dominant eucalypts, with small outliers of each often occurring as 'islands' within the adjacent community. For example, small groves or copses of *Nothofagus cunninghamii* (Myrtle Beech) often occur upslope of core stands of Cool Temperate Rainforest in tall open-forests dominated by *Eucalyptus regnans* (Mountain Ash) or *Eucalyptus delegatensis* (Alpine Ash). Similarly, in the absence of an overstorey of diagnostic rainforest tree species, stands of *Dicksonia antarctica* (Soft Tree-fern) often dominate fern gully vegetation within tall open-forests isolated from core stands of mature rainforest. By contrast, eucalypt or *Acacia melanoxylon* (Blackwood) emergents often dominate small canopy gaps within extensive rainforest stands. Such complex and interdigitating boundaries are reminiscent of coastlines and share the peculiar property of fractals that the pattern of their outline tends to repeat itself over a range of scales. Such boundaries are almost impossible to manage by prescription and the rigorous application of buffers to such boundaries is of dubious ecological benefit. Floristically-determined boundaries are easier to manage and provide protection where inherent site characteristics, likely to remain stable in the long-term, clearly warrant such protection, rather than responding in an *ad hoc* way to the cumulative impact of the most recent stochastic events.

Disturbed sites

In practice, floristic composition at any site may be modified by a history of disturbance which facilitates the invasion of species from one community into another. Where the level of disturbance has been extreme and recent, such as in a logging coupe, road verge, logging track, fire line or immediately following a holocaust wildfire event, many species may be temporarily favoured in sites from which they may be excluded by competition or other

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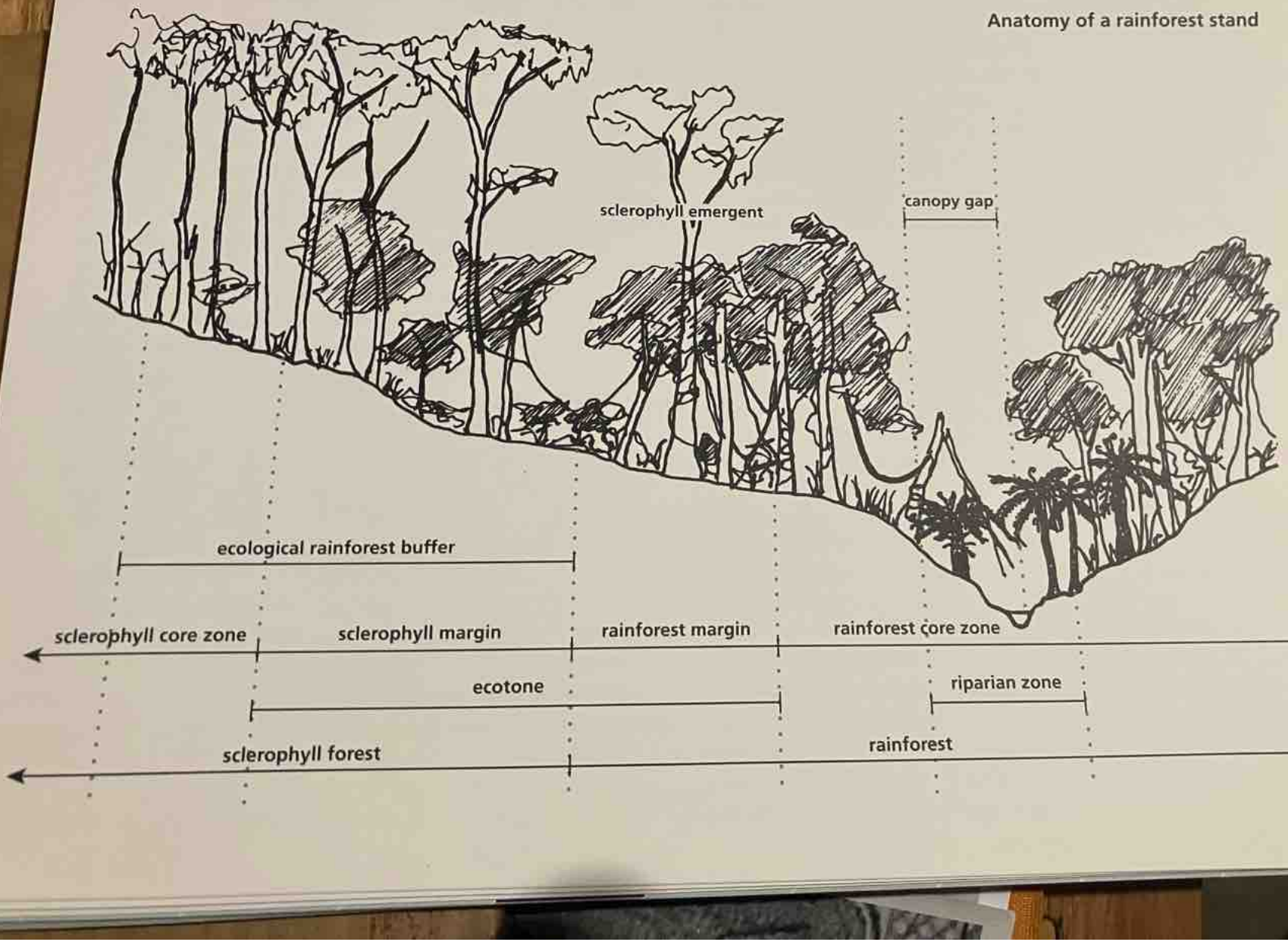

limiting environmental variables as the vegetation returns to equilibrium with the prevailing environmental conditions. In the meantime, the floristic signal is unlikely to accurately reflect the true nature of the long-term vegetation pattern at the site. For this reason, floristic keys cannot be guaranteed to perform reliably in grossly or recently disturbed sites.

The warm temperate forests of the Strzelecki Ranges provide a graphic illustration of the pitfalls of applying rainforest definitions drawn from primary forest vegetation to a landscape in the early stages of recovery from a history of ecological upheaval. Warm Temperate Rainforests in the region were almost eliminated through land clearance in the nineteenth and twentieth centuries and remain highly depleted (Peel 1999). Almost all remnant stands are vanishingly small, highly disturbed, often severely weed invaded and exposed on their margins to edge effects. Consequently, they are very poorly represented in the quadrat database. Their mature condition is almost impossible to define with any confidence and an appropriate floristic signature difficult to deduce and apply in key form. Paradoxically, in the absence of natural fire regimes, one of the two key dominants of the community, *Pittosporum undulatum* (Sweet Pittosporum), is an aggressive invader of extensive upslope stands of Damp Forest dominated by *Eucalyptus muelleriana* (Yellow Stringybark) which typically abutted Warm Temperate Rainforests at the time of settlement. Uncritical application of a single-species definition of Warm Temperate Rainforest to these anthropogenically-disturbed Damp Forests leads to their misidentification as Warm Temperate Rainforest on the basis of a single canopy dominant. This bizarre instance of a false positive determination can be avoided by the application of the field key provided in this manual, in association with the observation that true Warm Temperate Rainforest in the region is typically co-dominated by both *Pittosporum undulatum* and *Myrsine howittiana* (Mutton-wood) in riparian settings whereas *Pittosporum*-invaded Damp Forests lack mature *Myrsine* and occur on non-riparian upslope sites (Walsh & Cameron 2005).

An unexpected consequence of the severe disturbance history of remnant stands of warm temperate rainforest in the Strzelecki Ranges is that five species which are differential for sclerophyll forests in less disturbed landscapes on account of their response to fire or gap creation swap allegiance to become differential for these disturbed rainforest remnants in comparison with the drier damp sclerophyll forests upslope. The unexpected behaviour of the these five species – *Acacia melanoxylon* (Blackwood), *Bedfordia arborescens* (Blanket Leaf), *Pomaderris aspera* (Hazel Pomaderris), *Sambucus gaudichaudiana* (White Elderberry) and *Stellaria flaccida* (Forest Starwort) – in these forests is indicated by the letter R on the colour-coded tabs above or below each image to distinguish this behaviour from their more typical allegiance to sclerophyll forests in other regions as indicated by the letter S.

The status of Cool Temperate Mixed Forest

Although Cool Temperate Mixed Forests have been accorded the status of a distinct Ecological Vegetation Class (EVC), ecologically such forests represent a disclimax seral stage in the development of mature Cool Temperate Rainforest (Peel 1999). The floristic signature of Cool Temperate Mixed Forest is therefore a reflection of the time elapsed since the last major fire event and the floristic signal therefore converges with time on that characteristic of mature Cool Temperate Rainforest. In practice, the admixture of sclerophyll forest differential species is a relatively minor component of the overall floristic signal. The effect of applying floristic field identification keys for Cool Temperate Rainforest is to subdivide the

observation that true Warm Temperate

mixed forest stand into a rainforest component and, usually, at least some sclerophyll forest component with the rainforest boundary, as defined by the key, tending to be closer to the sclerophyll forest boundary of the stand than to the boundary of the mixed forest with any adjoining mature Cool Temperate Rainforest. The effect of the rainforest policy is therefore the protection of the majority of the mixed forest stand, with the prescriptive buffer likely to protect most or all of the proportion of the stand not identified as rainforest using the key. This outcome is quite consistent with the intent of the Code of Practice (DSE 2007) which requires that all mixed forest be protected although the threshold area requiring prescriptive buffer protection is less stringent than for Cool Temperate Rainforest.

Key selection in overlap stands

Overlap rainforest stands, diagnosed by their admixture of both cool and warm temperate floristic elements, can be encountered at elevations intermediate between those at which higher and lower elevation types reach their optimal expression. Peel (1999) defines and describes four overlap rainforest communities to accommodate the most frequently encountered overlap rainforest stand types. One of these communities is restricted to Wilsons Promontory National Park and one is confined, in Victoria, to the Howe Range, within Croajingolong National Park in far East Gippsland. Two, however, can be encountered in production forests in the Murrungowar, Glen Arte, Goolengook and Goongerah districts in East Gippsland. Similar overlap rainforest stand types could, potentially, occur in the Strzelecki Ranges in South Gippsland. In addition, overlap rainforest stands combining the floristic signal of both Cool Temperate Rainforest and Montane Riparian Cool Temperate Rainforest can be encountered at intermediate elevations in production forests in the Central Highlands. In such circumstances, floristic field identification keys developed for higher and lower elevation zones within a particular region or sub-region can be successfully merged into a single key as follows:

1. merge the rainforest differential species lists of the relevant field identification keys into a single list;
2. merge the sclerophyll forest differential species lists of the relevant field identification keys into a single list;
3. apply the step by step instructions for field use of floristic keys.

Populations and juveniles

Isolated vagrant individuals of any species may at times germinate in sites unlikely to support the species over time. Such individuals often suffer early mortality or fail to prosper or reach reproductive maturity. In the case of rainforest species which establish in eucalypt forests, such individuals often perish in the ensuing summer drought or the next wildfire event. In the case of sclerophyll species which establish in rainforest, often in canopy gaps or in flood-affected riparian sites, such individuals often fail to prosper as the rainforest canopy closes over the site and competition from shade-tolerant species intensifies. To reduce the risk of misclassification on the basis of spurious associations of species, a differential species should be represented by a population of individuals, not merely by isolated, possibly vagrant, individuals, and by more advanced individuals than seedlings or juveniles. The number of individuals which constitutes a population depends on the life form of the plant and its size in relation to the area being searched. Obviously, fewer individuals of a tree species can be expected in any given area compared with an understorey species whose individuals occupy a canopy area smaller by several orders of magnitude. For most species, several individuals can hardly be deemed to constitute a population although

some species, such as the epiphytic fern *Asplenium flaccidum* (Weeping Spleenwort), occur consistently in very low density and some allowance for such species is warranted.

Area of search and strength of signal

Wherever rainforest stands occur in dissected terrain, the rainforest occupies the most sheltered aspects and elevations. As a rule, therefore, the rainforest occurs downslope of the adjacent eucalypt-dominated sclerophyll forest and the boundary tends to follow the contour. For precise delineation of the boundary in such settings it is recommended that the search area be extended along the contour rather than up or down slope since the floristic composition is likely to be most consistent at any one elevation and change most rapidly along the elevation gradient. Extension up or down slope will certainly increase the strength of signal but it also means that when equal signal strength is detected it is quite unclear at exactly which elevation within the sampled area the boundary occurs. If the area searched is a narrow band extending across the slope there can be no ambiguity as to the precise elevation of the boundary at the site. It is recommended that the area searched be enlarged only to ensure a strong and convincing signal. The most spatially precise determination of the location of a boundary will be achieved using the smallest search area which returns a convincing signal. Whenever the search returns an unambiguous signal indicating the community is either rainforest or sclerophyll forest, then another strip or area must be searched upslope or downslope, respectively, in the direction of the opposing community. The distance between successive searches is usually dependent on the slope and aspect. Ecotones tend to be narrowest and boundaries sharpest on steeper slopes and on exposed north or north-west aspects therefore on such sites successive searches may only need to conducted at metre-scale intervals. On gentle slopes and protected south or south-east aspects, and in flat riparian or undulating tableland topographic settings (particularly in Cool Temperate Mixed Forest sites), ecotones tend to be broad and diffuse and boundaries difficult to delineate with confidence. Successive searches in such settings may need to be at greater intervals before a convincing signal of equal strength is found.

Suggestions that there be a minimum threshold for the number of differential species required for a reliable determination are not supported since some sites may simply be floristically poor or of a type inadequately represented in the datasets assembled to date. More important is to ensure that the site has been thoroughly searched and candidate species reliably identified and that the area searched has been extended along the contour far enough to ensure the strongest signal available. Ideally one might aim for at least half the species on the list for each community to be present but in many instances such a requirement may be unattainable.

Use of differential species keys to identify vegetation type

A word of caution is required when floristic field identification keys based on differential species are used to identify vegetation types. Since differential species are selected expressly on their ability to differentiate a designated pair of typically contiguous vegetation types, the strength of the floristic signal provides no reliable indication that the community being assessed is necessarily one of the two designated vegetation types. For example, some swamp or riparian forest types and subalpine riparian thicket and woodland communities share many species with some rainforest types. Similarly, some drier forest and woodland communities and even some rocky outcrop scrubland communities may share many species with wetter sclerophyll forest types which occur adjacent to rainforest. Differential species keys

Field recognition of differential species

High quality images, together with text descriptions and habitat notes, are provided in this manual for all 107 differential species to aid field recognition. For some species of variable appearance in the field or which are represented across their Victorian range by more than one subspecies or variety (such as *Polyscias sambucifolia* Elderberry Panax which is represented by two variable subspecies), the images selected illustrate the forms or infraspecific taxa most likely to be encountered in production forests of the region concerned. Images are listed alphabetically by botanical or scientific name even though each key requires the user to become familiar with a subset of only 21–35 species per key.

In searching for differential species at a site care should be taken to search each microhabitat or substrate in which the listed species are expected to occur. Particular attention should be given to searching the trunks of tree ferns, particularly *Dicksonia antarctica* (Soft Tree-fern), and other rainforest trees for epiphytic species of *Asplenium*, *Crepidomanes*, *Fieldia*, *Grammitis*, *Hymenophyllum*, *Microsorum* and *Rumohra*, fallen logs for *Uncinia tenella* (Delicate Hook-sedge) and wet and boggy sites for riparian species of *Carex* and *Blechnum*, *Isolepis inundata* (Swamp Club-sedge) and *Oxalis magellanica* (Snowdrop Wood-sorrel). The text descriptions which accompany each image provide useful guidance to the life form and habitat preferences of most species of distinctive and specialised life form.

Care should also be taken to reliably distinguish target species such as *Geranium potentilloides* (Soft Crane's-bill) from closely related species such as *Geranium homeanum* (Rainforest Crane's-bill) which is a character species of East Gippsland Warm Temperate Rainforest. A useful field character which distinguishes these two species with reasonable reliability is the tendency for *Geranium potentilloides* to have solitary flowers in each leaf axil whilst *Geranium homeanum* tends to have twinned flowers in each leaf axil.

Case Study in Rainforest Boundary Definition:
A Field Key for the Recognition of Cool Temperate Rainforest in the Otways

One of the terms of reference given to the Rainforest Technical Committee (1986:2) was to:

> *Develop a working and workable definition of 'rainforests' to apply to all Victorian forests and to be incorporated in prescriptions, management plans and the Code of Forest Practice.*

In addition to providing a single technical definition based on a combination of structural and ecological criteria, the Committee also provided 'Guidelines for Identification and Delineation of Rainforest' in accordance with this definition in Section 6.1 of its report. The 'Guidelines' list seven features considered characteristic of Victorian rainforest to assist identification of rainforest in the field. Four of the features are structural, one is ecological and two are floristic. The first floristic guideline lists the most widespread dominant canopy species in warm and cool temperate rainforest and for cool temperate rainforest on the Errinundra Plateau, East Gippsland. The second floristic guideline lists characteristic vascular species individually for warm temperate rainforest and for cool temperate rainforest in each of three regions of the state – East Gippsland, Central Victoria and the Otways.

The Department's *'Overview'* (Department of Conservation, Forests and Lands 1987) presented an amended technical definition of rainforest for the state and added a 'working definition' which is also an amendment, with some elaboration and qualification, of the first floristic guideline provided by the Rainforest Technical Committee. The *'Overview'* makes no reference to the other six guidelines provided by the Committee, although it does list the character species for each of the four major types of Victorian rainforest.

It should be noted that one of the objectives of the Department's rainforest project, as stated in the Project Description (File 86/737, folios 44-45) is the:

> Creation of a field method for interpreting the definition and determining the boundaries between rainforest and other vegetation;

And, as stated earlier:

> One of the objectives of the project will therefore be the interpretation of the rainforest definition and where necessary to alter it to remove any obvious ambiguities in its practical application. This will be in close collaboration with Regional staff across the State so there is general agreement on the means for determining rainforest boundaries.

Over the four years since the publication of the '*Overview*', it has become apparent to field staff in a number of Regions, particularly Colac and Orbost, that the 'working definition' has some limitations, both for purposes of description and for practical application in the field. The 'working definition' is based on the recognition of one or more of eleven species of rainforest tree or liane, nine of which are common in warm temperate sites and four of which are common in cool temperate sites. Problems with the application of the 'working definition' are most acute in the Otways, where only two of the listed dominants occur and the status of one of these, *Acacia melanoxylon* (Blackwood), as a rainforest species is ambiguous in the Department's 'working definition'. Extensive stands of Blackwood forest occur throughout the Otways, mostly as artefacts of clearing for agriculture in the early days of settlement. Some riparian Blackwood stands are apparently natural and share all the ecological, floristic and structural attributes of other rainforests dominated by *Nothofagus cunninghamii* (Myrtle Beech). A further complication is that, with the demise of mature *Nothofagus* throughout the Otways as a result of the current epidemic

project, as stated in the Project Description (File 86/737, folios 44-45) is the:

(Myrtle Beech). A further complication is that, with the demise of mature *Nothofagus* throughout the Otways as a result of the current epidemic

of Myrtle wilt, an increasing proportion of the Otway rainforests remains dominated only by Blackwood. In order to assist regional staff to clarify the status of these stands, it was decided in 1988 to develop a regionally-based floristic guideline for field use in the Otways.

The recent availability of a floristic classification of all vegetation quadrat data for the Otway Forest Management Area, provided the first opportunity in the state to test a procedure for developing regionalised field identification keys for rainforest. The rationale underlying the procedure adopted is that species which are consistently present (constant or character species) in one community, but which are simultaneously consistently absent or almost absent in another community, have the greatest floristic power to resolve the communities concerned. In the terminology of the Zurich-Montpellier school of phytosociology (Braun-Blanquet 1932) such species are termed **differential species**. Of course the most powerful floristic diagnosis of any community is made using **exclusive species**, which are defined as 'species completely or almost completely confined to one community' (Braun-Blanquet 1932). In practice, strictly exclusive species are rare, as occasional vagrant individuals of most species can be found occurring, especially as seedlings or juveniles, as intrusives in other communities within the dispersal range of the species. Most differential species can occur sometimes also in communities other than those under comparison or they may occur at low frequency (that is, not as constant or character species) in the second (abutting) community.

Essentially, the procedure adopted consists of scanning the character species tables for all rainforest sub-communities in the region and ranking all character species according to those which are character species in all sub-communities, those which are character species in all sub-communities except one, and so on. The process is repeated scanning the character species tables for all sclerophyll forest sub-communities which abut rainforest in the region. The two ranked lists of character species are then compared and all character species which are found to occur on both lists are excluded from further consideration. A comparable and convenient cutoff is then made on each list and the resulting list of species defined as **differential** species for the community type concerned, in relation to the abutting community type(s).

This procedure has been applied to the floristic data base available for the Otway region and a field key developed to distinguish rainforest from wet sclerophyll forest in the Otways.

Ten differential species have been identified for **Otway Cool Temperate Rainforest**:

Nothofagus cunninghamii	Myrtle Beech
Hymenophyllum australe	Austral Filmy-fern
Rumohra adiantiformis	Leathery Shield-fern
Asplenium bulbiferum	Mother Spleenwort
Asplenium flaccidum	Weeping Spleenwort
*Polyphlebium venosum**	Veined Bristle-fern
Blechnum chambersii	Lance Water-fern
Blechnum fluviatile	Ray Water-fern
Uncinia tenella	Delicate Hook-sedge
Carex appressa	Tall Sedge

Eleven differential species have been identified for **Otway Wet Sclerophyll Forest**:

Pomaderris aspera	Hazel Pomaderris
Tetrarrhena juncea	Forest Wire-grass
Cyathea australis	Rough Tree-fern
Pimelea axiflora	Bootlace Bush
Phebalium squameum[a]	Satinwood
Eucalyptus regnans	Mountain Ash
Eucalyptus cypellocarpa	Mountain Grey Gum
Notelaea ligustrina	Privet Mock-olive
Lepidosperma elatius	Tall Sword-sedge
Pteridium esculentum	Austral Bracken
Stellaria flaccida	Forest Starwort

Field checking to date has been encouraging, suggesting that field keys based on differential species should have considerable utility also elsewhere in the state.

It should be noted that a differential species defined on the basis of this procedure for one particular community in comparison with an abutting community, need not necessarily be a differential species for the same community in comparison with a different (non-abutting) community. For example, a differential species for rainforest in comparison with wet sclerophyll forest may not be a differential species for rainforest in comparison with damp sclerophyll forest if the species concerned is also a character species of at least one sub-community of damp sclerophyll forest. It should also be noted that a differential species for one community in one region, may be a differential species for a different community in another region, suggesting that different ecotypes may have developed under different conditions. For example, *Notelaea ligustrina* is a differential species for wet sclerophyll forest in the Otways, where it is usually of shrub form. On the Errinundra Plateau in East Gippsland, however, *N. ligustrina* is a dominant canopy tree in cool temperate mixed forest and cool temperate montane rainforest scrub.

To reduce the likelihood of a misclassification occurring on the basis of spurious associations of species, the following guidelines are provided for the application of field identification keys based on differential species:

1. manifestly or recently disturbed sites such as road margins, logging tracks, fire lines or recently fire-damaged sites must be avoided;
2. for a differential species to be recorded as present it needs to be represented by a population, not merely by isolated, possibly vagrant, individuals;
3. for a differential species to be recorded as present it must be represented by more advanced individuals than seedlings or juveniles.

A final qualification regarding the application of floristic field keys must be addressed. The new definition of rainforest stresses that **rainforest may be recognised floristically in the field, and rainforest boundaries located precisely, by the use of differential species, provided these have been determined using an adequately representative and rigorously collected quadrat data base**. Thus field keys generated using the procedure outlined above will only be as reliable as the floristic data from which they are derived. In the Otway case study described above, the rainforest quadrat data base suffers from an intentional sampling bias in favour of mature Beech-dominated stands at the expense of Blackwood-dominated stands. As a consequence, of the four structural classes of rainforest recognised by Roberts (1988), the pure Beech class is well represented in the data base, with adequate coverage also of advanced examples of the Beech-Blackwood class. Younger or more disturbed examples of the Beech-Blackwood class and both natural and anthropogenic examples of the pure Blackwood class are only poorly represented in the data base. A further structural class of rainforest in the Otways, cool temperate mixed forest, was not considered by Roberts and was equally poorly sampled in the rainforest survey of the Otways. It is not surprising, therefore, that the field keys derived from an analysis of this floristic data base work well for mature stands dominated by *Nothofagus* but fail to discriminate seral or disclimax communities dominated by *Acacia melanoxylon* or *Eucalyptus regnans*. This limitation can only be rectified by additional data collection from those communities or structural classes which are inadequately represented in the currently available data base.

In the application of each set of differential species in each region there may be a need to specify supplementary rules for the recognition of each community type concerned. For example, one could specify that a minimum of five differential species must be present at a site for the vegetation to qualify for recognition as either Otway Cool Temperate Rainforest or Otway Wet Sclerophyll Forest. Such rules need to be tailored to the circumstances in each region including the number of differential species in each set and the number of communities for which individual sets of differential species have been generated.

Taxonomic note:

* *Polyphlebium venosum* is now *Crepidomanes venosum*

ø *Phebalium squameum* is now *Nematolepis squamea*

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Step by step instructions for field use of floristic keys

- Select the key which best fits your rainforest region, elevation range and climate zone
- Ensure the target forest is EITHER rainforest or a sclerophyll forest type commonly associated with rainforest in the area
- Avoid grossly or recently disturbed sites such as timber harvesting coupes and associated tracks, road verges, fire lines or recently burnt sites
- Search the immediate vicinity for differential species specified in the selected key
- Exclude isolated, possibly vagrant, individuals – only count populations but allow for differences in size and density of each target species and the availability of suitable habitat
- Exclude seedlings and juveniles as these may not survive at the site
- Compare strength of rainforest and sclerophyll forest signals by the numerical count of differential species on each list
- If the signal is weak and the result unconvincing, extend area of search across the slope rather than up or down the slope
- Search for epiphytes on trunks of tree ferns and rainforest trees and on fallen logs, remember to look into the canopy of trees for elevated epiphytes
- Search for riparian species in wet or boggy sites
- When the signal is both strong and the result convincing decide whether you are standing on the boundary (equal strength of rainforest and sclerophyll forest signals)
- If the rainforest signal is clearly stronger than the sclerophyll forest signal, move upslope and repeat the search until a strong signal is detected
- If the sclerophyll forest signal is clearly stronger than the rainforest signal, move downslope and repeat the search until a strong signal is detected
- Repeat the search up or down slope until a strong and clearly balanced signal is detected signalling that you are standing on the rainforest boundary
- Mark the elevation of the boundary and measure the horizontal distance (upslope) toward the sclerophyll forest to mark the minimum prescribed width of the rainforest buffer as required in your area

Index of Floristic Field Identification Keys

1

Otway Cool Temperate Forest Floristic Field Identification Key

for use in Mountain Ash forests throughout the Otways

Differential species for Otway Cool Temperate Rainforest

Myrtle Beech	*Nothofagus cunninghamii*
Austral Filmy-fern	*Hymenophyllum australe*
Leathery Shield-fern	*Rumohra adiantiformis*
Mother Spleenwort	*Asplenium bulbiferum*
Weeping Spleenwort	*Asplenium flaccidum*
Veined Bristle-fern	*Crepidomanes venosum*
Lance Water-fern	*Blechnum chambersii*
Ray Water-fern	*Blechnum fluviatile*
Delicate Hook-sedge	*Uncinia tenella*
Tall Sedge	*Carex appressa*

Differential species for Otway Wet Sclerophyll Forest

Hazel Pomaderris	*Pomaderris aspera*
Forest Wire-grass	*Tetrarrhena juncea*
Rough Tree-fern	*Cyathea australis*
Bootlace Bush	*Pimelea axiflora*
Satinwood	*Nematolepis squamea*
Mountain Ash	*Eucalyptus regnans*
Mountain Grey-gum	*Eucalyptus cypellocarpa*
Privet Mock-olive	*Notelaea ligustrina*
Tall Sword-sedge	*Lepidosperma elatius*
Austral Bracken	*Pteridium esculentum*
Forest Starwort	*Stellaria flaccida*

2

Central Highlands Cool Temperate Forest Floristic Field Identification Key

for use in Mountain Ash forests north and west of Noojee in the Toolangi, Marysville, Alexandra and Powelltown districts

Differential species for Central Highlands Cool Temperate Rainforest

Myrtle Beech	*Nothofagus cunninghamii*
Southern Sassafras	*Atherosperma moschatum*
Common Finger-fern	*Grammitis billardierei*
Kangaroo Fern	*Microsorum pustulatum*
Twining Silkpod	*Parsonsia brownii*
Austral Filmy-fern	*Hymenophyllum australe*
Leathery Shield-fern	*Rumohra adiantiformis*
Veined Bristle-fern	*Crepidomanes venosum*
Fishbone Water-fern	*Blechnum nudum*
Mother Spleenwort	*Asplenium bulbiferum*
Austral King-fern	*Todea barbara*
Delicate Hook-sedge	*Uncinia tenella*
Shiny Filmy-fern	*Hymenophyllum flabellatum*
Lance Water-fern	*Blechnum chambersii*
Ray Water-fern	*Blechnum fluviatile*
Tall Sedge	*Carex appressa*

Differential species for Central Highlands Wet Sclerophyll Forest

Austral Bracken	*Pteridium esculentum*
Mountain Correa	*Correa lawrenceana*
Stinkwood	*Zieria arborescens*
Common Cassinia	*Cassinia aculeata*
Elderberry Panax	*Polyscias sambucifolia*
Purple Apple-berry	*Billardiera macrantha*
Dusty Daisy-bush	*Olearia phlogopappa*
Mountain Hickory-wattle	*Acacia obliquinervia*
Victorian Christmas-bush	*Prostanthera lasianthos*
Hairy Pennywort	*Hydrocotyle hirta*
Bootlace Bush	*Pimelea axiflora*
Tall Sword-sedge	*Lepidosperma elatius*

Central Highlands Cool Temperate Forest Floristic Field Identification Key

for use in Mountain Ash forests east of Noojee
in the Noojee and Erica districts
in the general vicinity of the Baw Baw Plateau
in the catchments of the Tanjil, Tyers and Thomson Rivers

Differential species for Central Highlands Cool Temperate Rainforest

Myrtle Beech	*Nothofagus cunninghamii*
Common Finger-fern	*Grammitis billardierei*
Mother Spleenwort	*Asplenium bulbiferum*
Mountain Pepper	*Tasmannia lanceolata*
Kangaroo Fern	*Microsorum pustulatum*
Delicate Hook-sedge	*Uncinia tenella*
Lance Water-fern	*Blechnum chambersii*
Ray Water-fern	*Blechnum fluviatile*
Southern Sassafras	*Atherosperma moschatum*
Strap Water-fern	*Blechnum patersonii*
Austral Filmy-fern	*Hymenophyllum australe*
Tall Sedge	*Carex appressa*
Leathery Shield-fern	*Rumohra adiantiformis*
Veined Bristle-fern	*Crepidomanes venosum*
Twining Silkpod	*Parsonsia brownii*
Shiny Filmy-fern	*Hymenophyllum flabellatum*

Differential species for Central Highlands Wet Sclerophyll Forest

Mountain Correa	*Correa lawrenceana*
Forest Wire-grass	*Tetrarrhena juncea*
Stinkwood	*Zieria arborescens*
Mountain Grey-gum	*Eucalyptus cypellocarpa*
Victorian Christmas-bush	*Prostanthera lasianthos*
Austral Bracken	*Pteridium esculentum*
Common Cassinia	*Cassinia aculeata*
Tall Sword-sedge	*Lepidosperma elatius*
Purple Apple-berry	*Billardiera macrantha*
Snowy Daisy-bush	*Olearia lirata*

4

Central Highlands Montane Cool Temperate Forest Floristic Field Identification Key

for use in Alpine Ash and Shining Gum forests and for rainforest stands containing Mountain Tea-tree north and west of Noojee in the Marysville and Alexandra districts

Differential species for Central Highlands Montane Riparian Cool Temperate Rainforest

Myrtle Beech	*Nothofagus cunninghamii*
Hard Water-fern	*Blechnum wattsii*
Tall Sedge	*Carex appressa*
Ray Water-fern	*Blechnum fluviatile*
Mountain Tea-tree	*Leptospermum grandifolium*
Southern Sassafras	*Atherosperma moschatum*
Pretty Grass-flag	*Libertia pulchella*
Baw Baw Berry	*Wittsteinia vacciniacea*
Common Finger-fern	*Grammitis billardierei*
Fishbone Water-fern	*Blechnum nudum*
Shade Nettle	*Australina pusilla*
Forest Sedge	*Carex alsophila*
Swamp Club-sedge	*Isolepis inundata*
Alpine Water-fern	*Blechnum penna-marina*

Differential species for Central Highlands Montane Wet Sclerophyll Forest

Forest Woodruff	*Asperula polymera*
Derwent Speedwell	*Derwentia derwentiana*
Tall Bitter-pea	*Daviesia laxiflora*
Mountain Clematis	*Clematis aristata*
Rough Coprosma	*Coprosma hirtella*
Golden Tip	*Goodia lotifolia*
Austral Bracken	*Pteridium esculentum*
Fireweed Groundsel	*Senecio linearifolius*
Prickly Starwort	*Stellaria pungens*
Mountain Cotula	*Leptinella filicula*
Privet Mock-olive	*Notelaea ligustrina*
Common Cassinia	*Cassinia aculeata*
Silver Wattle	*Acacia dealbata*
Mountain Correa	*Correa lawrenceana*

5

Central Highlands Montane Cool Temperate Forest
Floristic Field Identification Key

for use in Alpine Ash and Shining Gum forests and
for rainforest stands containing Mountain Tea-tree east of Noojee
in the Noojee and Erica districts
in the general vicinity of the Baw Baw Plateau
in the catchments of the Tanjil, Tyers and Thomson Rivers

Differential species for Central Highlands Montane Riparian Cool Temperate Rainforest

Myrtle Beech	*Nothofagus cunninghamii*
Mountain Tea-tree	*Leptospermum grandifolium*
Southern Sassafras	*Atherosperma moschatum*
Baw Baw Berry	*Wittsteinia vacciniacea*
Tall Sedge	*Carex appressa*
Shining Coprosma	*Coprosma nitida*
Subalpine Beard-heath	*Acrothamnus maccraei*
Snowdrop Wood-sorrel	*Oxalis magellanica*
Pretty Grass-flag	*Libertia pulchella*
Common Finger-fern	*Grammitis billardierei*
Ray Water-fern	*Blechnum fluviatile*
Alpine Water-fern	*Blechnum penna-marina*

Differential species for Central Highlands Montane Wet Sclerophyll Forest

Silver Wattle	*Acacia dealbata*
Elderberry Panax	*Polyscias sambucifolia*
Rough Coprosma	*Coprosma hirtella*
Mountain Clematis	*Clematis aristata*
Common Cassinia	*Cassinia aculeata*
Shining Gum	*Eucalyptus nitens*
Victorian Christmas-bush	*Prostanthera lasianthos*
Austral Bracken	*Pteridium esculentum*
Mountain Cotula	*Leptinella filicula*

6

Strzelecki Cool Temperate Forest Floristic Field Identification Key

for use in Mountain Ash forests and for rainforest stands dominated by Myrtle Beech

Differential species for Strzelecki Cool Temperate Rainforest

Myrtle Beech	*Nothofagus cunninghamii*
Soft Tree-fern	*Dicksonia antarctica*
Fieldia	*Fieldia australis*
Common Finger-fern	*Grammitis billardierei*
Mother Spleenwort	*Asplenium bulbiferum*
Southern Sassafras	*Atherosperma moschatum*
Shade Nettle	*Australina pusilla*
Leathery Shield-fern	*Rumohra adiantiformis*
Hard Water-fern	*Blechnum wattsii*
Slender Tree-fern	*Cyathea cunninghamii*
Veined Bristle-fern	*Crepidomanes venosum*
Shiny Filmy-fern	*Hymenophyllum flabellatum*
Austral Filmy-fern	*Hymenophyllum australe*
Twining Silkpod	*Parsonsia brownii*
Lance Water-fern	*Blechnum chambersii*
Strap Water-fern	*Blechnum patersonii*
Ray Water-fern	*Blechnum fluviatile*
Skirted Tree-fern	*Cyathea X marcescens*

Differential species for Strzelecki Wet Sclerophyll Forest

Rough Tree-fern	*Cyathea australis*
Mountain Clematis	*Clematis aristata*
Snowy Daisy-bush	*Olearia lirata*
Silver Wattle	*Acacia dealbata*
Austral Bracken	*Pteridium esculentum*
Forest Wire-grass	*Tetrarrhena juncea*
Mountain Ash	*Eucalyptus regnans*
Hairy Pennywort	*Hydrocotyle hirta*
Hazel Pomaderris	*Pomaderris aspera*
Blackwood	*Acacia melanoxylon*
Musk Daisy-bush	*Olearia argophylla*
Ivy-leaf Violet	*Viola hederacea*
White Elderberry	*Sambucus gaudichaudiana*
Victorian Christmas-bush	*Prostanthera lasianthos*
Bat's Wing Fern	*Histiopteris incisa*
Bidgee-widgee	*Acaena novae-zelandiae*
Forest Starwort	*Stellaria flaccida*

7

Strzelecki Warm Temperate Forest Floristic Field Identification Key

for use in foothill forests and for riparian rainforest stands dominated by Sweet Pittosporum and Mutton-wood

Differential species for Strzelecki Warm Temperate Rainforest

Sweet Pittosporum	*Pittosporum undulatum*
Mutton-wood	*Myrsine howittiana*
White Elderberry	*Sambucus gaudichaudiana*
Mother Shield-fern	*Polystichum proliferum*
Hazel Pomaderris	*Pomaderris aspera*
Shade Nettle	*Australina pusilla*
Forest Starwort	*Stellaria flaccida*
Scrub Nettle	*Urtica incisa*
Forest Hound's-tongue	*Austrocynoglossum latifolium*
Blackwood	*Acacia melanoxylon*
Sickle Fern	*Pellaea falcata*
Blanket Leaf	*Bedfordia arborescens*

Differential species for Strzelecki Warm Temperate Sclerophyll Forest

Yellow Stringybark	*Eucalyptus muelleriana*
Mountain Grey-gum	*Eucalyptus cypellocarpa*
Southern Blue-gum	*Eucalyptus globulus*
Mountain Clematis	*Clematis aristata*
Hop Goodenia	*Goodenia ovata*
Soft Crane's-bill	*Geranium potentilloides*
Sprawling Bluebell	*Wahlenbergia gracilis*
Bidgee-widgee	*Acaena novae-zelandiae*
Small Poranthera	*Poranthera microphylla*
Hairy Speedwell	*Veronica calycina*
Sticky Wattle	*Acacia howittii*

Acacia dealbata

Silver Wattle

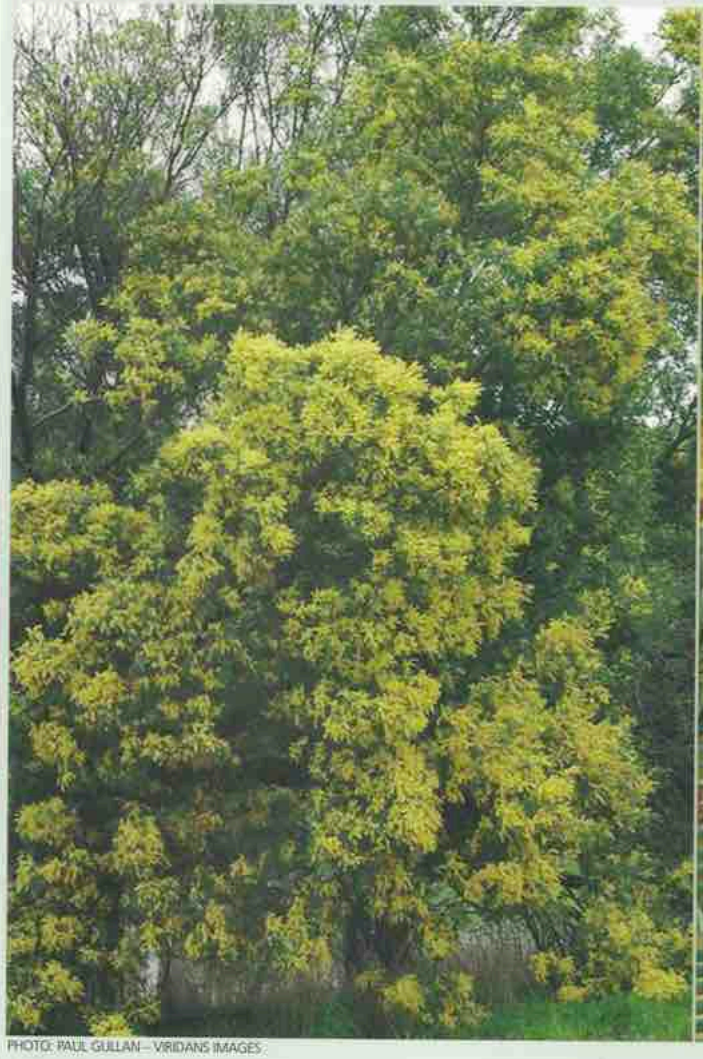


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Erect or spreading tree to 30 m, but usually 10–20 m, with feathery grey-green foliage, and bright yellow, globular, flower clusters, in racemes, arising from leaf axils. Bark smooth, dark brown and usually blotched with grey lichens.

LEAVES: Oblong, bipinnate, alternate along angled, hairy stems, 8–15 x 5–10 cm. Pinnae oblong, in 8–20 almost opposite pairs, oblong 130–50 x 5–7 mm, each pair with a single gland at the base. Pinnules 20–40 opposite pairs, linear, blunt. 2–4.5 x 1 mm, with short oppressed hairs.

FLOWERS: Clustered in globular, pale yellow, heads, to 1 cm wide, in loose axillary panicles. Sepals and petals 5, inconspicuous. (Jul Aug Sep Oct)

FRUIT: An oblong pod to 5–10 cm x 8–12 mm often with one on two deep constrictions but otherwise straight-side. Seeds 5–12, ovoid, 4–6 mm long, black and shining; funicle pale brown about half length of seed.

ABORIGINAL USE: Wood was fashioned into stone axe handles. Sticky gum mixed with ash made a waterproof paste to seal holes in bark water vessels. Gum was eaten or dissolved and mixed with flower nectar for sweet drinks. Other similar species of Acacia may have been used in the same way.

BUTTERFLY FOOD PLANT: Food for caterpillars of Blue Jewel and Silky Hairstreak.

OTHER STATES: NSW SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus cypellocarpa, Eucalyptus dives, Eucalyptus viminalis, Eucalyptus rubida*

ANNUAL RAINFALL: 594 to 1188 mm

WARMEST TEMPERATURES: 23 to 29°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 95 to 721m ASL

OTHER SCIENTIFIC NAMES: *Racosperma dealbatum*

Acacia howittii

Sticky Wattle

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree, to 9 m tall, with small 'leaves' and pale yellow, globular flower clusters, arising from leaf axils on short stalks.

LEAVES: (Phyllodes) Elliptic or ovate, to 2 cm x 8 mm, tip rounded with sharp a point, 2–4 more or less prominent veins, often sticky when crushed.

FLOWERS: Clustered into stalked, globular heads, to 3 mm wide. (Oct)

FRUIT: A more or less straight, cylindrical, leathery pod, to 6 cm x 5 mm.

NOTES: A popular species in cultivation that has invaded areas outside its natural range in South Gippsland and the Central Highlands.

CONSERVATION: [r] Rare in Victoria. [endemic] Found only in Victoria. [#] Native to Victoria but grows outside of natural range.

ANNUAL RAINFALL: 697 to 1107 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Racosperma howittii*

Rainforest

Sclerophyll forest

Acacia melanoxylon

Blackwood

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Moderately dense, grey-green, spreading tree, to 30 m tall with clustered, globular, pale yellow flowers, on branched stalks. Trunk dark brown and rough-barked, usually branching less than 3 m from ground.

LEAVES: Alternate, oblanceolate or slightly falcate, blunt at apex, tapering at base, 10–20 x 1.5–4 cm; both surfaces glabrous, grey-green, 3–7 equally prominent longitudinal nerves; petiole, 3–8 mm, wrinkled; gland, inconspicuous on upper margin near petiole.

FLOWERS: Clustered in globular heads about 10 mm diameter, in short, sometimes leafy panicles. Sepals and petals 5 but inconspicuous beneath a mass of pale yellow stamens. Pedicels, peduncles and young stems with fine, pale-brown, glandular hairs. (Aug Sep Oct)

FRUIT: Dark brown pods, 5–15 x 0.5–1 cm becoming twisted with age. Seeds 3–10, oval, 4 x 3 mm, black, shiny. Funicle, pink-red, encircling seeds twice.

ENVIRONMENT: Damp sites, on deep mountain soils or near creeks and rivers in lowlands. Common in pastoral regions.

ABORIGINAL USE: Bark heated over fire then infused in bathing water was a treatment for rheumatism. Clubs, shields and spearthrowers were made from the wood.

BUTTERFLY FOOD PLANT: Food for caterpillars of Blue Jewel, Common Imperial Blue, Grampians Hairstreak and Silky Hairstreak.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata s.l., Eucalyptus cypellocarpa, Eucalyptus viminalis, Eucalyptus ovata, Eucalyptus dives*

ANNUAL RAINFALL: 600 to 1140 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Racosperma melanoxylon*

OTHER COMMON NAMES: Hickory, Mudgerabah (Koorie name), Sally Wattle, Lightwood

Acacia obliquinervia

Mountain Hickory-wattle

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A spreading shrub to small tree up to 10 m tall with dense grey-green foliage, and bright yellow, globular, flower clusters, in racemes, arising from leaf axils.

LEAVES: Simple (phyllodes), alternate, petiolate, oblanceolate, asymmetric about the midvein, 8–15 x 2–5 cm, grey-green, tip blunt; venation, other than midvein, inconspicuous; gland very small, on edge near base.

FLOWERS: Clustered in globular, bright yellow head about 1 cm wide, in slender axillary racemes, to 10 cm long, near branch tips. (Aug Sep Oct Nov)

FRUIT: A flattened, oblong pod to 8 x 2 cm, occasionally with one or two constrictions between the seeds. Seeds up to 12, ovoid, 5–6 mm long, black and shining; funicle rust coloured, folded two or three lines, about as long as seed.

OTHER STATES: NSW ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus delegatensis* subsp. *delegatensis, Eucalyptus sieberi, Eucalyptus radiata* s.l., *Eucalyptus regnans*

ANNUAL RAINFALL: 801 to 1375 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Racosperma obliquinervium*

Acaena novae-zelandiae

Bidgee-widgee

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A perennial herb, to 20 cm tall, with long, pinnate leaves at the base of erect stems bearing dense, globular clusters of small, cream flowers or spiny fruit.

LEAVES: Obovate in outline, to 11 cm long, divided into 7–11 leaflets. Individual leaflets ovate, to 20 x 10 mm; margins toothed; upper surface green, glossy, hairless; lower surface dull green, hairy.

FLOWERS: Many in a globular cluster to 25 mm wide. Individual flowers, pale green and cream, about 2 mm wide, with 4 green sepals, 2 cream stamens and 1 style. (Jan Feb Mar Apr Sep Oct Nov Dec)

FRUIT: A globular cluster, to 3 cm wide, consisting of numerous, narrowly-triangular seeds, to 6 mm long, each with 4, red, hooked spines to 12 mm long.

OTHER STATES: NSW SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus cypellocarpa, Eucalyptus dives, Eucalyptus ovata*

ANNUAL RAINFALL: 615 to 1151 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Acaena anserinifolia, Acaena sanguisorbae, Acaena sanguisorbae* ssp. *novae-zelandiae, Acaena sanguisorbae* subsp. *novae-zelandiae*

OTHER COMMON NAMES: Biddy-biddy, Biddy-widdy (Tasmania), Buzzy (Tasmania)

Acrothamnus maccraei

Subalpine Beard-heath

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub, to 3 m tall, with small, dark green leaves, small, hairy, white flowers, in short spikes arising from upper leaf axils, and red, fleshy fruit.

LEAVES: Ovate or almost triangular, to 8 x 4 mm, hairless, more or less flat, stiff, blunt, parallel veins prominent on blue-green, lower surface, upper surface dark green and glossy.

FLOWERS: White, shortly tubular, to 4 mm long and about 5 mm wide, with 5 spreading, petal lobes, covered with white hairs. (Oct Nov)

FRUIT: Spherical, red, fleshy, about 5 mm wide.

ABORIGINAL USE: The small red berries were eaten. Other similar Leucopogon species may have been used in the same way.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus delegatensis* subsp. *delegatensis, Atherosperma moschatum, Eucalyptus pauciflora, Elaeocarpus holopetalus, Eucalyptus denticulata, Eucalyptus fastigata*

ANNUAL RAINFALL: 860 to 1450 mm

WARMEST TEMPERATURES: 22 to 26°C

OTHER SCIENTIFIC NAMES: *Leucopogon maccraei*

OTHER COMMON NAMES: Alpine Beard-heath

Asperula euryphylla

Broad-leaf Woodruff

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A perennial herb, to 30 cm tall, with small leaves in whorls along erect, 4-angled stems, and small, white flowers clustered at the ends of stems.

LEAVES: Ovate or obovate, to 12 x 5 mm, in whorls of 6–8; more or less hairless or slightly rough.

FLOWERS: White, tubular, to 3 mm long. Apex of tube divided into 4, spreading, elliptic lobes. (Nov Dec)

FRUIT: A black, smooth, two-lobed, globular capsule, to 3 mm long.

ENVIRONMENT: Disturbed sites of wet forests.

COMMONLY ASSOCIATED TREES: *Eucalyptus delegatensis* subsp. *delegatensis*, *Eucalyptus obliqua*, *Eucalyptus viminalis*, *Eucalyptus radiata* s.l., *Eucalyptus regnans*, *Atherosperma moschatum*

ANNUAL RAINFALL: 893 to 1539 mm

WARMEST TEMPERATURES: 22 to 26°C

Rainforest

Sclerophyll forest

Asplenium bulbiferum

Mother Spleenwort

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Tufted fern with dark green, narrow-triangular fronds up to 80 x 25 cm. Often epiphytic on tree fern trunks.

FRONDS: Tripinnate, or sometimes bipinnate, often bearing bulbils. Fertile and sterile pinnules similar, lanceolate, obtuse, to 15 x 5 mm; margins toothed or lobed. Rachis grooved and dark green on upper surface, rounded and often black on lower surface. Secondary rachises winged. Stipe 3–6 mm diameter with narrow-triangular scales.

RHIZOME: Inconspicuous (giving the fern a tufted appearance) with narrow-triangular scales.

SORI: Oblong, 2–4 mm long, non-marginal. Indusium a membranous flap. Sporangia rusty brown.

ENVIRONMENT: Tree-fern trunks, logs or deep, wet, organic soils in protected mountain gullies.

NOTES: Widely grown in cultivation in Australia and the Northern Hemisphere and many forms are available in nurseries.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus regnans, Atherosperma moschatum, Syzygium smithii, Nothofagus cunninghamii*

ANNUAL RAINFALL: 787 to 1307 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 142 to 760 m ASL

OTHER SCIENTIFIC NAMES: *Asplenium gracillimum*

OTHER COMMON NAMES: Hen and Chicken Fern

Asplenium flaccidum

Weeping Spleenwort

PHOTO: JOHN EICHLER – VIRIDANS IMAGES

GENERAL APPEARANCE: A shortly rhizomatous, epiphytic fern, with pendulous, finely-divided fronds to 90 cm long.

FRONDS: Bipinnate, narrowly triangular, to 90 cm long. Stipe shorter than leafy part of frond, flattened, grooved, green, with narrow, dark brown scales. Fertile and sterile pinnules similar, narrowly elliptic, to 12 x 3 mm.

SORI: Narrowly oblong, about 3 mm long, usually one per pinnule. Indusium a narrow membranous flap. Spores yellow.

ENVIRONMENT: Trunks of tree ferns and trees in wet, shaded gullies.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Nothofagus cunninghamii, Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus regnans*

ANNUAL RAINFALL: 875 to 1281 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 3 to 5°C

ALTITUDE: 79 to 493 m ASL

Atherosperma moschatum

Southern Sassafras

Rainforest

Sclerophyll forest

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A conical tree, to 30 m tall, with large, glossy leaves and cream flowers born in leaf axils and hanging downwards, under the leaves.

LEAVES: Ovate, to 6 x 3 cm, margins usually toothed, dark-green and hairless above, grey-green and hairy below, alternate.

FLOWERS: Cream, to 20 mm wide, with ovate petals and sepals. (Jul Aug Sep Oct)

FRUIT: A spherical capsule, to 12 mm wide, containing densely hairy, awned seeds.

ENVIRONMENT: Wet gullies of Cool Temperate Rainforest or Wet Forests.

NOTES: Many of these plants begin life as a seedling of the trunk of a tree-fern (*Dicksonia antarctica*). As the seedling grows its weight will push the tree-fern over and eventually take root in the ground.

BUTTERFLY FOOD PLANT: Food for caterpillars of Macleay's Swallowtail.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Nothofagus cunninghamii, Eucalyptus regnans, Eucalyptus obliqua, Elaeocarpus holopetalus, Eucalyptus cypellocarpa, Eucalyptus fastigata*

ANNUAL RAINFALL: 901 to 1467 mm

WARMEST TEMPERATURES: 22 to 26°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 298 to 992 m ASL

OTHER COMMON NAMES: Black Sassafras, Sassafras

Rainforest

Sclerophyll forest

Australina pusilla

Shade Nettle

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A perennial herb, to 20 cm tall, with broad, toothed leaves and inconspicuous, pink and white flowers.

LEAVES: Ovate, to 6 x 3 cm, hairless, margins with 2-6 teeth on each side of leaf, veins obvious, sunken on upper surface and raised below.

FLOWERS: Males and females separate. Small, pink and white, to 2 mm wide, borne on stalks arising from leaf axils. (Jan Feb Sep Oct Nov Dec)

ENVIRONMENT: Wet forests, in heavy shade.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus regnans, Eucalyptus viminalis, Atherosperma moschatum, Eucalyptus radiata* s.l.

ANNUAL RAINFALL: 816 to 1340 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 158 to 814 m ASL

OTHER SCIENTIFIC NAMES: *Australina muelleri*

OTHER COMMON NAMES: Smooth Nettle

Rainforest

Sclerophyll forest

Austrocynoglossum latifolium

Forest Hound's-tongue

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A scrambling, perennial herb, 50 cm tall, with broad leaves along weak stems with small, curved bristles, and tiny, white or pale blue flowers in leaf axils.

LEAVES: Broadly ovate, alternate, to 8 x 5 cm, covered with very short, stiff hairs; dark green on upper surface, mid-green beneath. Major veins curved evenly from near base to leaf tip, impressed on upper surface.

FLOWERS: White or pale blue, about 2 mm wide. Petals 5, rounded, joined at the base into a tube. (Jan Nov Dec)

FRUIT: Ovoid, cream, 1-seeded capsules, to 3 mm wide, derisely covered with hooked bristles. Four joined in a single fruit.

ENVIRONMENT: Wet forests, often in disturbed sites.

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus viminalis, Syzygium smithii, Eucalyptus radiata* s.l., *Eucalyptus globoidea*

ANNUAL RAINFALL: 766 to 1212 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Cynoglossum latifolium*

Rainforest

Sclerophyll forest

Bedfordia arborescens

Blanket Leaf

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A large shrub or small tree to 10 m tall with spreading branches bearing clumps of large, dark green leaves near their tips. Inflorescence a dense panicle, in upper leaf axils, 7-15 cm long, with small, yellow flower heads.

LEAVES: Alternate on short, hairy petioles on the upper parts of branches. Lanceolate to oblong, 15-25 x 3-6 cm; margins recurved; upper surface dark green, glabrous or almost so, finely wrinkled; lower surface densely covered by fine white, woolly hairs.

FLOWERS: In cylindrical heads 5-10 mm long, on short, woolly stalks. Bracts surrounding head in a single series, linear, to 8 mm long, covered with woolly hairs. Florets 8-15, all tubular, yellow. (Jan Oct Nov Dec)

FRUIT: Smooth cylindrical achenes to 2 mm long with a apical pappus of fine, barbed, white bristles to 5 mm long.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus radiata* s.l., *Syzygium smithii*

ANNUAL RAINFALL: 774 to 1276 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Bedfordia salicina, Senecio bedfordii*

OTHER COMMON NAMES: Blanket-leaf

Billardiera macrantha

Purple Apple-berry

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A woody climber with narrow leaves and yellow, tubular flowers, solitary on slender drooping stalks in leaf axils.

LEAVES: Narrowly elliptic or oblong, alternate, to 60 x 10 mm, hairless.

FLOWERS: Yellow or yellow-green, tubular, to 40 mm long. Apex of tube with 5, triangular lobes. (Jan Aug Sep Oct Nov Dec)

FRUIT: Cylindrical, fleshy, purple berry, to 35 x 12 mm.

ABORIGINAL USE: Fallen, ripe fruits were eaten.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Eucalyptus obliqua, Eucalyptus cypellocarpa, Atherosperma moschatum, Nothofagus cunninghamii, Eucalyptus radiata* s.l.

ANNUAL RAINFALL: 828 to 1362 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Billardiera longiflora, Billardiera longiflora* var. *longiflora*

OTHER COMMON NAMES: Snot Berry

Sclerophyll forest

Blechnum chambersii

Lance Water-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Tufted fern with spreading or ascending, dark green and glossy lanceolate fronds to 50 cm long.

FRONDS: Once pinnate. Fertile and sterile fronds dissimilar. Sterile pinnae sickle-shaped and up to 4 x 1 cm at broadest part of frond or broad-triangular and about 1 cm long near base; attached to rachis by full width; margins entire or with very shallow teeth; venation conspicuous on upper surface. Fertile pinnae linear, curved, up to 30 x 3 mm. Stipe and rhachis dark brown to black, grooved on upper surface, glabrous or with a few narrowly triangular scales near base.

SORI: Linear bands running the length of the pinnae between the midvein and tightly recurved margins. Sporangia brown.

ENVIRONMENT: Deep loamy, humus soils of wet, shaded mountain gullies.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus regnans, Eucalyptus cypellocarpa, Nothofagus cunninghamii, Atherosperma moschatum, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 845 to 1377 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 131 to 751 m ASL

OTHER SCIENTIFIC NAMES: *Blechnum aggregatum, Blechnum lanceolatum, Lomaria aggregata*

OTHER COMMON NAMES: Lance Fern

Rainforest

Sclerophyll forest

Blechnum fluviatile

Ray Water-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Tufted fern with spreading, linear to oblong sterile fronds, up to 40 x 5 cm and narrower, erect fertile fronds of similar length.

FRONDS: Once pinnate. Fertile and sterile fronds dissimilar. Sterile pinnae vary from oblong, sessile, to 2.5 x 1 cm on upper parts off frond, to ovate, broadly stalked, to 1 x 1 cm, near frond base; margins entire or finely crenate. Fertile pinnae linear, up to 20 x 4 mm. Stipe and rachis brown with narrow-triangular scales, at least on the lower portion.

SORI: Linear bands running the length of pinnae between midvein and margins, partly covered, when young, by minutely fringed, recurved margins of pinnae. Sporangia brown.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Atherosperma moschatum, Nothofagus cunninghamii, Eucalyptus regnans, Eucalyptus delegatensis subsp. delegatensis, Eucalyptus obliqua, Eucalyptus cypellocarpa*

ANNUAL RAINFALL: 880 to 1408 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 251 to 927 m ASL

OTHER SCIENTIFIC NAMES: *Stegania fluviatilis*

Blechnum nudum

Fishbone Water-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tufted fern with spreading, lanceolate fronds to 100 x 20 cm. Older specimens may develop short trunks.

FRONDS: Once pinnate. Fertile and sterile fronds dissimilar. Sterile pinnae oblong, to 10 cm x 15 mm, attached to rachis by full width; margins entire; venation conspicuous, forked and parallel. Fertile pinnae linear, up to 40 x 5 mm. Rachis glabrous, yellow-green near tip, becoming black and shining near base. Stipe glabrous, black and shining, with thick black scales near base.

SORI: Linear bands running the length of pinnae between midvein and margin. Indusium a recurved marginal flap. Sporangia brown.

ENVIRONMENT: Wet and often waterlogged alluvial soils of river banks and shaded gullies and beds of slow-moving, shallow creeks.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus sieberi*

ANNUAL RAINFALL: 725 to 1243 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Blechnum discolor, Onoclea nuda*

OTHER COMMON NAMES: Fishbone Fern, Fishbone Water Fern, Wyeebo Gaggawar (Koorie name)

Blechnum patersonii

Strap Water-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tufted fern with drooping, leathery, dark green, linear, lobed or pinnate fronds to 50 cm long. New growth usually ruddy or bronze.

FRONDS: Simple or once pinnate. Fertile and sterile fronds dissimilar. Sterile fronds, or pinnae, linear to narrow-oblanceolate, 15-25 mm broad, upper surface dark green and lustrous, lower surface paler and dull, tips pointed; margins entire or sometimes finely toothed, often undulate; venation parallel, prominent on upper surface, obscure on lower surface, midvein grooved above. Fertile fronds, or pinnae, as long as sterile ones but linear and only 3-6 mm broad. Stipe dark brown to black, glabrous or with a few narrow scales.

SORI: Linear bands running the length of frond and frond segments between midrib and margin, covered when young by a recurved, membranous marginal flap.

ENVIRONMENT: Loamy and humus soils of wet, shaded gullies and narrow watercourses.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Syzygium smithii, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus globoidea, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 802 to 1288 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Blechnum patersonii ssp. patersonii, Lomaria patersonii, Stegania patersonii*

OTHER COMMON NAMES: Strap Fern, Strap Water Fern

Blechnum penna-marina

Alpine Water-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tufted fern, with narrow, divided fronds, to 30 cm long.

FRONDS: Pinnate, narrowly oblong, to 30 x 2 cm. Fertile and sterile pinnules dissimilar. Sterile pinnules broadly oblong, attached by their full width to the rachis, to 10 x 4 mm. Fertile pinnules linear, to 10 x 2 mm.

SORI: Linear, covering the lower side of the pinnule on both sides of the midvein. Spores brown.

ENVIRONMENT: Waterlogged sites in alpine and subalpine regions.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus pauciflora, Eucalyptus delegatensis subsp. delegatensis, Eucalyptus rubida, Eucalyptus radiata* s.l., *Eucalyptus dalrympleana subsp. dalrympleana, Eucalyptus stellulata*

ANNUAL RAINFALL: 872 to 1478 mm

WARMEST TEMPERATURES: 22 to 26°C

OTHER SCIENTIFIC NAMES: *Blechnum alpinum; Blechnum penna-marina* ssp. *alpina, Lomaria alpina, Polypodium penna-marina, Stegania alpina*

OTHER COMMON NAMES: Alpine Fern, Alpine Water Fern

Blechnum wattsii

Hard Water-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, rhizomatous fern with erect, dark green, oblong fronds up to 100 x 25 cm. Often forming a dense ground cover which excludes plants of most other ground species.

FRONDS: Once pinnate. Fertile and sterile fronds dissimilar. Sterile pinnae oblong to lanceolate, up to 12 x 3 cm, stiff and leathery, attached to rhachis by midvein only, absent from lower half of frond; margins toothed; venation parallel and prominent, lower midvein often with narrow, papery scales, upper surface dark green, lower surface paler. Fertile pinnae linear, up to 12 cm x 6 mm, often curled near tips. Rachis and stipe green or brown, grooved on upper surface, narrow-triangular scales on all but upper portion of stipe.

RHIZOME: Stout and brittle, up to 2 cm wide, almost black with narrow-triangular scales 5-15 mm long.

SORI: Linear bands covering under surface of pinnae. Indusium a frilled, marginal membrane. Sporangia brown.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Atherosperma moschatum, Nothofagus cunninghamii, Eucalyptus sieberi*

ANNUAL RAINFALL: 770 to 1274 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 114 to 792 m ASL

OTHER SCIENTIFIC NAMES: *Blechnum procerum, Osmunda procera*

OTHER COMMON NAMES: Gaggawar (Koorie name), Hard Hill-fern, Kio Kio (Maori name), Rattle Fern, Red Cabbage Fern

Calochlaena dubia

Common Ground-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, rhizomatous fern with erect, yellow-green, broadly triangular (bracken-like) fronds up to 2 x 1 m.

FRONDS: Tripinnate, fertile and sterile pinnules similar, lanceolate, to 15 x 7 mm, asymmetric around the midvein, sparsely hairy; margins lobed. Rachises yellow-green, hairy, grooved on upper surface. Stipe yellow-green or rusty-hairy only near base. Stipe and primary rachis approximately equal in length.

RHIZOME: Up to 25 mm wide, growing just below soil surface, densely covered by soft, rusty hairs (which also cover new fronds but persist only on stipe base).

SORI: Circular, about 1 mm wide, near margins and partly covered by small, recurved marginal flaps. Sporangia light brown.

ENVIRONMENT: Loamy soils, which are moist but well-drained, on sheltered slopes of hilly country.

NOTES: Responds well to disturbance and often dominates areas which have been recently cleared.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus sieberi, Eucalyptus radiata* s.l., *Eucalyptus viminalis*

ANNUAL RAINFALL: 736 to 1224 mm

WARMEST TEMPERATURES: 24 to 28°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 93 to 625 m ASL

OTHER SCIENTIFIC NAMES: *Culcita dubia, Davallia dubia*

OTHER COMMON NAMES: False Bracken, Koordrung (Koorie name), Rainbow Fern

Carex alsophila

Forest Sedge

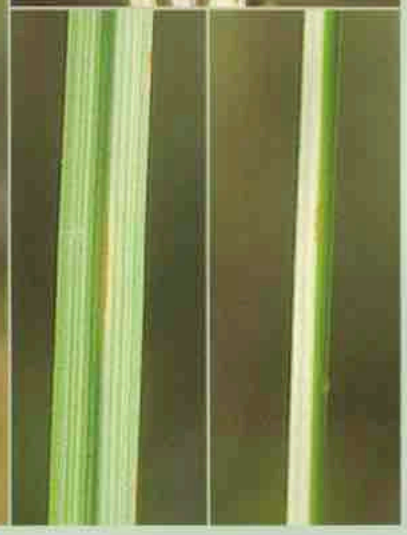


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A leafy, tufted, mid-green sedge with erect, cylindrical flower stem to 1 m tall. Inflorescence a series of narrow, densely-flowered, spikes, to 10 cm long, near the stem tip.

LEAVES: In a basal tuft, more or less erect, linear, 0.5–1.2 m x 8–12 mm, glabrous, flat near tip, folded (V-shaped in cross-section) near base, and with transverse partitions between the longitudinal veins.

FLOWERS: Spikelets 1-flowered, sessile, in dense spikes on upper parts of branches, each branch subtended by a green, leafy bract to 30 cm long. Glumes 2, ovate, 2–5 mm long, pointed. Stamens 3. Styles 3-armed. (Jan Feb Dec)

FRUIT: Ovoid, 3-angled nuts, 2–3 mm long, smooth, brown, enclosed by a chaffy, glabrous, sack-like capsule (utricle), 4–7 mm long, tapering into a fine, 2-toothed tip.

CONSERVATION: [r] Rare in Victoria. [endemic] Found only in Victoria.

COMMONLY ASSOCIATED TREES: *Nothofagus cunninghamii, Atherosperma moschatum, Eucalyptus regnans*

ANNUAL RAINFALL: 1024 to 1492 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Carex conspicua*

OTHER COMMON NAMES: Broad Sedge

Rainforest

Sclerophyll forest

Carex appressa

Tall Sedge

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, tufted, mid-green sedge with erect, sharply 3-angled flower stems (edges finely and sharply toothed and capable of inflicting deep cuts) to 1.5 m tall. Inflorescence a series of narrow, densely-flowered spikes, appressed to upper part of stem.

LEAVES: In dense, basal tufts, erect, linear, to 1.3 m x 8 mm, flat near tip, folded (V-shaped in cross-section) near base, smooth except for finely and sharply toothed margins.

FLOWERS: Spikelets 1-flowered, sessile, in dense clusters along short, erect, overlapping branches (appressed to the stem) 1–3 cm long, each branch subtended by a narrow, brown bract to 15 mm long. Glumes 2, ovate, 2–3 mm long, glabrous, brown except for green midrib. (Sep Oct Nov)

FRUIT: Ovoid nut, 1.6–2.4 mm long (flattened on one side), enclosed by a chaffy, sack-like capsule (utricle) to 5 mm long, tapering into a fine tip.

ABORIGINAL USE: Leaves were used to make baskets.

BUTTERFLY FOOD PLANT: Food for caterpillars of Spotted Skipper, Bright-eyed Brown, Western Bright-eyed Brown and Alpine Skipper.

OTHER STATES: NSW QLD SA WA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus cypellocarpa, Eucalyptus ovata, Eucalyptus dives*

ANNUAL RAINFALL: 556 to 1138 mm

WARMEST TEMPERATURES: 23 to 29°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 44 to 654 m ASL

OTHER SCIENTIFIC NAMES: *Carex paniculata*

OTHER COMMON NAMES: Tussock Sedge

Cassinia aculeata

Common Cassinia

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Dense-crowned, medium to tall shrub 1.5–2.5 m, with dark, often hoary, narrow foliage and numerous, terminal, domed white or dusky pink flower-heads during Summer.

LEAVES: Alternate and sessile along minutely bristled stems. Absent from older stems. Narrow-linear, 2–4 cm long, with tightly recurved margins. Glabrous on upper surface, lower surface when visible, pale green or whitish with mixture of short, stiff bristles and fine, cottony hairs. Vaguely camphor-scented.

FLOWERS: White or sometimes dusky pink, clustered in dense, rounded,leafless panicles 3–12 cm diam, at tips of branches. Panicles of numerous, small, cylindrical heads, 2–4 mm long, each comprising an involucre of overlapping, papery, white-tipped bracts 1–2 mm long, (smaller outer bracts with tawny, cottony hairs) enclosing 3–8 minute tubular florets. Ray florets absent. (Jan Feb Mar Nov Dec)

FRUIT: Minute, cylindrical seeds 0.5–1 mm long, bearing an apical pappus of numerous fine, silky hairs 2–4 mm long.

OTHER STATES: NSW QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus cypellocarpa, Eucalyptus dives, Eucalyptus viminalis, Eucalyptus sieberi*

ANNUAL RAINFALL: 650 to 1200 mm

WARMEST TEMPERATURES: 24 to 28ºC

OTHER SCIENTIFIC NAMES: *Calea aculeata*

OTHER COMMON NAMES: Dogwood, Dolly Bush, Mountain Itch, Dollybush

Sclerophyll forest

Cissus hypoglauca

Jungle Grape

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, woody climber, with broad, glossy leaves, in groups of five, racemes of small, yellow-green flowers, and dark purple, grape-like fruit.

LEAVES: Divided into leaflets which are ovate or elliptic, to 15 x 4 cm, hairless; dark green, glossy above; pale green below; margins more or less smooth.

FLOWERS: Dull yellow or yellow-green, to 5 mm wide. Petals 4, ovate. (Jan Feb Sep Oct Nov Dec)

FRUIT: A dark purple, globular, fleshy berry, to 12 mm wide.

ENVIRONMENT: Shaded rainforest gullies.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus muelleriana*

ANNUAL RAINFALL: 841 to 1029 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 22 to 506 m ASL

OTHER SCIENTIFIC NAMES: *Vitis hypoglauca*

OTHER COMMON NAMES: Giant Water Vine, Water Vine

Clematis aristata

Mountain Clematis

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Vigorous forest climber with dark green foliage and large, cream-coloured flowers.

LEAVES: Opposite and trifoliate, the leaflets lanceolate, to 3 x 10 cm, on petioles up to 5 cm long, often twisted tendril-fashion. Margins toothed, upper surface dark green and sparsely hairy, lower surface paler, with 3–7 prominent veins. Juvenile plants with white markings above and purple below.

FLOWERS: Male and female plants separate but flowers superficially similar, in axillary clusters of 1–7 forming dense sprays near ends of branches. Sepals 4, white and petal-like, 12–30 x 3–6 mm, widely spreading, surrounding a central cluster of numerous creamy stamens or styles, either about 1 cm long. (Sep Oct Nov)

FRUIT: Simple, flattened, ovate or s-shaped seeds 5–8 mm long, bearing a 3–4 cm long, white, feathery awn.

OTHER STATES: NSW QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus sieberi, Eucalyptus viminalis, Eucalyptus globoidea*

ANNUAL RAINFALL: 715 to 1227 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Clematis aristata* var. *browniana, Clematis coriacea, Clematis aristata* var. *coriacea, Clematis coriacea* var. *obtusa, Clematis stenosepala, Clematis aristata subsp. confertissima, Clematis aristata subsp. normalis, Clematis aristata* var. *normalis, Clematis aristata* subsp. *pubescens, Clematis aristata* var. *longiseta, Clematis aristata* var. *dennisae, Clematis aristata* var. *integrifolia*

OTHER COMMON NAMES: Austral Clematis, Australian Clematis, Goat's Beard

Coprosma hirtella

Rough Coprosma

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub, to 2 m tall with broad, glossy leaves, small, pale yellow, drooping flowers and red fleshy fruit.

LEAVES: Ovate, opposite, to 4 cm x 25 mm, tapered sharply to a slender point, thick textured, hairless, upper surface rough to the touch.

FLOWERS: Males and females separate. Pale yellow-green, tubular, to 6 mm long; apex of tube divided into 4–6 elliptic lobes. Female flowers with 2 long, hairy style branches, to 30 mm long. Male flowers with 4 fine, pendulous stamens, to 20 mm long. (Aug Sep Oct Nov Dec)

FRUIT: Red, fleshy globular, to 10 mm wide.

ENVIRONMENT: Wet forests and montane forests.

ABORIGINAL USE: Found from January to March, the fruits were eaten by those in the higher forests of the alps.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus delegatensis* subsp. *delegatensis, Eucalyptus radiata* s.l., *Eucalyptus dives, Eucalyptus sieberi*

ANNUAL RAINFALL: 770 to 1306 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER COMMON NAMES: Rough Currant Bush

Coprosma nitida

Shining Coprosma

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub, to 2 m tall with small, glossy leaves in opposite pairs, small, yellow-green drooping flowers and red fleshy fruit.

LEAVES: Narrowly lanceolate, opposite, to 20 x 5 mm, hairless, glossy and dark green above, dull and paler green below.

FLOWERS: Males and females separate. Pale yellow-green, tubular, to 4 mm long; apex of tube divided into 4–6 curled, elliptic lobes. Female flowers with 2 long, hairy style branches. Male flowers with 4 fine, pendulous stamens. (Jan Feb Dec)

FRUIT: Red, fleshy, globular, to 10 mm wide.

ENVIRONMENT: Wet forests and montane forests.

OTHER STATES: TAS

COMMONLY ASSOCIATED TREES: *Nothofagus cunninghamii*

ANNUAL RAINFALL: 1058 to 1608 mm

WARMEST TEMPERATURES: 21 to 25°C

Correa lawrenceana

Mountain Correa

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 8 m tall (rarely to 16 m tall), with broad leaves and drooping pale yellow-green (or deep pink), tubular flowers.

LEAVES: Ovate, opposite, petiolate, to 12 x 4 cm; upper surface dark green, glossy, hairless; lower surface pale grey-green, densely covered with stellate hairs; margins smooth.

FLOWERS: Yellow-green (or deep pink in one form), tubular, to 30 mm long, with 4, curved, triangular lobes at the end of tube, hairy outside. Calyx hemispherical, to 5 mm long, hairy, with 4 teeth. Stamens protruding from flower. (Jun Jul Aug Sep Oct Nov)

ENVIRONMENT: Wet forests.

OTHER STATES: NSW

ANNUAL RAINFALL: 794 to 1366 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Correa latrobeana, Correa lawrenciana* var. *lawrenciana, Correa lawrenciana* var. *rosea* p.p.

Crepidomanes venosum

Veined Bristle-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A delicate, rhizomatous, epiphytic fern with pendulous, narrow-lanceolate, translucent fronds to 12 x 4 cm.

FRONDS: Once pinnate. Fertile and sterile pinnae similar, linear or triangular, to 30 x 5 mm, tips rounded; margins crenate or lobed; venation conspicuous and branched. Rachis and stipe green to dark green, glabrous and winged only near frond tip.

RHIZOME: Branched, usually creeping above substrate, < 1 mm wide, dark brown, glabrous.

SORI: Solitary and partially enclosed by a narrow-conical indusium which is attached near the pinna base. Indusium up to 2.5 mm long and winged. A bristle-like structure, to which the sporangia are attached, protrudes beyond the end of the indusium by up to 5 mm.

ENVIRONMENT: Trunks of tree ferns in wet, shaded gullies of hilly country.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Atherosperma moschatum, Eucalyptus regnans, Syzygium smithii, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 810 to 1298 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 100 to 648 m ASL

OTHER SCIENTIFIC NAMES: *Polyphlebium venosum, Trichomanes venosum*

Cyathea australis

Rough Tree-fern

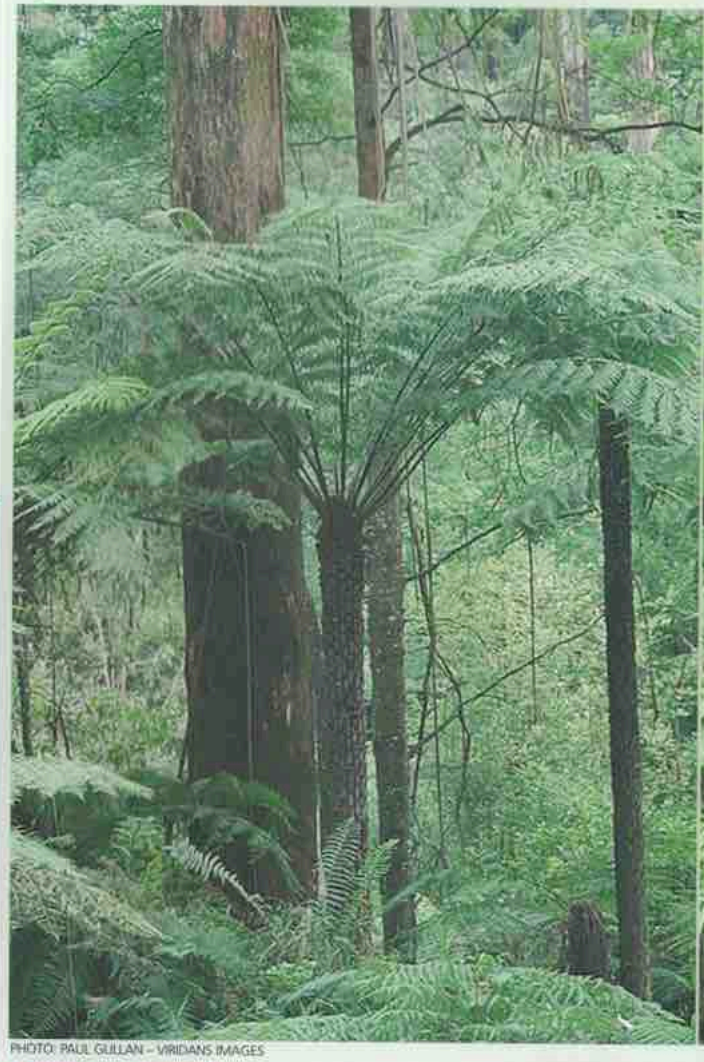


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree-fern with a trunk to 10 m x 30 cm, covered by persistent stipe bases of fallen fronds. Fronds, which form a crown at the trunk apex, are oblong to lanceolate, to 3.5 x 1 m.

FRONDS: Tripinnate. Fertile and sterile pinnules similar, sessile, oblong, to 18 x 5 mm, glabrous or with a few scales or hairs on midvein of lower surface, margins with shallow lobes. Rachises brown to green, glabrous but becoming rough towards base. Stipe brown, hard, densely covered with sharply pointed tubercles and, at the base, with narrow, brown scales 1–3 cm long.

SORI: Round, about 1 mm diameter, non-marginal. Indusium absent. Sporangia rusty brown.

ENVIRONMENT: Gullies and sheltered slopes of wet, hilly country or sheltered watercourses of drier country but seldom in waterlogged sites.

ABORIGINAL USE: Pithy starch from the top part of the stem was eaten. The starch was removed by splitting the stem without harming the fern.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus radiata* s.l., *Eucalyptus globoidea, Eucalyptus regnans*

ANNUAL RAINFALL: 732 to 1228 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 86 to 676 m ASL

OTHER SCIENTIFIC NAMES: *Alsophila australis*

OTHER COMMON NAMES: Pooeet (Koorie name)

Cyathea cunninghamii

Slender Tree-fern

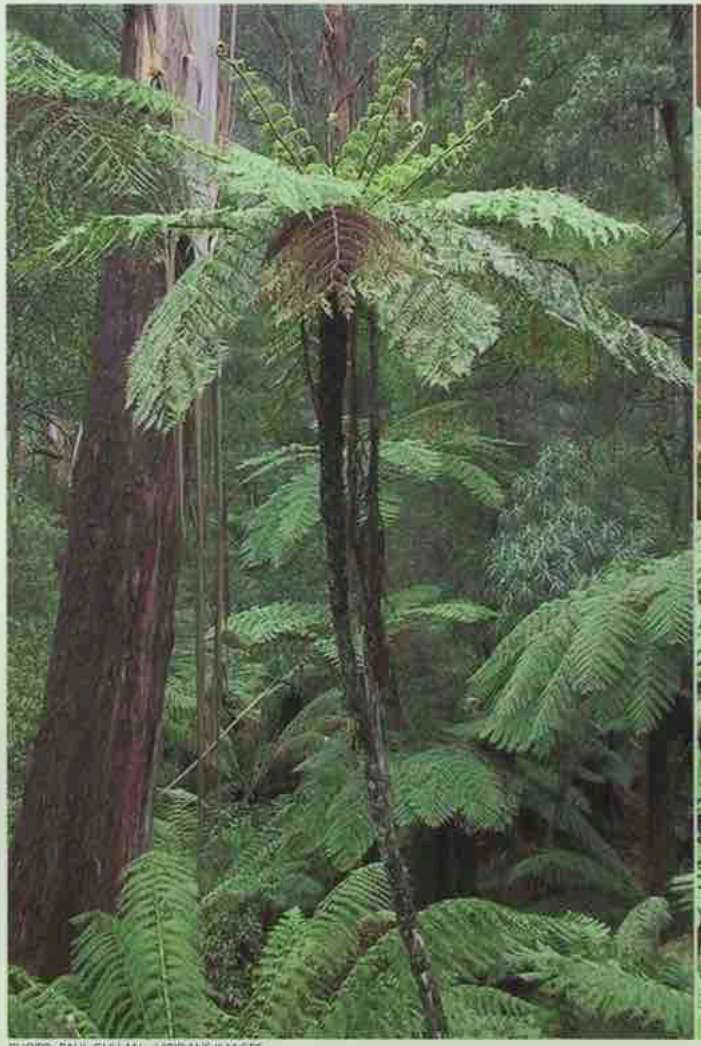


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree-fern with a slender trunk, to 10 m x 15 cm (but with much broader base), covered by persistent stipe bases. Fronds, which form a lacy crown, are oblong to lanceolate, to 3 x 1 m.

FRONDS: Tripinnate. Fertile and sterile pinnules similar, sessile, oblong, to 15 x 5 mm, glabrous or with a few stellate hairs on veins of lower surface; margins toothed or with shallow lobes. Rachises (particularly secondary ones) red-brown to green with curved bristles on upper surface, scales and stellate hairs on lower surface. Stipe base dark brown with scattered tubercles and pale brown scales.

SORI: Almost spherical, less than 1 mm diameter, non-marginal, initially enclosed by a membranous indusium (remaining as a cup-shaped structure after the sporangia have been released). Sporangia rusty brown.

ENVIRONMENT: Deep loamy humus soils on the banks of sheltered gullies in wet, hilly regions.

CONSERVATION: [f] Listed under the Victorian Flora and Fauna Guarantee. [v] Vulnerable in Victoria.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Nothofagus cunninghamii, Eucalyptus obliqua*

ANNUAL RAINFALL: 919 to 1215 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Alsophila cunninghamii*

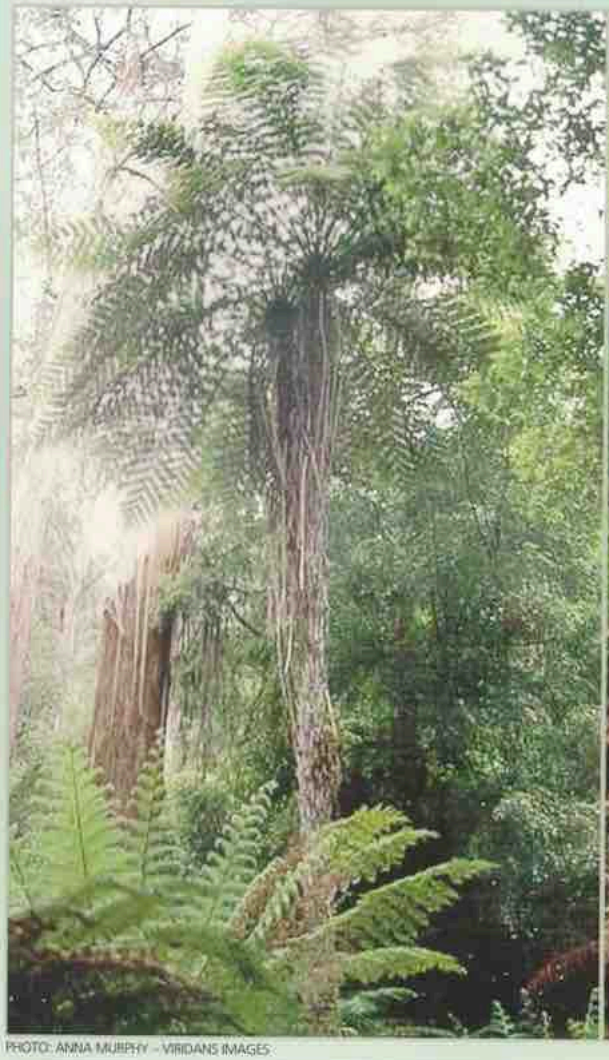
OTHER COMMON NAMES: Slender Tree Fern, Slender Treefern

Rainforest

Sclerophyll forest

Cyathea X marcescens

Skirted Tree-fern



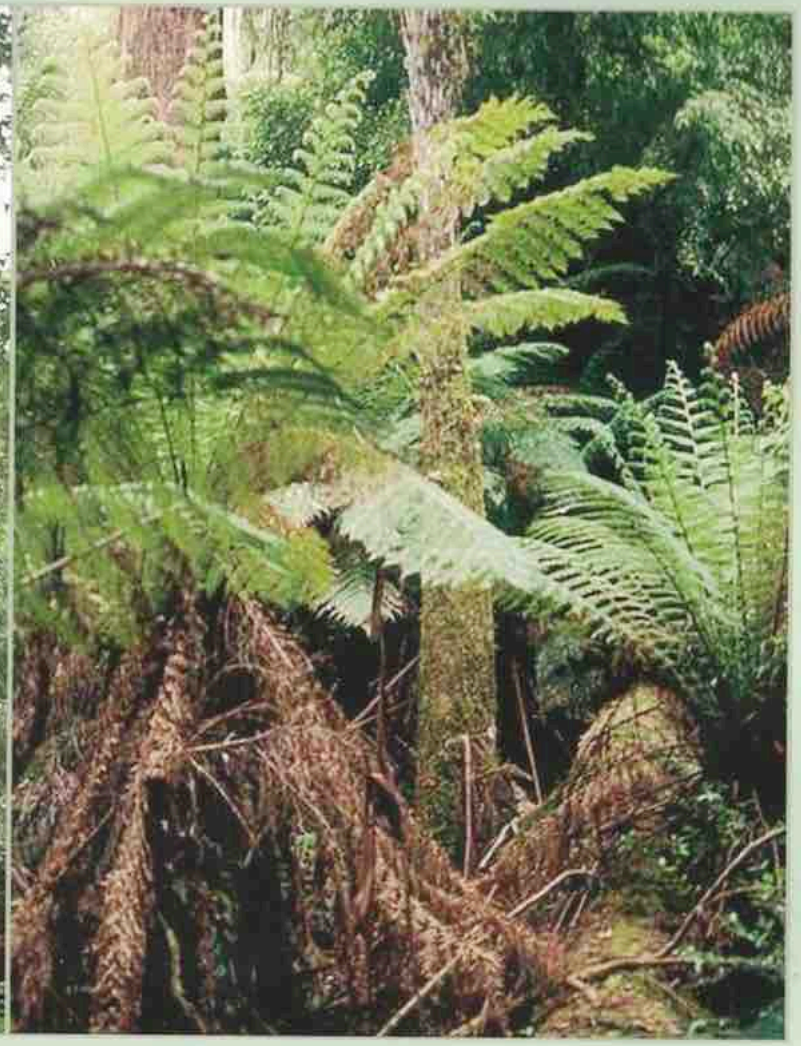


PHOTO: ANNA MURPHY – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree-fern with a trunk to 8 m x 30 cm, covered by persistent, stipe bases. Fronds, are oblong, to 3 x 1 m; a skirt of dead fronds often hangs around trunk. Rare in area.

FRONDS: Tripinnate. Fertile and sterile pinnules similar, sessile, oblong, to 15 x 5 mm, glabrous or with a few scales on lower midvein; margins bluntly toothed; venation conspicuous and branched. Rachises brown to green, glabrous or with a few scales and becoming rough towards the base. Stipe dark brown and shining with sharp tubercles near the base and covered by dark brown, narrow, pointed scales to 6 cm long.

SORI: Spherical, about 1 mm diameter, non-marginal, slightly stalked. Indusium a flat, irregular, scale-like structure encircling the base of the sorus. Sporangia straw-coloured and without spores.

ENVIRONMENT: Wet, sheltered gullies.

NOTES: A natural hybrid between Cyathea australis and Cyathea cunninghamii. It may produce spores but they do not germinate.

NOTE ON SCIENTIFIC NAME: [X] A hybrid which was originally described as a species in its own right.

CONSERVATION: [v] Vulnerable in Victoria.

OTHER STATES: TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Nothofagus cunninghamii*

ANNUAL RAINFALL: 899 to 1239 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Alsophila marcescens, Cyathea australis x cunninghamii, Cyathea marcescens*

OTHER COMMON NAMES: Skirted Tree Fern, Skirted Treefern

Daviesia laxiflora

Tall Bitter-pea

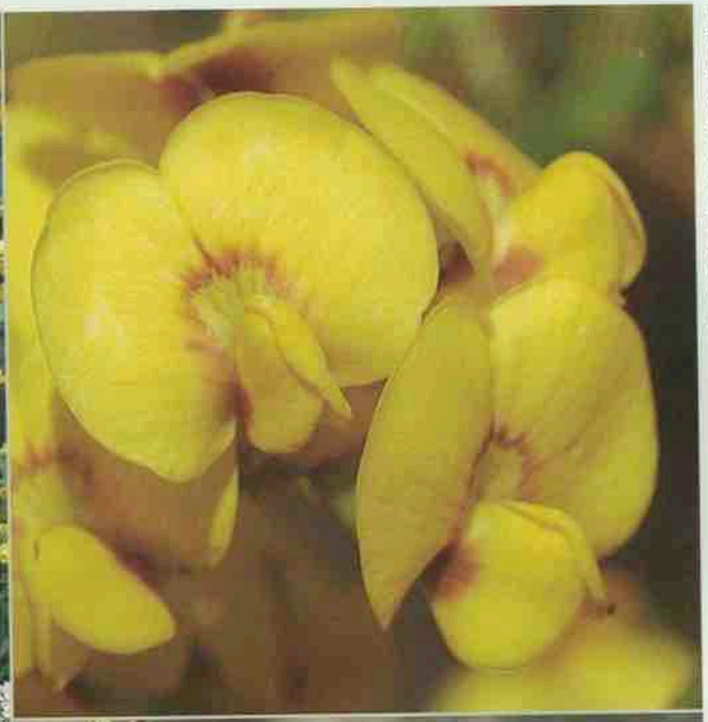


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: An erect shrub or small tree to, to 10 m tall, with large, narrow 'leaves' along angular branchlets, and dense sprays of yellow pea flowers in the axils.

LEAVES: (Phyllodes) Narrowly elliptic, to 16 x 3 cm, dark green, hairless, alternate, with prominent, divided veins.

FLOWERS: Yellow pea flowers, with red-brown near the centre, to 11 mm wide. (Jan Oct Nov Dec)

FRUIT: A triangular pod, to 10 x 7 mm.

CONSERVATION: [endemic] Found only in Victoria.

ANNUAL RAINFALL: 906 to 1436 mm

WARMEST TEMPERATURES: 22 to 26°C

Derwentia derwentiana

Derwent Speedwell

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, semi-woody herb, to 1.4 m tall, with large leaves in opposite pairs along erect stems and dense, conical racemes, to 25 cm long, of white or pale purple flowers.

LEAVES: Lanceolate, opposite, to 20 cm x 45 mm (length 4–11 times the width), more or less hairless or sparsely hairy; margins finely toothed.

FLOWERS: White or pale purple or pink, to 10 mm wide, on slender stalks, to 7 mm long. Petals 4, joined at the base into a tube, ovate. Sepals 4, joined at the base, to 5 mm long, hairless or sparsely hairy. (Jan Feb Spe Oct Nov Dec)

FRUIT: An obovoid capsule, to 5.5 x 4.5 mm.

ENVIRONMENT: Wet and damp forests, but not montane or subalpine.

BUTTERFLY FOOD PLANT: Food for caterpillars of Rayed Blue.

OTHER STATES: NSW QLD SA TAS

ANNUAL RAINFALL: 744 to 1326 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Derwentia derwentiana* ssp. *derwentiana*

Dianella tasmanica

Tasman Flax-lily

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, tufted lily, to 1 m tall, with large, coarse, narrow leaves and an erect panicle of purple flowers.

LEAVES: Linear, to 95 cm x 35 mm, hairless, thick-textured, dark green; midrib raised, sharply toothed; margins sharply toothed.

FLOWERS: Purple, star-shaped, to 20 mm wide. Sepals and petals similar, 3 of each. Stamens 6, with yellow, swollen filaments and yellow anthers. (Jan Feb Oct Nov Dec)

FRUIT: A purple, ovoid, fleshy berry, to 25 mm long.

ENVIRONMENT: Wet forests of high rainfall areas.

ABORIGINAL USE: Leaves were plaited into cords and also used for basket-making.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus dives, Eucalyptus sieberi, Eucalyptus globoidea*

ANNUAL RAINFALL: 729 to 1253 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 108 to 782 m ASL

OTHER COMMON NAMES: Blueberry (Tasmania)

Dicksonia antarctica

Soft Tree-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree-fern with a stout, often curved, trunk, up to 5 m x 70 cm, covered by masses of brown aerial roots. The fronds, forming a dense crown at the trunk apex, are lanceolate, to 3 x 1 m.

FRONDS: Tripinnate. Fertile and sterile pinnules dissimilar. Sterile pinnules sessile, oblong to 8 x 4 mm, glabrous or with a few crooked hairs along midvein of lower surface; margins toothed. Fertile pinnules of similar dimensions but with markedly recurved margins. Rachises brown to green, those on upper parts of frond with thin line of hairs. Stipe glabrous but covered with a mat of fine, glossy, copper-coloured hairs at the base, persistent bases fragile and apparent only on the upper trunk.

SORI: Spherical, about 1 mm across, marginal, initially protected by a recurved marginal flap which joins to a cupped indusium. Sporangia brown.

ENVIRONMENT: Cool, wet, sheltered gullies and slopes of hilly country.

NOTES: One of the most important species for epiphytes. All the filmy ferns and most other epiphytic plants of fern gullies use *Dicksonia* trunks as a substrate, as do the seedlings of a number of rainforest trees (e.g. Pittosporum bicolor).

ABORIGINAL USE: Pithy starch from the top part of the stem was eaten. Starch was removed by splitting the stem without harming the fern.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Atherosperma moschatum*

ANNUAL RAINFALL: 746 to 1258 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 118 to 738 m ASL

OTHER COMMON NAMES: Kombadik (Koorie name)

Eucalyptus cypellocarpa

Mountain Grey-gum

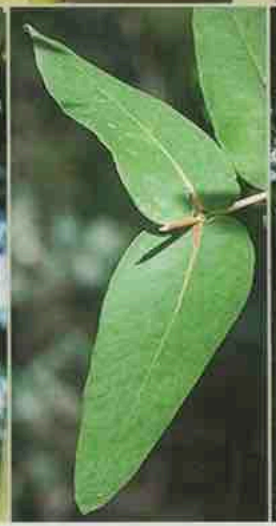


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A medium to tall tree to 60 m with broad, spreading crown and mid-green foliage. Bark pale-grey to fawn, smooth and shedding in strips and large patches from all but lowest part of trunk.

LEAVES: Adult: alternate, petiolate, lanceolate to narrow-lanceolate,12–30 x 1.5–4 cm, symmetric. Juvenile: opposite, sessile on 4-angled stems, ovate, heart-shaped or oblong, 10–20 x 5–10 cm, symmetric; upper surfaces dark green, lower surface pale blue-green.

BUDS: In leaf axils, usually 7 per cluster, cylindrical, ridges on two sides, 8–10 mm long; pedicel indistinct; operculum conical, not ridged; peduncle broad and flattened, to 20 mm long.

FRUIT: Goblet-shaped on short pedicels, ridges on two sides, 8–13 x 5–8 mm; disc concave; valves 3–4, just below rim or sometimes protruding slightly.

ENVIRONMENT: Variable from deep, loamy soils of wet mountain slopes to alluvial soils of river sides and, less commonly, shallower rocky soils of drier slopes.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus radiata* s.l., *Eucalyptus muelleriana, Syzygium smithii*

ANNUAL RAINFALL: 724 to 1198 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 93 to 659 m ASL

OTHER SCIENTIFIC NAMES: *Eucalyptus alaticaulis*

OTHER COMMON NAMES: Mountain Grey Gum

Eucalyptus fastigata

Cut-tail

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tall, straight-trunked tree to 60 m tall, often branched 20 m or more from ground. Bark on trunk, sub-fibrous up to the base of larger branches, then pale grey, peeling off in ribbons.

LEAVES: Adult: alternate, petiolate, lanceolate to broad-lanceolate, asymmetric (oblique), 8–20 x 2–7 cm. Juvenile: alternate, petiolate, ovate to broad lanceolate, asymmetric, to 25 x 12 cm.

BUDS: In leaf axils, 5–15 per cluster, narrow club-shaped, 8–12 mm long; pedicel indistinct; operculum dome-shaped with short central point; peduncle angular, 5–12 mm long.

FRUIT: Pear-shaped (sometimes funnel-shaped), 5–8mm across; disc slightly convex; valves usually 3, opening at or just below rim.

NOTES: Apart from the bark and the maximum size, this species is very difficult to distinguish from *Eucalyptus regnans*.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Elaeocarpus holopetalus, Eucalyptus sieberi, Syzygium smithii, Eucalyptus denticulata*

ANNUAL RAINFALL: 833 to 1023 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER COMMON NAMES: Brown Barrel, Brown-barrel, Cut Tail, Cut-tail Ash

Eucalyptus globulus

Southern Blue-gum

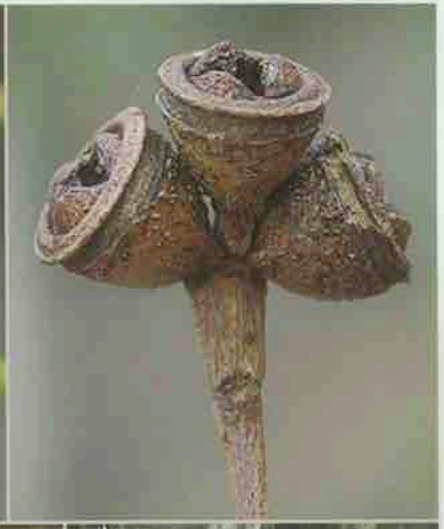


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree, to 45 m tall, with smooth, dense bark on trunk which peels off in long ribbons, and very long leaves.

LEAVES: Adult: Lanceolate, petiolate, asymmetric, to 30 cm x 30 mm, alternate, mostly dull green to dark green. Juvenile: Elliptic to ovate, sessile, to 15 x 10.5 cm, dull blue-green above, pale blue-green below, mostly opposite along, pale blue-green, square stems.

BUDS: Broadly club-shaped with turbin-shaped operculum, to 9 x 7 mm, coarsely warty, pale blue-green, pedicllеate, in groups of 3, on a broad, flat peduncle; operculum more or less flat with a central conical point.

FRUIT: Cup-shaped, to 20 x 24 mm, more or less smooth, on short pedicels; valves 4–5, at rim level or slightly exserted.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus globulus, Eucalyptus globoidea, Eucalyptus cypellocarpa, Eucalyptus obliqua, Syzygium smithii, Eucalyptus sieberi*

ANNUAL RAINFALL: 736 to 1050 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Eucalyptus globulus* subsp. *pseudoglobulus, Eucalyptus pseudoglobulus, Eucalyptus stjohnii, Eucalyptus st. johnii*

OTHER COMMON NAMES: Bastard Eurabbie, Gippsland Blue Gum, Victorian Eurabbie

Eucalyptus muelleriana

Yellow Stringybark

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree, to 40 m tall, with rough, fibrous bark on the trunk and branches.

LEAVES: Adult: lanceolate, petiolate, asymmetric, to 13 cm x 20 mm, alternate, glossy green, one side slightly darker. Juvenile: ovate to broadly lanceolate, mostly petiolate, to 16 x 5 cm, glossy green, initially opposite then alternate.

BUDS: More or less ovoid, to 7 x 4 mm, on short pedicels, in groups of 7–11, on a stout peduncle; operculum rounded.

FRUIT: Wineglass-shaped, to 10 x 12 mm, pedicellate; valves 4, at or near level of rim.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus obliqua, Syzygium smithii, Eucalyptus consideniana*

ANNUAL RAINFALL: 737 to 1119 mm

WARMEST TEMPERATURES: 24 to 26°C

Eucalyptus nitens

Shining Gum

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tall, straight tree to 80 m tall. Trunk unbranched for up to 20 m from base. Bark grey-brown and fibrous near base, pale brown to cream, smooth and shedding in ribbons higher up.

LEAVES: Adult: alternate, petiolate, narrow-lanceolate to slightly sickle-shaped, symmetric, 10–25 x 1.5–3 cm. Juvenile: opposite, sessile on squared stems, ovate to broad-oblong, symmetric, 10–15 x 4–7 cm, both surfaces glaucous from a powdery wax.

BUDS: In leaf axils, up to 7 per cluster, cylindrical but angular, 6–7 mm long; pedicel indistinct or absent; operculum conical and angular; peduncle flattened, to 10 mm long.

FRUIT: Cup-shaped, sessile, 5–8 x 4–6 mm, often with faint ridges, glossy, remaining green for sometime after maturity; disc recessed below rim; valves 3–4, at rim level or slightly exserted.

ENVIRONMENT: Deep loamy soils of cold, sheltered hillsides or alluvial soils of high altitude, riparian sites. Rainfall is high and snow falls in most sites during in winter.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Nothofagus cunninghamii, Eucalyptus delegatensis* subsp. *delegatensis*

ANNUAL RAINFALL: 1038 to 1486 mm

WARMEST TEMPERATURES: 22 to 26°C

Eucalyptus obliqua

Messmate Stringybark

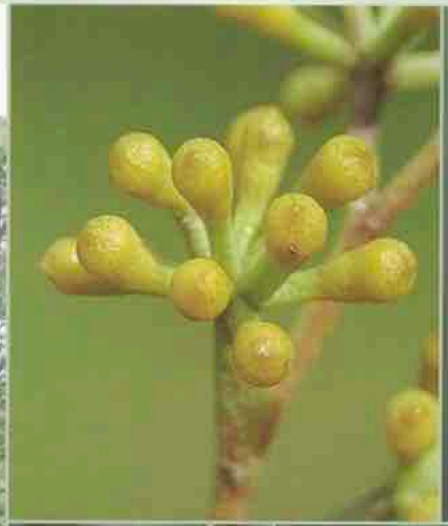


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Usually a tall, straight tree with spreading crown, to 50 m tall, but smaller and more-branched on poorer soils. Bark brown, fibrous and fissured, persistent to smaller branches.

LEAVES: Adult: alternate, petiolate, lanceolate, asymmetric (oblique), 8–15 x 2.4 cm. Intermediate: alternate, petiolate, broad-lanceolate, markedly asymmteric, to 20 x 10 cm. Juvenile: opposite but becoming alternate, petiolate, ovate, symmetric or slightly asymmetric, to 6 x 3 cm.

BUDS: In leaf axils or short panicles at branchlet tips, 6–15 per cluster; club-shaped, smooth, 8–11 mm long; pedicel indistinct; operculum dome-shaped with terminal point; peduncle cylindrical to slightly flattened, to 10 mm long. (Nov–Mar).

FRUIT: Wineglass-shaped, often flared slightly near rim, 6–10 mm long, disc sloping steeply inward; valves 3–4, recessed well below rim.

ENVIRONMENT: Extremely variable and includes skeletal soils on exposed, north-west facing slopes, sandy soils in undulating lowlands and deep, loamy soils of wet mountain hillsides.

ABORIGINAL USE: The brittle outer bark was made into a powder for starting fires. The inner bark was made into coarse string for bags and nets for fishing. Other Stringybarks were probably used in this way.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus sieberi, Eucalyptus ovata, Eucalyptus globoidea, Eucalyptus viminalis*

ANNUAL RAINFALL: 670 to 1142 mm

WARMEST TEMPERATURES: 24 to 28°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 80 to 640 m ASL

Eucalyptus regnans

Mountain Ash

PHOTO: PAUL GULLAN - VIRIDANS IMAGES

GENERAL APPEARANCE: A tall, straight-trunked tree to 90 m tall, often branched 30 m or more from ground. Bark on lower trunk, sub-fibrous; on upper trunk and branches pale grey, peeling off in ribbons.

LEAVES: Adult: alternate, petiolate, lanceolate to broad-lanceolate, asymmetric (oblique), 8–20 x 2–7 cm. Juvenile: alternate, petiolate, ovate to broad lanceolate, asymmetric, to 25 x 12 cm.

BUDS: In leaf axils, 5–15 per cluster, narrow club-shaped, 8–12 mm long; pedicel indistinct; operculum dome-shaped with short central point; peduncle angular, 5–12 mm long.

FRUIT: Pear-shaped (sometimes funnel-shaped), 5–8mm across; disc flat; valves usually 3, opening at or just below rim.

ENVIRONMENT: Deep, well-drained loamy soils of sheltered hillsides and some gullies of high rainfall areas.

NOTES: The tallest flowering plant in the world and an extremely important timber species. The tree is usually killed by fire and must regenerate from seed.

OTHER STATES: TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Nothofagus cunninghamii, Atherosperma moschatum, Eucalyptus viminalis*

ANNUAL RAINFALL: 897 to 1373 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 213 to 787 m ASL

OTHER SCIENTIFIC NAMES: *Eucalyptus amygdalina* var. *regnans*

OTHER COMMON NAMES: Swamp Gum (Tasmania)

Fieldia australis

Fieldia

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: An epiphyte with broad leaves in opposite pairs along climbing branches, white, tubular flowers, borne singly in leaf axils, and large, white fruit.

LEAVES: Elliptic to obovate, opposite, to 7 x 3 cm, softly hairy, upper surface darker than lower; margins toothed.

FLOWERS: White, tubular, to 35 mm long, pedulous on slender stalkes. Apex of tube divided into 5, shallow, rounded lobes. (Jan Feb Mar Apr May Dec)

FRUIT: Ellipsoid, white with purple flecks, fleshy, to 30 x 12 mm.

ENVIRONMENT: Trunks of tree ferns and trees, in wet gullies and rainforests.

NOTES: The only epiphytic dicotyledon in Victoria (all the others are ferns or monocotyledons).

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Syzygium smithii, Eucalyptus sieberi, Elaeocarpus holopetalus, Eucalyptus fastigata*

ANNUAL RAINFALL: 841 to 1119 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 77 to 539 m ASL

Gahnia melanocarpa

Black-fruit Saw-sedge

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, tufted perennial sedge, to 1.2 m tall, with long, narrow, arching leaves and narrow, more or less erect panicles, to 45 cm long, of dark brown, chaffy flowers.

LEAVES: Linear, to 1.5 m x 2 cm, flat, hairless; margins rough.

FLOWERS: Spikelets 1-flowered. Glumes 4–5 per spikelet, ovate, tapered, about 5 mm long, dark brown. (Jan Feb Sep Oct Nov Dec)

FRUIT: A dark brown to black, glossy, ovoid nut, to 3.5 x 2 mm.

ENVIRONMENT: Shaded, wet gullies, often supporting Warm Temperate Rainforest.

BUTTERFLY FOOD PLANT: Food for caterpillars of Flame Skipper, Master's Skipper, Spotted Skipper, Painted Skipper and Sword-grass Brown.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus muelleriana*

ANNUAL RAINFALL: 798 to 1020 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 20 to 442 m ASL

Geranium potentilloides

Soft Crane's-bill

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A scrambling perennial herb, to 50 cm tall, with broad deeply divided leaves on long petioles and pale pink or white flowers, usually solitary on slender stalks. Stems with downward curved or appressed hairs.

LEAVES: Circular to broadly ovate in outline, to 45 mm wide, with spreading hairs, deeply divided into 5–7 lobes, each further divided into 3 or more, smaller lobes. Petioles to 3 cm long.

FLOWERS: Pale pink or white, to 15 mm wide. Petals 5, ovate, to 8.5 mm long. Sepals 5, ovate, to 5 mm long. (Jan Feb Mar Sep Oct Nov Dec)

FRUIT: An erect, narrowly cylindrical, hairy capsule, to 20 mm long.

ABORIGINAL USE: The roasted taproot was eaten. Other similar Geranium species may have been used in the same way.

OTHER STATES: NSW SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata s.l., Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus dives*

ANNUAL RAINFALL: 654 to 1192 mm

WARMEST TEMPERATURES: 24 to 28°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 71 to 729 m ASL

OTHER SCIENTIFIC NAMES: *Geranium microphyllum, Geranium pilosum var. potentilloides.*

OTHER COMMON NAMES: Soft Cranesbill

Goodenia ovata

Hop Goodenia

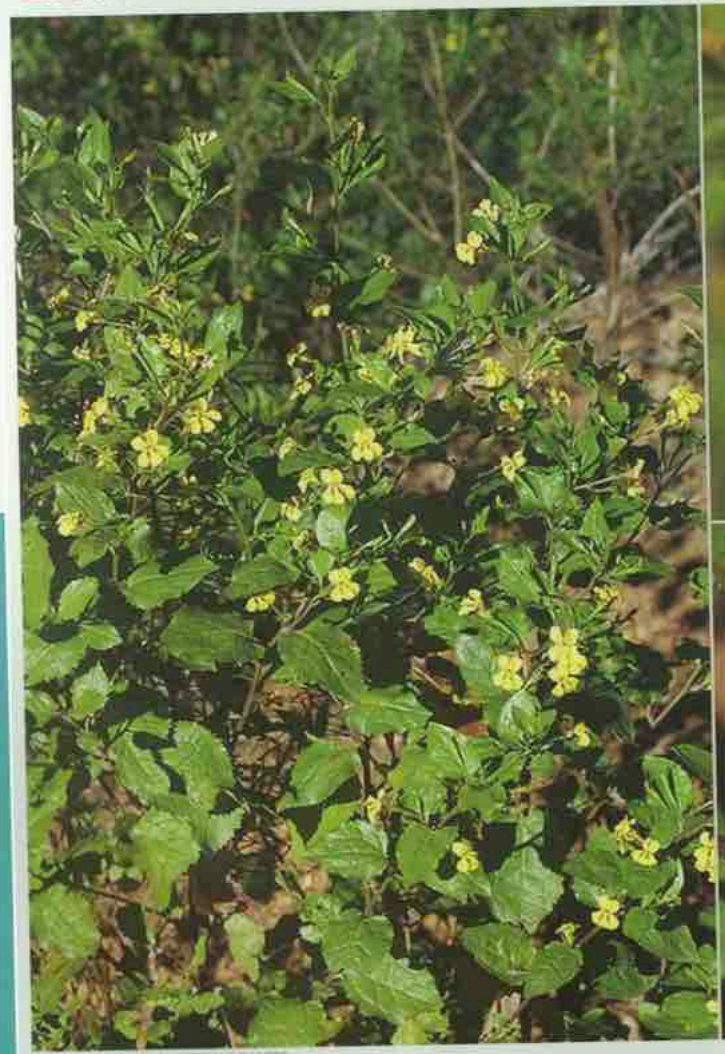


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust herb or shrub, to 2 m tall, with broad leaves along erect stems bearing yellow, fan-like flowers in leaf axils.

LEAVES: Ovate, alternate, to 7 x 4 cm, hairless; margins finely toothed.

FLOWERS: Yellow, about 25 mm wide. Petals 5, oblong, more or less equal, two above and three below. Each petal with a central thickened section which is surrounded by thin, wrinkled wings, to 2.5 mm wide. Petals hairy outside. (Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec)

FRUIT: A cylindrical capsule, to 12 mm long.

ENVIRONMENT: Damp clay or loam soils, particularly where some soil disturbance has occurred.

NOTES: A very successful colonizer of forests after fire, logging or other types of disturbance.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus radiata* s.l., *Eucalyptus viminalis*

ANNUAL RAINFALL: 619 to 1103 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Goodenia ovata* var. *latifolia*

OTHER COMMON NAMES: Parrot's Food (Tasmania)

Goodia lotifolia

Golden Tip

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub, to 4 m tall, with rounded leaves, arranged in groups of three along hairless or variably hairy branchlets, and sprays, to 10 cm long, of large, golden yellow pea flowers.

LEAVES: Divided into three leaflets which are, obovate or elliptic, to 35 x 30 mm, hairless or variably hairy.

FLOWERS: Bright yellow pea flowers, with small, red markings at the centre, to 14 mm long. Calyx tube hairless or variably hairy, with two teeth which are as long as or longer than the tube. (Sep Oct Nov)

FRUIT: A more or less ovoid pod, to 40 mm long.

NOTES: Very similar to, and easily mistaken for *Goodia medicaginea*. The main differences are the size and colour of the flowers, the length of the flowering raceme, and the relative lengths of the teeth and tube of the calyx.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus globoidea, Eucalyptus sieberi, Eucalyptus radiata* s.l., *Syzygium smithii*

ANNUAL RAINFALL: 697 to 1161 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 85 to 585 m ASL

OTHER COMMON NAMES: Golden-tip

Grammitis billardierei

Common Finger-fern

Rainforest

Sclerophyll forest

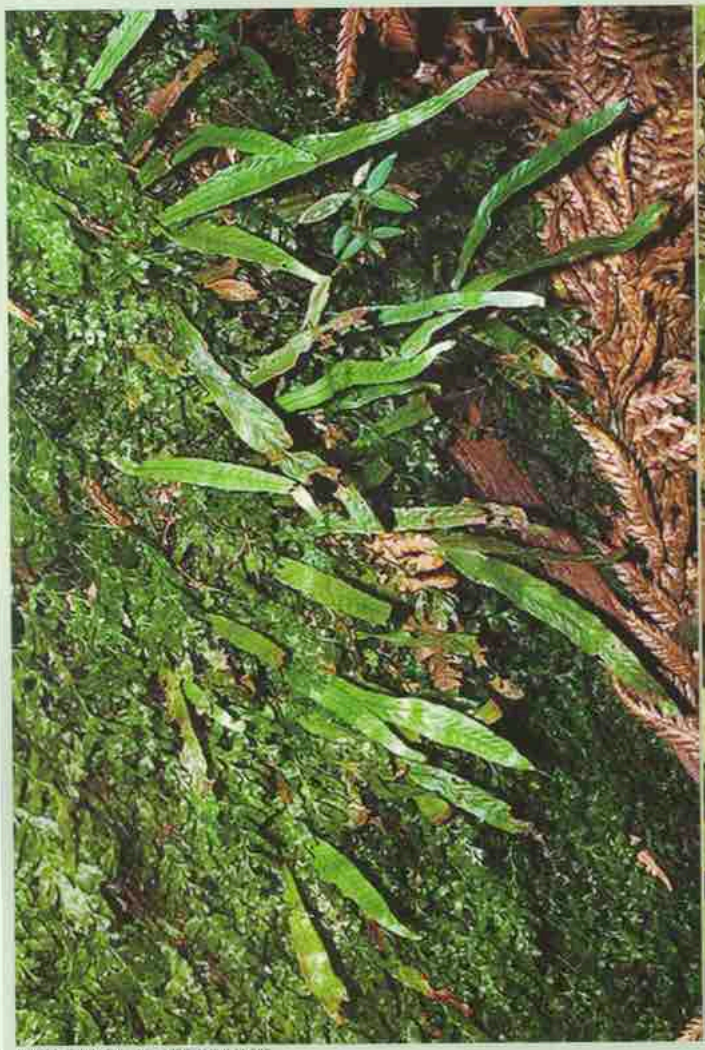


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Tufted or shortly rhizomatous, epiphytic or lithophytic fern with strap-like fronds to 15 cm x 12 mm.

FRONDS: Simple (rarely lobed near tip), rounded at tip, tapering towards base; margins entire or finely crenate; venation inconspicuous. Stipe very short (or absent), hairy, with narrow-triangular scales near base.

RHIZOME: Inconspicuous, usually less than 2 cm long (fronds crowded and appearing tufted), covered by thin, triangular scales near growing tip.

SORI: Linear when young but broadening to oblong when fully mature, arranged in two ranks (one either side of midvein), inclined at an angle of about 30 degrees to midvein. Sporangia brown. Indusium absent.

ENVIRONMENT: Rocks, logs or trunks of trees or tree-ferns in wet, sheltered mountain gullies.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Atherosperma moschatum, Eucalyptus regnans, Eucalyptus obliqua, Nothofagus cunninghamii, Eucalyptus cypellocarpa, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 869 to 1379 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 144 to 800 m ASL

OTHER SCIENTIFIC NAMES: *Grammitis australis, Grammitis billardieri, Grammitis meridionalis, Polypodium billardierei*

Histiopteris incisa

Bat's Wing Fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Robust, rhizomatous fern with pale to mid-green, triangular fronds, to 1.8 x 0.8m. Young unfurling fronds are tender, fleshy and waxy.

FRONDS: Tripinnate. Secondary and minor rachises usually in opposite pairs. Fertile and sterile pinnules similar, oblong, to 3 cm long and attached to rhachis by full width; tips rounded; margins entire (rarely lobed). Stipe and rachises glabrous, grooved on upper surface, pale green to dark green.

RHIZOME: Spreading and branching, to 1 cm wide, encased by a brittle sheath with rusty hairs or narrow scales.

SORI: Linear, in marginal bands of variable length, partly covered by pale, recurved marginal flaps.

ENVIRONMENT: Deep, well drained loamy soils in areas of high rainfall. Sites are usually exposed to sunlight.

NOTES: Like many of the other bracken-like ferns, it often grows best in sites which have been recently disturbed and, although common throughout wet forests, it is most abundant on edges of tracks or where trees have fallen.

OTHER STATES: NSW NT QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Atherosperma moschatum, Nothofagus cunninghamii, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 734 to 1262 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Pteris incisa, Phegopteris incisa, Litobrochia incisa, Pteris australasica, Pteris vespertilionis, Litobrochia vespertilionis, Histiopteris vespertilionis*

OTHER COMMON NAMES: Oak Fern

Hydrocotyle hirta

Hairy Pennywort

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Small, creeping, hairy herb, usually 3–10 cm tall but occasionally ascending in damp, shady places to 50 cm.

LEAVES: In clusters of 3 or more at nodes of creeping stem. Orbicular, 1–3 cm diameter, with 5–10, irregular, toothed lobes. Upper surface green and variably hispid, lower surface paler, with few or many thready hairs along veins. Petioles up to 8 cm long, densely covered with fine, cottony hairs.

FLOWERS: In globular clusters of 15 or more, each cluster 3–6 mm diameter at the end of hairy, axillary peduncles 1–3 cm long. Individual flowers sessile, barely 2 mm diameter. Petals 4, pale yellow, triangular and spreading. Sepals absent. Ovary prominent below petals with 2 fused, rounded and slightly ribbed carpels. (Jan Feb Mar Apr May Dec)

FRUIT: Two-lobed, about 2 mm diameter, brown when ripe and separating into 2 reniform seeds, each about 1 x 2 mm.

ENVIRONMENT: Loamy soils of intermediate to high rainfall areas.

OTHER STATES: NSW QLD SA WA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata s.l., Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus sieberi*

ANNUAL RAINFALL: 675 to 1197 mm

WARMEST TEMPERATURES: 23 to 27°C

Rainforest

Sclerophyll forest

Hymenophyllum australe

Austral Filmy-fern

PHOTO: PALIL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A delicate, rhizomatous, epiphytic or lithophytic fern with narrow-triangular, translucent fronds up to 10 cm long.

FRONDS: Bipinnate. Secondary pinnae deeply divided into linear segments. Fertile and sterile fronds similar, segments 1.5–3 mm broad with a single prominent midvein; margins entire. Primary rachis and stipe, green to brown with wing of green tissue, 1–2 mm broad (often wrinkled), extending to base.

RHIZOME: Branched, usually creeping above substrate, < 1 mm wide, dark brown, hairless but with numerous fine rootlets.

SORI: Solitary, ovoid and enclosed within two-lipped indusia which are at the ends of and slightly broader than the ultimate segments. Indusium lips fan-shaped, 1.5–2 mm long, margins bluntly toothed or lobed.

ENVIRONMENT: Rocks, logs or trunks of trees and tree-ferns in wet, shaded, mountain gullies.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Nothofagus cunninghamii, Atherosperma moschatum, Eucalyptus obliqua, Eucalyptus cypellocarpa, Syzygium smithii*

ANNUAL RAINFALL: 921 to 1379 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 166 to 710 m ASL

OTHER SCIENTIFIC NAMES: *Mecodium australe*

OTHER COMMON NAMES: Austral Filmy Fern

Rainforest

Sclerophyll forest

Hymenophyllum flabellatum

Shiny Filmy-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A delicate, rhizomatous, epiphytic fern with lanceolate, pendulous, translucent fronds (one cell thick), to 25 x 5 cm.

FRONDS: Bipinnate (to tripinnate). Secondary pinnae deeply divided into linear segments. Fertile and sterile segments similar, 1–2 mm broad, with single prominent midvein; margins entire. Rachis dark brown, glabrous, narrowly winged near tip. Stipe dark brown and shining, < 1 mm wide, not winged.

RHIZOME: Long-creeping, slightly stouter than stipe, with sparse, narrow, pale brown scales which may extend to base of stipe.

SORI: Solitary, ovoid and enclosed by two-lipped indusia which are at the ends of and slightly broader than the frond segments. Indusium lips ovate, circular or obovate, fused for about half their length; margins entire.

ENVIRONMENT: Trunks of trees or tree-ferns in wet, shaded mountain gullies.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Atherosperma moschatum, Nothofagus cunninghamii, Eucalyptus obliqua, Eucalyptus cypellocarpa, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 866 to 1338 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 159 to 675 m ASL

OTHER SCIENTIFIC NAMES: *Mecodium flabellatum*

OTHER COMMON NAMES: Shiny Filmy Fern

Isolepis inundata

Swamp Club-sedge

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A slender, tufted, apparently leafless, pale-green, perennial sedge with more or less erect, cylindrical flower stem to 40 cm x 1 mm and a small, few-flowered spike, 1–3 mm long, on one side of stem a few mm from stem tip.

LEAVES: Reduced to sheaths near base 8–50 mm long, enclosing stems, usually darker than stems.

FLOWERS: Spikelets with 8–20 flowers, sessile, projecting from one side of stem a few mm from tip, usually 3–10 spikelets per inflorescence, closely aggregated. Glumes 1 per flower, ovate, 1.5–2.5 mm long, midrib prominent, green, margins broad and membranous, usually maroon. Stamens 1 (rarely 2–3). Style 3-armed. (Jan Feb Sep Oct Nov Dec)

FRUIT: Ovoid, 3-angled nut, 0.8–1 mm long, smooth.

OTHER STATES: NSW QLD SA WA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus viminalis, Eucalyptus radiata s.l., Eucalyptus globoidea, Eucalyptus ovata*

ANNUAL RAINFALL: 620 to 1162 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Scirpus inundatus*

Lagenophora stipitata

Common Bottle-daisy

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A perennial herb with a basal rosette of large, lobed leaves and an erect, leafless stem to 20 cm tall. Inflorescence a single, yellow and white, 'daisy' flower head at the end of the stem.

LEAVES: In a basal rosette, slightly ascending, ovate, 3–8 x 1.0–2.5 cm, lobed, with a sparse covering of soft hairs, often purplish near base; margins often wavy.

FLOWERS: In a daisy-like head 7–11 mm wide. Bracts surrounding the head in several, overlapping rows, linear, 2–6 mm long, green. Ray florets numerous, in several rows; ligules, linear, 2–3 mm long, white or pale blue. Tubular florets, numerous, yellow, in central disc 5–8 mm wide. (Jan Feb Mar Apr May Sep Oct Nov Dec)

FRUIT: Narrow-cylindrical, flattened achenes, 3–4 mm long, tapered at the apex into a sharp beak. Pappus absent.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus cypellocarpa, Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus sieberi*

ANNUAL RAINFALL: 650 to 1190 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Bellis stipitata, Lagenifera stipitata*

OTHER COMMON NAMES: Common Lagenifera, Blue Bottle-daisy

Lastreopsis acuminata

Shiny Shield-fern

PHOTO: PAUL GULLAN—VIRIDANS IMAGES

GENERAL APPEARANCE: A tufted or shortly rhizomatous fern with erect, dark green, glossy, triangular fronds to 80 x 30 cm.

FRONDS: Bipinnate or tripinnate. Fertile and sterile pinnules similar, oblong to ovate, to 10 mm long, with rounded tips, glabrous, asymmetric around the midvein; margins lobed. Secondary rachises and upper part of primary rachis narrowly winged, dark green and grooved above, paler green, rounded and sometimes with a few bristles below. Stipe dark green and glabrous in upper part, dark brown and with a few scales near base.

SORI: Circular, 1–2 mm diameter, non-marginal. Indusium a circular or kidney-shaped membrane attached on one side of sorus. Sporangia brown.

ENVIRONMENT: Deep loamy and usually organic soils of gullies and sheltered mountain slopes.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Syzygium smithii, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus regnans*

ANNUAL RAINFALL: 772 to 1250 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 54 to 622 m ASL

OTHER SCIENTIFIC NAMES: *Aspidium shepherdii, Dryopteris decomposita, Lastrea acuminata, Lastreopsis shepherdii*

OTHER COMMON NAMES: Glossy Shield-fern

Lepidosperma elatius

Tall Sword-sedge

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, tufted, leafy mid-green sedge with arched, flat (except for prominent cylindrical midrib) flower stems to 3 m x 2 cm. Inflorescence an open, one-sided panicle to 50 cm long.

LEAVES: In basal tufts, linear, 0.8–3.0 m x 1–3 cm, drooping to arched, glabrous; midrib, prominent and cylindrical to 0.5 cm wide; margins rough and red.

FLOWERS: Spikelets with one or two flowers, sessile, clustered on branches; each branch subtended by an erect, green, leafy bract 2–15 cm long. Glumes 6–12 per spikelet, spirally arranged, ovate (the outer ones) to lanceolate, to 6 mm long, glabrous, brown. (Jan Feb Sep Oct Nov Dec)

FRUIT: Ovoid nuts, to 3 mm long, pale brown, smooth with 3 longitudinal ribs; tip thickened; 6 narrowly triangular bristles attached to base which are up to half length of nut.

ABORIGINAL USE: Fibre from the lower part of the leaf was used to make baskets.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus ovata*

ANNUAL RAINFALL: 745 to 1213 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 3 to 5°C

ALTITUDE: 32 to 520 m ASL

OTHER SCIENTIFIC NAMES: *Lepidosperma elatior, Lepidosperma elatius* var. *ensiforme*

Leptinella filicula

Mountain Cotula

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A prostrate, perennial herb, to 5 cm tall, with deeply divided leaflets and yellow, 'button flowers' at the ends of short stalks.

LEAVES: Oblong in outline, to 5 cm x 15 mm, deeply divided into ovate, and occasionally toothed, leaflets, each to 5 mm long, variously hairy.

FLOWERS: A yellow, 'button flower', to 9 mm across, consisting of numerous, small, tubular florets, surrounded by a ring of broad, green bracts. Borne at the end of a short, thick stem which lengthens up to 60 mm in fruit. (Jan Feb Sep Oct Nov Dec)

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus delegatensis* subsp. *delegatensis*, *Eucalyptus radiata* s.l., *Eucalyptus pauciflora*, *Eucalyptus dives*, *Eucalyptus obliqua*, *Eucalyptus viminalis*

ANNUAL RAINFALL: 827 to 1409 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Cotula filicula*, *Symphiomera filicula*

Rainforest

Sclerophyll forest

Leptospermum grandifolium

Mountain Tea-tree

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 10 m tall, with dense, grey-green, mildly prickly foliage and white flowers.

LEAVES: Lanceolate, to 35 x 8 mm, tip tapering to a sharp point, grey-green, hairless on upper surface, with silky hairs on lowr surface. Arranged alternately and in clusters.

FLOWERS: White, to 17 mm wide, cup-shaped and hairy at the base, with 5 round petals, a ring of stamens and a central style. (Jan Feb Mar Dec)

FRUIT: A more or less hemispherical, woody capsule, to 8 mm wide, containing small, brown seeds. Capsules remain on plant, and retain their seed, until the plant (or the branch holding the capsules) dies.

OTHER STATES: NSW ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus delegatensis* subsp. *delegatensis, Eucalyptus pauciflora, Atherosperma moschatum, Eucalyptus rubida*

ANNUAL RAINFALL: 823 to 1395 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Leptospermum lanigerum* var. *grandifolium*

OTHER COMMON NAMES: Mountain Teatree, Woolly Teatree

Libertia pulchella

Pretty Grass-flag

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A loosely tufted, perennial herb, to 40 cm tall, with narrow, grass-like leaves, and an open, branched inflorescence of white flowers.

LEAVES: Linear, to 18 cm x 7 mm, hairless.

FLOWERS: White, star-shaped, to 10 mm wide. Sepals 3, petals 3, similar, elliptic. (Jan Oct Nov Dec)

FRUIT: A brown, ovoid capsule, to 5 mm long.

ENVIRONMENT: Shaded, lowland and montane forests and subalpine woodlands.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Atherosperma moschatum, Nothofagus cunninghamii, Eucalyptus regnans, Eucalyptus delegatensis* subsp. *delegatensis*

ANNUAL RAINFALL: 986 to 1478 mm

WARMEST TEMPERATURES: 22 to 26°C

OTHER SCIENTIFIC NAMES: *Libertia laurencei, Libertia pulchella* var. *lawrencei, Nematostigma pulchellum, Renealmia pulchella, Sisyrinchium pulchellum*

Rainforest

Sclerophyll forest

Marsdenia rostrata

Milk Vine

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A climber, with broad leaves in opposite pairs, dense, branched panicles of pale yellow flowers, and large, pod-like fruit.

LEAVES: Oblong to broadly ovate, opposite, to 13 x 7 cm, hairless, abruptly tapered at the apex; upper surface dark green, glossy; lower surface paler green, dull.

FLOWERS: Pale yellow, star-shaped, about 12 mm wide, hairy inside. Petals 5, oblong, joined at the base into a short tube. (Jan Feb Sep Oct Nov Dec)

FRUIT: A green, ovoid, pod-like capsule, to 7 x 4 cm, splitting on the sides to release dark brown seeds, each with a crown of long, silky hairs.

ENVIRONMENT: Temperate rainforests and wet forests.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus elata*

ANNUAL RAINFALL: 747 to 1003 mm

WARMEST TEMPERATURES: 25 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 29 to 531 m ASL

OTHER COMMON NAMES: Common Milkvine, Milk-vine, White Milk-vine

Rainforest

Sclerophyll forest

Microsorum pustulatum

Kangaroo Fern

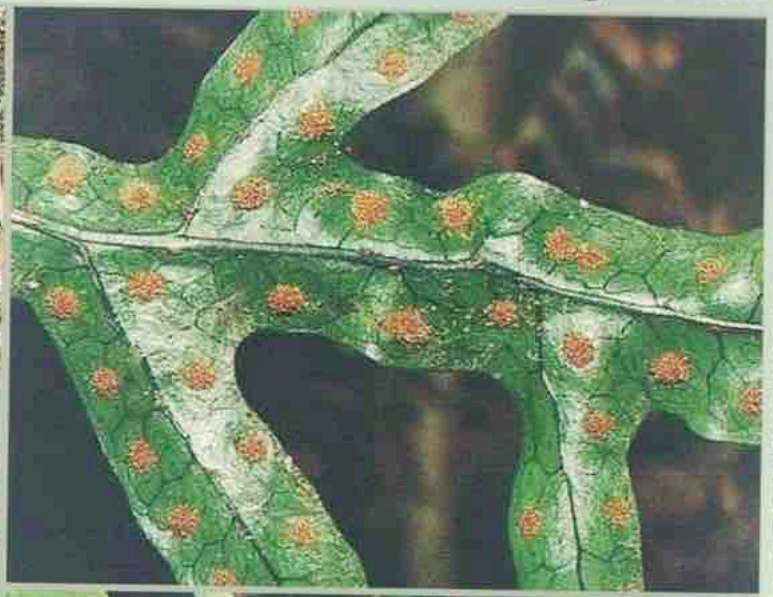


PHOTO: PAUL GLILLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A vigorous, rhizomatous, epiphytic or lithophytic fern with linear-lanceolate, lobed or pinnate fronds to 50 cm long.

FRONDS: Simple or pinnate. Fertile and sterile fronds similar, thick-textured. Simple fronds to 4 cm broad; lobes (or pinnae) of divided fronds to 15 x 2.5 cm, tips pointed; margins entire, often undulate; venation prominent and netted. Stipe brown, glabrous, often glossy.

RHIZOME: Creeping above the substrate, to 1 cm diameter, new growth with brown, lanceolate scales, older growth glabrous.

SORI: Circular, 1–3 mm diameter, regularly spaced, about midway between midvein and margin. Indusium absent. Sporangia rusty brown.

ENVIRONMENT: Rocks or trunks of trees and tree ferns in gullies and shaded slopes of high rainfall, hilly areas.

NOTES: A most aggressive epiphytic fern. It often dominates the trunks and branches of tree ferns and trees in gullies. Very similar to *M. scandens*. Key differences are the thick-textured fronds, thicker, more fleshy rhizomes, and sporangia midway between margins and midvein.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus regnans, Nothofagus cunninghamii, Syzygium smithii, Atherosperma moschatum*

ANNUAL RAINFALL: 791 to 1253 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 76 to 630 m ASL

OTHER SCIENTIFIC NAMES: *Microsorium diversifolium, Microsorum diversifolium, Phymatodes diversifolia, Phymatosorus diversifolius, Phymatosorus pustulatus, Polypodium diversifolium, Polypodium pustulatum*

Morinda jasminoides

Jasmine Morinda

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A climber or straggling shrub, to 3 m tall, with broad, glossy leaves in opposite pairs, short, branched clusters of white flowers and orange, fleshy fruit.

LEAVES: Ovate to lanceolate, opposite, to 8 x 3 cm, glossy, hairless; apex tapered.

FLOWERS: White, tubular, to 6 mm long. Apex of tube divided into 3 or 4 elliptic lobes. (Jan Feb Sep Oct Nov Dec)

FRUIT: Orange, fleshy, more or less globular, to 15 mm wide.

ENVIRONMENT: Warm temperate rainforests.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Tristaniopsis laurina, Eucalyptus globoidea, Eucalyptus sieberi, Eucalyptus elata*

ANNUAL RAINFALL: 791 to 1029 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 34 to 382 m ASL

Rainforest

Sclerophyll forest

Myrsine howittiana

Mutton-wood

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree to 15 m tall, with large, glossy leaves, small cream flowers, arising from woody branches, and masses of purple, fleshy fruit.

LEAVES: Obovate, to 10 cm x 45 mm, glossy, hairless, rounded at the tip.

FLOWERS: Cream, to 3 mm wide, with 5 petals. (Jan Feb Dec)

FRUIT: Globular, purple, fleshy, to 6 mm wide.

ENVIRONMENT: Deep loamy soils, in areas of reliable rainfall in Riparian forests, Warm Temperate Rainforests and Wet Forests.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus obliqua, Eucalyptus sieberi, Tristaniopsis laurina*

ANNUAL RAINFALL: 761 to 1151 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Myrsine variabilis, Rapanea howittiana, Rapanea variabilis*

OTHER COMMON NAMES: Brush Muttonwood, Howitt's Muttonwood, Muttonwood

Nematolepis squamea

Satinwood

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 12 m tall, with dark green leaves and white flowers, in short, branched clusters in upper leaf axils.

LEAVES: Narrowly elliptic to elliptic, to 10 x 2 cm; upper surface dark green, glossy; lower surface covered with silvery scales.

FLOWERS: White, star-shaped, to 9 mm wide. Petals 5, ovate. Calyx cup-like, to 3 mm long, with triangular lobes, hairless with glandular dots. Stamens 10, barely longer than petals. (Sep Oct Nov)

ENVIRONMENT: Wet forests.

CONSERVATION: [r] Rare in Victoria.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus regnans, Nothofagus cunninghamii*

ANNUAL RAINFALL: 908 to 1340 mm

WARMEST TEMPERATURES: 23 to 25°C

COOLEST TEMPERATURES: 3 to 5°C

ALTITUDE: 121 to 419 m ASL

OTHER SCIENTIFIC NAMES: *Phebalium elatum, Phebalium squameum* subsp. *squameum*

Notelaea ligustrina

Privet Mock-olive

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 9 m tall, with large, broad leaves, sprays of small yellow-green flowers, and fleshy fruit.

LEAVES: Lanceolate, opposite, to 10 cm x 25 mm, hairless, dull dark green above, slightly paler below.

FLOWERS: Yellow-green, about 2 mm wide. Petals 4 (sometimes absent), elliptic. (Sep)

FRUIT: Red, pink, white or dark purple, ellipsoid, fleshy, to 10 mm long.

ENVIRONMENT: Temperate rainforests and wet forests.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Atherosperma moschatum*

ANNUAL RAINFALL: 866 to 1382 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 216 to 870 m ASL

OTHER SCIENTIFIC NAMES: *Nestegis ligustrina*

OTHER COMMON NAMES: Silkwood

Notelaea venosa

Large Mock-olive

PHOTO: DAVID CAMERON – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 6 m tall, with large, broad leaves, sprays of small yellow-green flowers, and blue to dark purple, fleshy fruit.

LEAVES: Lanceolate or ovate, opposite, to 16 x 4 cm, hairless, darker above than below.

FLOWERS: Yellow-green, about 4 mm wide. Petals 4, elliptic, joined at the base into a short tube. (Jan Nov Dec)

FRUIT: Dark blue to dark purple, ellipsoid, fleshy, to 10 mm long.

ENVIRONMENT: Temperate rainforests.

OTHER STATES: NSW QLD ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Syzygium smithii, Eucalyptus globoidea, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus muelleriana*

ANNUAL RAINFALL: 811 to 1015 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 23 to 519 m ASL

OTHER SCIENTIFIC NAMES: *Notelaea longifolia*

OTHER COMMON NAMES: Smooth Mock-olive, Veined Mock-olive

Nothofagus cunninghamii

Myrtle Beech

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree, to 30 m tall, with deeply fissured bark on an often misshapen trunk, with crowded, small, dark green leaves.

LEAVES: Ovate, to 25 x 18 mm, margins with fine, rounded teeth, dark green and glossy above, with numerous small, pale glands; paler green below.

FLOWERS: Males and females separate, both yellow-green, small, to 4 mm wide, clustered in leaf axils, with very small, scale-like petals and sepals. (Jan Nov Dec)

ENVIRONMENT: Usually the dominant tree in Cool Temperate Rainforest from the Otway Ranges to South Gippsland. The only native member of the Oak and Beech family in Victoria.

OTHER STATES: TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Atherosperma moschatum, Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus delegatensis* subsp. *delegatensis, Eucalyptus nitens*

ANNUAL RAINFALL: 1039 to 1491 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 2 to 4°C

ALTITUDE: 212 to 746 m ASL

OTHER SCIENTIFIC NAMES: *Fagus cunninghamii*

OTHER COMMON NAMES: Myrtle (Tasmania)

Olearia argophylla

Musk Daisy-bush

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 10 m tall, with large, dark green and silver leaves and white,daisy flowers.

LEAVES: Alternate and petiolate, broad-lanceolate, 5–18 x 2.5–8 cm, margins irregularly toothed, upper surface dark green, glabrous, often shiny, lower surface, petioles and smaller stems entirely covered by short, hairs, so arranged to produce a silvery sheen.

FLOWERS: Numerous in much-branched, terminal or axillary panicles, individual heads small, the involucre cylindrical, comprising several series of ovate to oblong bracts, 0.5–5 mm long, ray florets 3–5 per head, white, oblong, 2–4 mm long, tubular florets creamy-yellow, 2–5 per head, each with 5 recurved apical lobes. (Oct Nov Dec)

FRUIT: Cylindrical achenes, 2–3 mm long, minutely ribbed and hairy, pappus of numerous white bristles about 5 mm long.

ENVIRONMENT: Wet forests.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Eucalyptus radiata* s.l., *Syzygium smithii, Eucalyptus sieberi*

ANNUAL RAINFALL: 768 to 1284 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 118 to 768 m ASL

OTHER SCIENTIFIC NAMES: *Aster argophylla*

Olearia lirata

Snowy Daisy-bush

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Erect shrub to 5 m tall, often forming thickets along shaded roadsides and beside watercourses.

LEAVES: Alternate, linear-lanceolate, 4–16 x 1–4 cm, with petioles 7–20 mm long. Margins irregularly serrate. Upper surface dark or pale green, glabrous and shining or sparsely covered by short, simple hairs. Lower surface pale grey to white, densely covered by minute stellate hairs.

FLOWERS: In loose panicles at ends of branchlets or in axils of upper leaves. Individual heads 1.5–2.5 cm diameter, with spreading, white rays and creamy-yellow disk florets at centre. Heads surrounded by involucre of several series of narrow-linear bracts 2–8 mm long, appearing ashen or white from a dense covering of fine, cottony hairs. (Sep Oct Nov Dec)

FRUIT: Glabrous, cylindrical seeds 1 mm long with an apical pappus of numerous barbed bristles 3–4 mm long.

ENVIRONMENT: In moist, loamy soils, on sheltered slopes at higher altitudes or near rivers at lower altitudes.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus sieberi, Eucalyptus viminalis, Eucalyptus globoidea*

ANNUAL RAINFALL: 726 to 1240 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Aster liratus*

OTHER COMMON NAMES: Snow Daisy-bush

Olearia phlogopappa

Dusty Daisy-bush

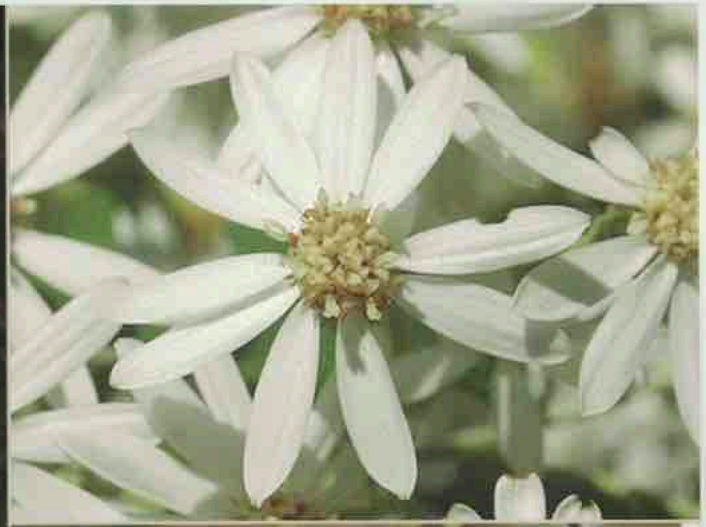


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: An erect, spreading shrub to 2.5 m tall with distinctly dark green and grey leaves. Inflorescence a series of leafy panicles with numerous, white and yellow, 'daisy' flower heads.

LEAVES: Alternate, shortly petiolate, lanceolate, 3–6 cm x 6–12 mm; margins irregularly toothed. Upper surface dull, dark green, glabrous or with a few, fine star-shaped hairs in vein depressions. Lower surface white or grey, covered with a mat of minute, star-shaped hairs.

FLOWERS: Clustered in daisy-like heads, 15–25 mm wide. Bracts surrounding the heads in several, overlapping rows, oblong, 2–4 mm long, hairy. Ray florets 7–14, ligules, oblong, 6–10 mm long, white. Tubular florets numerous, yellow. (Jan Nov Dec)

FRUIT: Narrow-cylindrical achenes, 2–3 mm long, covered with glandular hairs. Pappus a crown of white bristles, 40 mm long.

OTHER STATES: NSW QLD TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus delegatensis* subsp. *delegatensis, Eucalyptus radiata* s.l., *Eucalyptus regnans, Eucalyptus cypellocarpa, Eucalyptus viminalis*

ANNUAL RAINFALL: 765 to 1323 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Aster phlogopappus, Eurybia guriniana, Olearia gunniana*

Sclerophyll forest

Rainforest

Sclerophyll forest

Oxalis magellanica

Snowdrop Wood-sorrel

PHOTO: JOHN EICHLER – VIRIDANS IMAGES

GENERAL APPEARANCE: A more or less prostrate, perennial herb, to 15 cm tall, with leaves in threes at the ends of long petioles and white flowers on slender stalks.

LEAVES: Divided into three, heart-shaped leaflets, to about 10 x 10 mm.

FLOWERS: White, to 20 mm wide. Petals 5, ovate, joined at the base.

FRUIT: A roughly globular, hairless capsule, to 5 mm long.

ENVIRONMENT: Montane and subalpine gullies.

CONSERVATION: [r] Rare in Victoria.

OTHER STATES: TAS

COMMONLY ASSOCIATED TREES: *Nothofagus cunninghamii*

ANNUAL RAINFALL: 1185 to 1563 mm

WARMEST TEMPERATURES: 23 to 25°C

OTHER SCIENTIFIC NAMES: *Oxalis lactea*

Parsonsia brownii

Twining Silkpod

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A woody climber with long, narrow leaves in opposite pairs and sprays of small, yellow flowers.

LEAVES: Lanceolate, opposite, to 13 x 4 cm, hairless; upper surface dark green; lower surface pale, yellow-green.

FLOWERS: Yellow, tubular, about 4 mm wide at the apex, hairy inside. Apex of tube divided into 5 ovate lobes, which are curved under. (Jan Sep Oct Nov Dec)

FRUIT: A leathery, slender, pod-like capsule, to 10 cm long, splitting along the sides to release small, dark seeds with a crown of long, silky hairs.

ENVIRONMENT: Wet forests and temperate rainforests.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Syzygium smithii, Atherosperma moschatum, Eucalyptus sieberi, Eucalyptus regnans*

ANNUAL RAINFALL: 805 to 1275 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 60 to 606 m ASL

OTHER SCIENTIFIC NAMES: *Lyonsia brownii, Lyonsia straminea*

Pellaea falcata

Sickle Fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shortly rhizomatous or tufted fern with erect, oblong, dark green, leathery fronds to 50 x 9 cm.

FRONDS: Once pinnate. Fertile and sterile fronds similar. Pinnae oblong to lanceolate, slightly sickle-shaped, to 40 x 15 mm, glabrous, smallest and most distantly spaced near base, attached to rachis by midvein only, upper surface dark green, lower surface pale green; margins entire; venation inconspicuous. Rachis dark brown with short, fine, pale brown hairs and spreading, narrow-triangular scales. Stipe glabrous or almost so, dark brown and shining.

RHIZOME: Short creeping, rigid, wiry, densely covered with narrow, dark scales.

SORI: Linear bands, 1–2 mm broad, occupying most of the pinna margin, partly covered, when young, by recurved margins. Sporangia rusty brown.

ENVIRONMENT: Usually found in organic soils in rock crevices of wet, shaded gullies.

OTHER STATES: NSW QLD TAS ACT

OTHER SCIENTIFIC NAMES: *Pellaea falcata* var. *falcata*, *Pteris falcata*, *Platyloma falcata*, *Allosorus falcatus*

Persoonia silvatica

Forest Geebung

PHOTO: JOHN EICHLER – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 7 m tall, with large, almost glossy leaves, along red branchlets, and pale yellow flowers in upper leaf axils.

LEAVES: Lanceolate or oblanceolate, alternate, to 8 cm x 18 mm, sparsely hairy when young, becoming hairless with age.

FLOWERS: Pale yellow, to 14 mm long (unopened), with four, narrow, curled petals, which join at the base. (Jan Feb Dec)

FRUIT: Ovoid, green, fleshy, hairless, to 15 x 12 mm.

CONSERVATION: [r] Rare in Victoria.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus fastigata, Elaeocarpus holopetalus, Eucalyptus denticulata, Atherosperma moschatum, Eucalyptus croajingolensis*

ANNUAL RAINFALL: 809 to 987 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: -1 to 3°C

ALTITUDE: 331 to 839 m ASL

OTHER COMMON NAMES: Jungle Geebung

Pimelea axiflora

Bootlace Bush

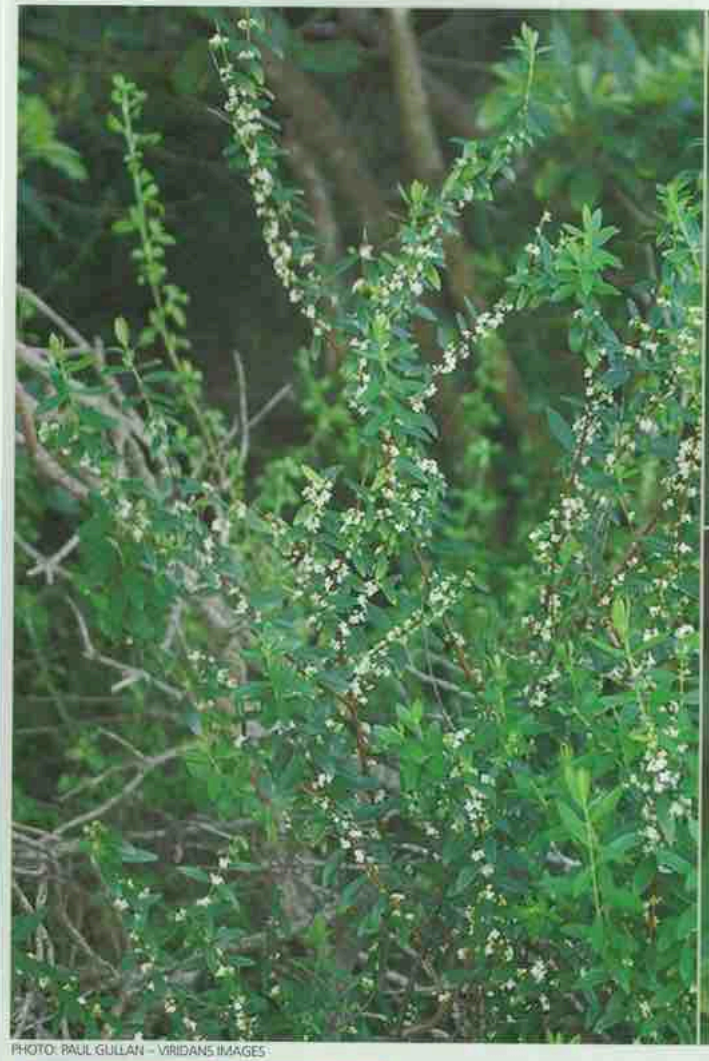


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A slender shrub, to 3 m tall, with narrow leaves and clusters of small, white flowers in leaf axils.

LEAVES: Linear or elliptic, opposite, to 75 x 12 mm, hairless, dark green above, pale green below.

FLOWERS: White, tubular, to 6 mm long and 4 mm wide, densely hairy outside, with 4 ovate, spreading, petal-like lobes. (Jun Jul Aug Sep Oct Nov Dec)

FRUIT: A dry capsule, about 6 mm long.

ENVIRONMENT: Wet forests on deep loamy soils.

ABORIGINAL USE: Bark was used to make strong fibre for nets.

OTHER STATES: NSW

ANNUAL RAINFALL: 757 to 1175 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 97 to 615 m ASL

OTHER COMMON NAMES: Bushmans Bootlace, Tough Rice-flower

Pittosporum undulatum

Sweet Pittosporum

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A large shrub or small tree to 15 m tall with very dense foliage to ground level and very fragrant white or cream flowers.

LEAVES: Ovate to lanceolate, hairless, shiny, to 12 x 5 cm, margins wavy, arranged alternately, in large numbers, along branches.

FLOWERS: White or cream, to 15 mm across, with five lanceolate petals which curl backwards. Sepals pale brown and forming a short tube. The flowers are most fragrant at night suggesting that the species is pollinated by moths. (Aug Sep Oct)

FRUIT: Orange, almost spherical capsules, to 13 mm long, which enclose darker orange, sticky seeds.

ENVIRONMENT: Wet gullies with deep loamy soils.

NOTES: The main natural distribution centre of this species is East Gippsland although native populations may exist as far west as Western Port. However, it is an extremely popular species in cultivation and has escaped into vegetation, to which it is not native, over much of its range outside of East Gippsland. All the populations around Melbourne and to the west and north should be considered as naturalised aliens.

CONSERVATION: [#] Native to Victoria but grows outside of natural range

OTHER STATES: NSW QLD SA WA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Syzygium smithii, Eucalyptus ovata, Eucalyptus viminalis*

ANNUAL RAINFALL: 673 to 1059 mm

WARMEST TEMPERATURES: 25 to 27°C

COOLEST TEMPERATURES: 3 to 5°C

ALTITUDE: 6 to 402 m ASL

OTHER COMMON NAMES: Bart-barb (Koorie name), Cheesewood, Engraver Wood, Mock Orange, Native Daphne, Native Laurel, New South Wales Box Tree, Pittosporum, Victorian Box, Victorian Laurel, Wave-leaved Pittosporum

Poa ensiformis

Sword Tussock-grass

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, tussock-forming, perennial grass with erect flower stem to 1 m tall. Inflorescence an open, pyramidal panicle to 40 x 20 cm, bearing small flowers near branch tips.

LEAVES: Mainly in a basal tuft. Blades linear, 20–35 cm x 2–6 mm, flat, glabrous, sometimes slightly rough; sheaths purplish, usually rough. Ligule a membranous collar, 0.2–0.5 mm long, fringed with short hairs.

FLOWERS: Spikelets 4 to 6-flowered, on short stalks. Glumes 2, equal, lanceolate, 3–5 mm long, tip pointed, glabrous. Lemmas lanceolate, 3–6 mm long, tip pointed, hairy on lower third, basal tuft of hairs present. (Jan Feb Mar Oct Nov Dec)

ABORIGINAL USE: Used for string or basket making.

BUTTERFLY FOOD PLANT: Food for caterpillars of Cyril's Brown, Banks' Brown, Grampians Banks' Brown, Grampians Solander's Brown, Correa Brown, Solander's Brown and Common Silver Xenica.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus cypellocarpa, Eucalyptus viminalis, Eucalyptus delegatensis* subsp. *delegatensis, Eucalyptus globoidea*

ANNUAL RAINFALL: 741 to 1311 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 165 to 861 m ASL

OTHER COMMON NAMES: Purple-sheath Tussock-grass

Rainforest

Sclerophyll forest

Podocarpus aff. *lawrencei*

Errinundra Plum-pine

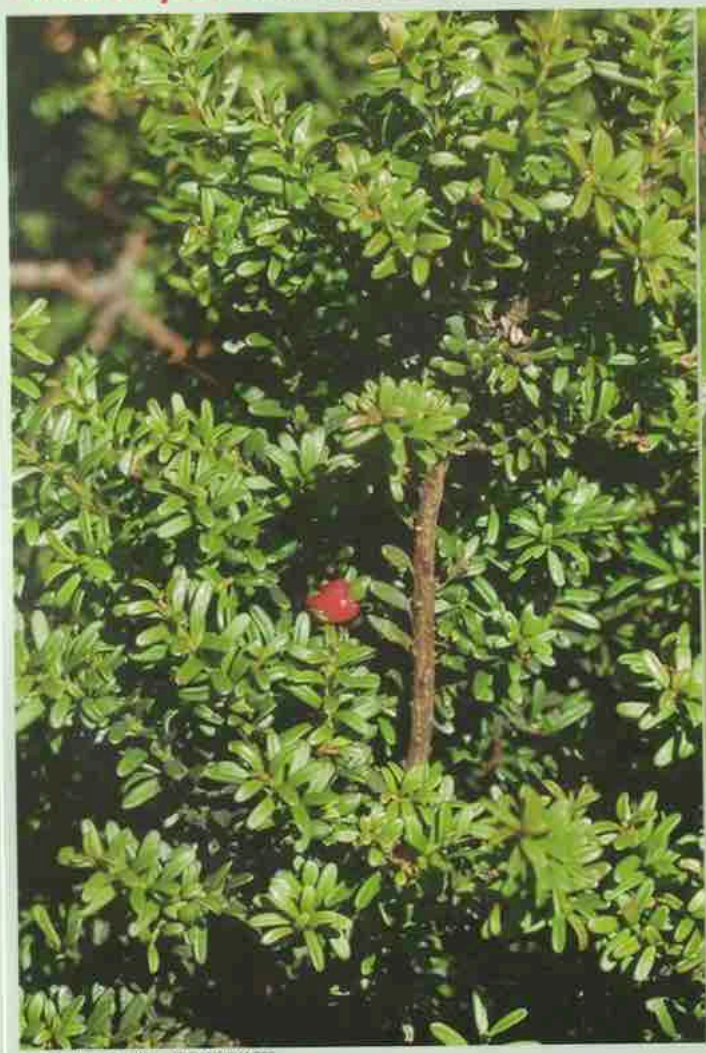


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A small tree to 17 m tall with small, dark green leaves and red, fleshy fruit.

LEAVES: Narrowly oblong, alternate, to 15 x 3 mm, hairless, glossy.

CONES: Males: Cylindrical, to 15 mm long, pink. Females: Narrowly ovoid, about 5 mm long, green.

FRUIT: A hard, narrowly ovoid seed, to 6 mm long, arising from an obovoid, red, fleshy base, to 8 x 6 mm.

ENVIRONMENT: Deep loamy soils in wet montane forests.

OTHER STATES: Apparently endemic to the Errinundra Plateau in East Gippsland.

COMMONLY ASSOCIATED TREES: *Eucalyptus denticulata*

ANNUAL RAINFALL: 1233 to 1637 mm

WARMEST TEMPERATURES: 20 to 24°C

COOLEST TEMPERATURES: -1 to 1°C

ALTITUDE: 1000 to 1200 m ASL

OTHER SCIENTIFIC NAMES: *Podocarpus lawrencei* ssp. nov. (Goonmirk Rocks), *Podocarpus lawrencei* subsp. nov. (Goonimirk Rocks), *Podocarpus* sp. aff. *lawrencei* (Goonimirk Rocks)

OTHER COMMON NAMES: Errinundra Plum Pine

Polyscias sambucifolia

Elderberry Panax

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub, to 5 m tall, with large, divided leaves and almost spherical, branched sprays of small, cream or pale yellow-green flowers.

LEAVES: Pinnate, to 40 cm long, hairless. Individual leaflets narrowly oblong, to 10 x 1 cm.

FLOWERS: Cream to pale yellow-green, about 5 mm wide. Petals 5, ovate, curved backwards. (Jan Feb)

FRUIT: Pale purple to white, globular, fleshy, to 4 mm wide.

ENVIRONMENT: A range of wet and damp forests.

OTHER STATES: NSW

ANNUAL RAINFALL: 792 to 1304 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 176 to 868 m ASL.

OTHER SCIENTIFIC NAMES: *Polyscias sambucifolia* subsp. B

Polystichum proliferum

Mother Shield-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tufted fern with spreading, dark green, oblong to narrow-triangular fronds, to 100 x 30 cm. Often growing in dense swards to the exclusion of most other ground cover species.

FRONDS: Bipinnate or tripinnate, often bearing bulbils. Fertile and sterile pinnules similar, ovate-lanceolate, to 2 cm long, attached to rachis by midvein only, asymmetric about the midvein, glabrous; margins lobed or toothed; venation inconspicuous. Rachises and stipe dark brown, with numerous large, brown, shaggy, triangular scales.

SORI: Circular, to 1 mm wide, non-marginal. Indusium a circular, domed, centrally attached membrane. Sporangia dark brown to almost black when mature.

ENVIRONMENT: Damp depressions in cool, subalpine gullies and hillsides, deep loamy soils of shaded mountain slopes and alluvial soils of lower-altitude creek margins.

NOTES: The dominant ground cover species associated with Wet Forest in much of Victoria. Like many other fern species which grow in dense swards, reproduction is mainly vegetative – from bulbils. Bulbils will take root while still attached to the mother frond and this is the best method for propagating the species.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus regnans, Eucalyptus viminalis, Eucalyptus delegatensis* subsp. *delegatensis*

ANNUAL RAINFALL: 733 to 1253 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Aspidium proliferum, Polystichum aculeatum* var. *proliferum*

OTHER COMMON NAMES: Common Shield-fern

Rainforest

Sclerophyll forest

Pomaderris aspera

Hazel Pomaderris

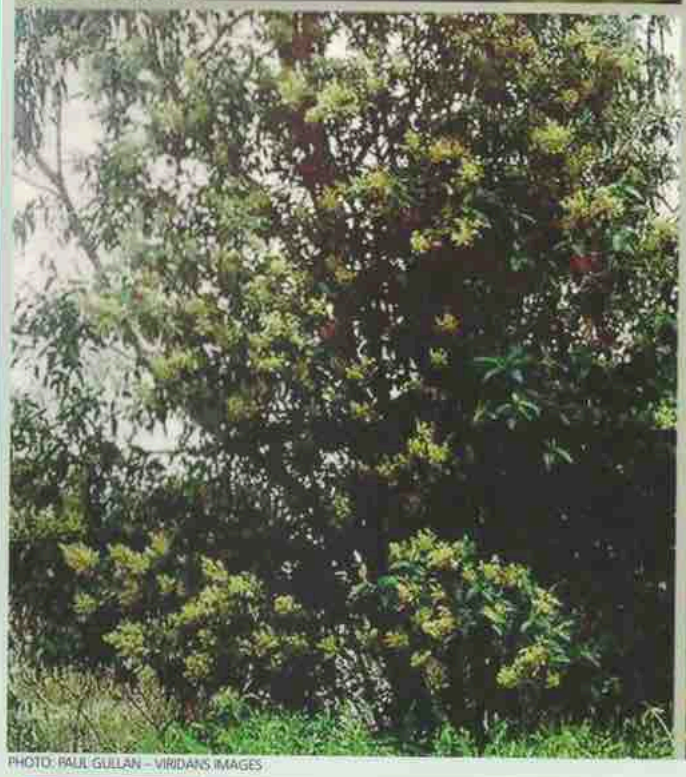


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 15 m tall, with large, wrinkled leaves, and sprays of small, yellow-green flowers.

LEAVES: Ovate, alternate, to 15 x 8 cm; upper surface dark green, wrinkled, sparsely covered with stellate hairs; lower surface pale green, covered with green or rusty stellate hairs but leaf surface visible through the hairs; margins toothed. Leaves often with holes where insects have fed.

FLOWERS: Yellow-green, about, 3 mm wide. Petals absent. Sepals 5, covered with stellate hairs outside, hairless inside. (Oct Nov Dec)

FRUIT: A small, hairless, globular capsule, about 2 mm wide.

ENVIRONMENT: Wet forests and shaded river margins of high rainfall areas.

ABORIGINAL USE: Pegs were made from the wood for stretching animal skins.

BUTTERFLY FOOD PLANT: Food for caterpillars of Yellow Spot Jewel.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus regnans*

ANNUAL RAINFALL: 734 to 1246 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 89 to 767 m ASL

OTHER COMMON NAMES: Rough Hazel Pomaderris

Poranthera microphylla

Small Poranthera

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A small, annual herb, to 15 cm tall, with small, dull grey-green leaves, and white or pink flowers, clustered at tips of branchlets.

LEAVES: Oblanceolate, ovate or oblong, to 18 x 8 mm, hairless, soft textured, often slightly fleshy; margins smooth, sometimes curved under.

FLOWERS: White, to 2 mm wide. Sepals 5, rounded, petal-like. Petals rudimentary or often absent. (Jan Feb Mar Apr May Sep Oct Nov Dec)

FRUIT: Pumpkin-shaped capsules, to 3 mm wide.

ENVIRONMENT: A wide variety of forests and woodlands, often in disturbed sites.

OTHER STATES: NSW NT QLD SA WA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus sieberi, Eucalyptus viminalis*

ANNUAL RAINFALL: 521 to 1139 mm

WARMEST TEMPERATURES: 24 to 30°C

Prostanthera lasianthos

Victorian Christmas-bush

Rainforest

Sclerophyll forest

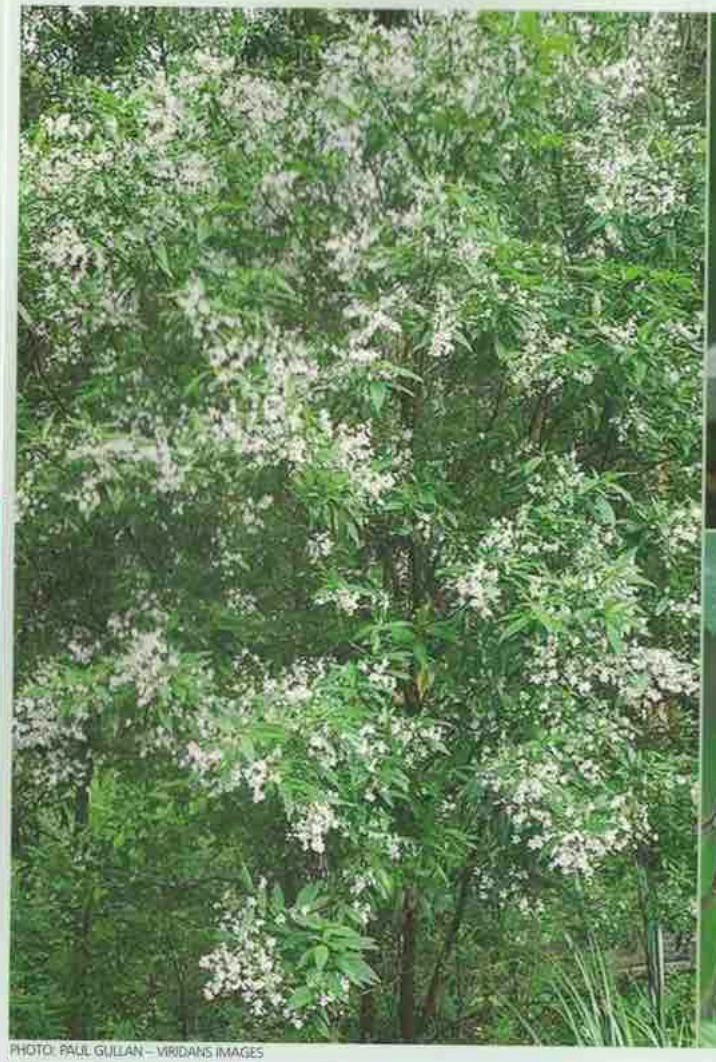


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 6 m tall, with large, toothed leaves and dense clusters of white flowers.

LEAVES: Lanceolate, opposite, to 12 x 3 cm, hairless; upper surface dark green; lower surface paler green; margins toothed.

FLOWERS: White with purple and yellow spots, tubular, to 15 mm long, hairy on the inside. Apex of tube divided into two lips; lower lip fan-shaped with three, deep lobes, the central lobe broadest and notched; upper lip with two shallow lobes, hood-like. Calyx tubular, to 5 mm long, hairless, deeply divided into two lips, upper lip curved backwards. (Jan Nov Dec)

ENVIRONMENT: Wet forests and riverine sites.

NOTES: There are two recognised varieties. The most widespread is var. *lasianthos* (as described above). A smaller leafed, shrubby variety (var. *subconacea*) is found in rocky sites in the west.

ABORIGINAL USE: Straight shoots used as fire sticks.

OTHER STATES: NSW QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus regnans, Eucalyptus sieberi*

ANNUAL RAINFALL: 760 to 1280 mm

WARMEST TEMPERATURES: 23 to 27°C

Pteridium esculentum

Austral Bracken

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, rhizomatous fern with erect, dark green, leathery, broad-triangular fronds to 1.5 x 1 m.

FRONDS: Tripinnate (sometimes quadripinnate). Fertile and sterile pinnules similar (fertile plants uncommon), oblong, sessile, rounded at tip, to 3 cm long; upper surface dark green, glossy, glabrous, veration conspicuous; lower surface grey-green to off-white, with fine appressed hairs on faint lateral veins; margins crenate or finely toothed, tightly recurved.

RHIZOME: Robust, to 15 mm wide, often deep in soil, fibrous, fleshy, covered by fine, appressed, brown hairs near growing tip.

SORI: Linear bands near and often running length of margin. Indusium a linear membrane. Sporangia brown.

ENVIRONMENT: Most habitats that are not waterlogged, alpine or of very low rainfall.

NOTES: The most abundant and aggressive fern in the state. It grows well after disturbance, particularly fire, and reproduces chiefly by means of branching rhizomes.

ABORIGINAL USE: Underground stems were collected as a staple food. Roots were prepared and eaten in a bread-like form. Stems relieved itching and stinging of insect bites.

OTHER STATES: NSW NT QLD SA WA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus radiata* s.l., *Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus viminalis, Eucalyptus globoidea*

ANNUAL RAINFALL: 614 to 1144 mm

WARMEST TEMPERATURES: 24 to 28°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 54 to 652 m ASL

OTHER SCIENTIFIC NAMES: *Pteridium aquilinum, Pteris esculenta*

OTHER COMMON NAMES: Bracken Fern

Rubus moluccanus

Queensland Bramble

PHOTO: JOHN EICHLER – VIRIDANS IMAGES

GENERAL APPEARANCE: A scrambling shrub or climber with thorny stems to 7 m long, large, lobed leaves, white flowers and red fleshy fruit.

LEAVES: Broadly ovate, to 15 x 10 cm, with three, ovate lobes; margins with fine, irregular teeth; upper surface sparsely hairy; lower surface with dense covering of brown hairs. Thorns relatively sparse, to 3 mm long.

FLOWERS: White or pale pink, about 15 mm wide, with 5, rounded petals. (Jan Feb Sep Oct Nov Dec)

FRUIT: A globular, red, fleshy, aggregate fruit, to 12 mm wide.

ENVIRONMENT: Wet forests and rainforests on deep loamy soils.

ABORIGINAL USE: Found in high rainfall areas, these forest raspberries were eaten as a tasty seasonal snack food.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus elata*

ANNUAL RAINFALL: 830 to 1030 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 38 to 520 m ASL

OTHER SCIENTIFIC NAMES: *Rubus hillii*

OTHER COMMON NAMES: Molucca Bramble

Rubus rosifolius

Rose-leaf Bramble

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A scrambling shrub with thorny stems to 2 m long, large, divided leaves, white flowers and red fleshy fruit.

LEAVES: Divided into 3–7 leaflets, the terminal leaflet usually the largest. Individual leaflets lanceolate, to 8 x 3 cm; margins toothed; both surfaces sparsely hairy. Thorns relatively sparse, to 3 mm long.

FLOWERS: White, about 40 mm wide, with 5, obovate petals. (Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec)

FRUIT: An ovoid, red, fleshy, aggregate fruit, to 20 mm long.

ENVIRONMENT: Wet forests on deep loamy soils.

ABORIGINAL USE: Found in high rainfall areas, these forest raspberries were seasonally eaten as a tasty snack food.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Syzygium smithii, Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus globoidea, Eucalyptus sieberi, Eucalyptus elata*

ANNUAL RAINFALL: 749 to 1067 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 54 to 656 m ASL

OTHER COMMON NAMES: Mauritius Raspberry

Rumohra adiantiformis

Leathery Shield-fern

Rainforest

Sclerophyll forest

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A rhizomatous, epiphytic fern with erect or spreading, dark green and glossy, plastic-like, triangular fronds to 50 x 30 cm.

FRONDS: Bipinnate to tripinnate. Fertile and sterile pinnules similar, oblong to ovate, to 10mm long, rounded at the tips, glabrous, asymmetric about the midvein; upper surface dark green and glossy; lower surface pale grey-green with narrow scales on and near midvein; margins lobed. Rachises narrowly winged, dark green, glabrous, grooved above. Stipe dark green and glabrous on upper parts but nearly black and with scales near base.

RHIZOME: Branched, often long-creeping, robust, to 1 cm thick, brittle, densely covered with scales, not embedded in substrate.

SORI: Circular, 2–3 mm wide, non-marginal. Indusium a centrally attached circular membrane. Sporangia black.

ENVIRONMENT: Trunks of tree ferns (*Dicksonia antarctica*) in wet gullies and shaded mountain slopes near gully margins.

NOTES: A popular species in cultivation as an epiphyte, as a basket specimen or sometimes in the soil where it grows well in well-watered, sheltered sites.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Nothofagus cunninghamii, Syzygium smithii, Atherosperma moschatum*

ANNUAL RAINFALL: 856 to 1362 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 85 to 695 m ASL

OTHER SCIENTIFIC NAMES: *Polypodium adiantiforme, Polystichum adiantiforme*

OTHER COMMON NAMES: Butcher's-shop Fern, Plastic Fern, Shield Hare's-foot

Rainforest

Sclerophyll forest

Sambucus gaudichaudiana

White Elderberry

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A large, robust, perennial herb, to 2 m tall, with broadly divided foliage and large clusters of small, white, fragrant flowers.

LEAVES: Large and divided into lanceolate leaflets (pinnate). Each leaflet to 10 x 3 cm, hairless, toothed at the margins, soft textured.

FLOWERS: White, to 5 mm across, with 3–4 rounded petals which curl inward to give each flower a globular appearance. All flowers aromatic and arranged in a large, branched, flat-topped, corymb about 10 cm wide. (Nov Dec)

FRUIT: Pale yellow, fleshy globes, to 5 mm across.

ENVIRONMENT: Wet forests, often where there are breaks in the canopy.

ABORIGINAL USE: Berries were eaten while gathering other foods.

OTHER STATES: NSW QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus regnans, Eucalyptus viminalis, Syzygium smithii, Atherosperma moschatum*

ANNUAL RAINFALL: 698 to 1220 mm

WARMEST TEMPERATURES: 23 to 27°C

Senecio linearifolius

Fireweed Groundsel

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust, dark green perennial herb with erect, branched stems to 1.2 m tall and narrow, toothed and aromatic leaves. Inflorescence an open, flat-topped, terminal panicle with numerous, cylindrical, green and pale yellow, flower heads.

LEAVES: Alternate, sessile, narrow-lanceolate, with a pair of linear lobes at the base, 5–15 cm x 5–20 mm, margins slightly recurved, usually shallowly toothed. Upper surface glabrous or almost so; lower surface glabrous or with a sparse covering of fine cottony hairs.

FLOWERS: Clustered in cylindrical heads 4–6 mm long. Bracts surrounding head in single row of 10–15, linear, 3–5 mm long, green, glabrous or almost so. Florets all tubular, pale yellow, slightly exceeding the bracts. (Jan Feb Mar Nov Dec)

FRUIT: Cylindrical achenes, 1.5–2.0 mm long, minutely hairy. Pappus a crown of fine bristles to 5 mm long.

OTHER STATES: NSW SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus sieberi*

ANNUAL RAINFALL: 716 to 1246 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Senecio dryadeus*

OTHER COMMON NAMES: Califinitis

Stellaria flaccida

Forest Starwort

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A more or less erect, annual herb, to 50 cm tall, with small, broad leaves in opposite pairs, and white flowers on slender stalks in upper leaf axils.

LEAVES: Ovate, opposite, petiolate, to 20 x 6 mm, more or less hairless.

FLOWERS: White, to 12 mm wide; with 5 green sepals, to 7 mm long; and 5 white, petals, to 7 mm long, each divided into two, narrow parts, giving the impression of 10 petals. (Jan Feb Oct Nov Dec)

FRUIT: An ovoid capsule, to 7 x 5 mm, containing small, tuberculate seeds.

OTHER STATES: NSW SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus viminalis, Eucalyptus radiata* s.l., *Eucalyptus globoidea, Eucalyptus regnans*

ANNUAL RAINFALL: 776 to 1292 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 126 to 792 m ASL

OTHER SCIENTIFIC NAMES: *Stellaria media* var. *flaccida*

Stellaria pungens

Prickly Starwort

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A scrambling, perennial herb, to 30 cm tall, with small, narrow, prickly leaves in opposite pairs, and white flowers on slender stalks in upper leaf axils.

LEAVES: Lanceolate, opposite, sessile, to 12 x 3 mm, tapered to a sharp spine, hairy along margins.

FLOWERS: White, to 15 mm wide; with 5 green sepals, to 9 mm long, tapered to a sharp spine; and 5 white, petals, to 9 mm long, each divided into two, narrow parts, giving the impression of 10 petals. (Jan Feb Oct Nov Dec)

FRUIT: An ovoid capsule, to 9 x 4 mm, containing small, tuberculate seeds.

OTHER STATES: NSW SA

COMMONLY ASSOCIATED TREES: *Eucalyptus radiata* s.l., *Eucalyptus pauciflora, Eucalyptus dives, Eucalyptus rubida, Eucalyptus viminalis, Eucalyptus delegatensis* subsp. *delegatensis*

ANNUAL RAINFALL: 664 to 1210 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Stellaria squarrosa*

OTHER COMMON NAMES: Prickly Knawel

Sticherus lobatus

Spreading Fan-fern

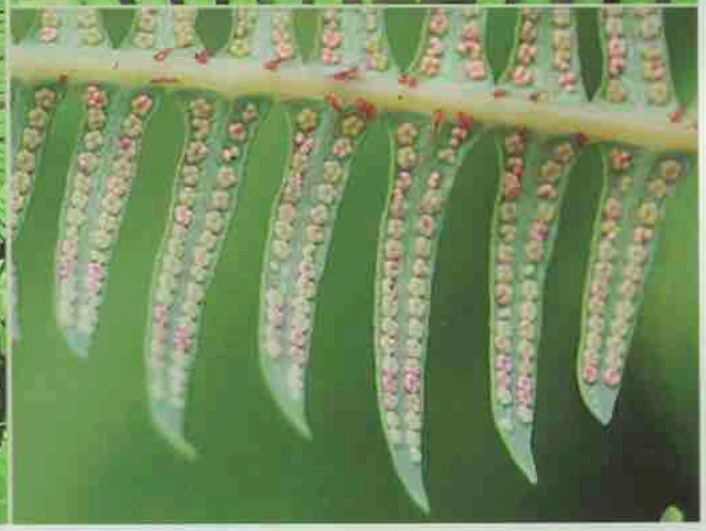


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A rhizomatous fern with yellow-green, fan-shaped, repeatedly forked fronds to 80 cm diameter. Whole plant growing to 1 m tall.

FRONDS: Bipinnate. Fertile and sterile pinnae similar, narrow-triangular or lanceolate, to 30 cm long. Pinnules linear or oblong (except basal pinnules which are triangular and deeply lobed), to 40 x 4 mm, sessile, at right-angles to rachis; upper surface glabrous, light green, lower surface paler; margins entire; venation conspicuous and forked. Rachises and stipe wiry, 3–5 mm diameter, dark brown and glossy, glabrous or with sparse triangular scales.

RHIZOME: Creeping, much-branched but not generally wide spreading, to 8 mm diameter, covered by brown, often fringed, triangular scales.

SORI: Consisting of clusters of 2–6 almost spherical, yellow sporangia on lateral veins midway between margins and midvein. Indusium absent.

OTHER STATES: NSW NT QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus globoidea, Syzygium smithii, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 858 to 1300 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 92 to 680 m ASL

OTHER SCIENTIFIC NAMES: *Gleichenia laevigata*

Syzygium smithii

Lilly Pilly

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree, to 20 m tall, with smooth, brown bark, broad, glossy leaves and small, cream flowers in a branched inflorescence.

LEAVES: Ovate to lanceolate, contracted to a narrow tip, to 14 x 6 cm, glossy green above, dull green below, alternate.

FLOWERS: Cream or white, to 4 mm wide, with 5 small, round petals, numerous stamens and a single, central style. (Jan Feb Nov Dec)

FRUIT: Almost spherical, fleshy, to 14 mm wide, pink, white or purple.

ENVIRONMENT: Often the dominant tree species in Warm Temperate Rainforests, where it may form a closed canopy over broad-leafed plants and ferns, in wet gullies.

NOTES: A moderately popular species in cultivation. The records immediately east of Melbourne, and those near Morwell, are probably the result of garden escapes.

ABORIGINAL USE: The tart, juicy berries were eaten raw as a snack food.

CONSERVATION: [#] Native to Victoria but grows outside of natural range

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus obliqua, Eucalyptus globoidea, Eucalyptus sieberi, Eucalyptus elata, Tristaniopsis laurina*

ANNUAL RAINFALL: 750 to 1044 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Acmena smithii, Eugenia smithii, Eugenia elliptica*

OTHER COMMON NAMES: Monkey Apple (New Zealand)

Tasmannia lanceolata

Mountain Pepper

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub, to 4 m tall, with large, narrow leaves, small cream flowers, and black fleshy fruit.

LEAVES: Oblanceolate or lanceolate, to 12 cm x 35 mm, tips pointed, glossy above, dull below, hairless, thin and flexible, petioles and stems red.

FLOWERS: Cream, to about 1 cm wide, with 3 petals. Male flowers with up to to 18 stamens, and up to 10 styles on females. (Sep Oct Nov)

FRUIT: Dark purple to black, fleshy, to 9 mm wide, with a deep furrow.

ENVIRONMENT: Wet forests and montane forests.

NOTES: Leaves have a very hot taste, hence the common name.

BUTTERFLY FOOD PLANT: Food for caterpillars of Macleay's Swallowtail.

OTHER STATES: NSW TAS ACT

COMMONLY ASSOCIATED TREES: *Atherosperma moschatum, Eucalyptus obliqua, Eucalyptus regnans, Eucalyptus cypellocarpa, Eucalyptus delegatensis* subsp. *delegatensis, Nothofagus cunninghamii*

ANNUAL RAINFALL: 846 to 1392 mm

WARMEST TEMPERATURES: 23 to 27°C

OTHER SCIENTIFIC NAMES: *Drimys aromatica, Drimys lanceolata, Tasmannia aromatica, Winterana lanceolata, Winterania lanceolata, Drimys lanceolata* var. *lanceolata, Drimys aromatica* var. *aromatica, Drimys xerophila* var. *aromatica*

OTHER COMMON NAMES: Pepper Tree, Native Pepper

Tetrarrhena juncea

Forest Wire-grass

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A very branched, thicket-forming, perennial grass to 2 m tall, with few leaves and sandpaper-rough stems. Inflorescence a sparse, narrow spike 2–5 cm long.

LEAVES: Usually widely spaced along stems (absent from older growth). Blades linear to narrow-lanceolate, 1–10 cm x 2–8 mm, flat to concave, very rough; sheaths very rough. Ligule a membranous collar < 1 mm long, with a fringe of minute hairs.

FLOWERS: Spikelets with 1 fertile and 2 sterile flowers, sessile. Glumes 2, equal, ovate, 2–3 mm long, membranous. Lower sterile lemma enclosed by and similar to glumes; upper sterile lemma and fertile lemma ovate, 3–4 mm long, thicker than other lemma. Palea ovate, 2–3 mm long, membranous. (Jan Feb Mar Apr Nov Dec)

ENVIRONMENT: Often the dominant grass in the understorey of Wet and Damp Forest. It may form almost impenetrable thickets after disturbance.

BUTTERFLY FOOD PLANT: Food for caterpillars of Western Kershaw's Brown, Kershaw's Brown, Tasmanica Skipper, Bright Shield Skipper and Anderson's Skipper.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus radiata* s.l., *Eucalyptus globoidea, Eucalyptus regnans*

ANNUAL RAINFALL: 739 to 1219 mm

WARMEST TEMPERATURES: 24 to 26°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 65 to 659 m ASL

OTHER SCIENTIFIC NAMES: *Ehrharta uniglumis, Tetrarrhena juncea* var. *scabra*

OTHER COMMON NAMES: Tangle Grass; Wiry Rice-grass

Todea barbara

Austral King-fern

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A robust tree-fern like plant, with a barrel-shaped trunk to 1.2 x 1.2 m, covered by dark brown roots. Fronds oblong, to 2.5 x 0.7 m, dark green, glossy, in several tufts at trunk apex.

FRONDS: Bipinnate. Fertile and sterile pinnules similar, oblong to narrow-lanceolate, to 7 x 1 cm, glabrous or with a few bristles on veins of lower surface, attached to rachis by midvein only near base of pinnae, but by full width towards tip, margins toothed. Rachis and stipe green to brown, glabrous, grooved on upper surface. Rachis narrowly winged.

SORI: Oblong, to 3 mm long, often occupying only the basal half to two thirds of segment and, when fully expanded, merging to form almost continuous cover. Indusium absent. Sporangia rust-coloured.

ENVIRONMENT: Waterlogged, organic soils of shaded gullies, watercourses and swamps.

NOTES: The trunk is often an important substrate for epiphytic ferns.

OTHER STATES: NSW QLD SA TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus radiata* s.l., *Eucalyptus regnans*

ANNUAL RAINFALL: 776 to 1270 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Acrostichum barbarum*

Tristaniopsis laurina

Kanooka

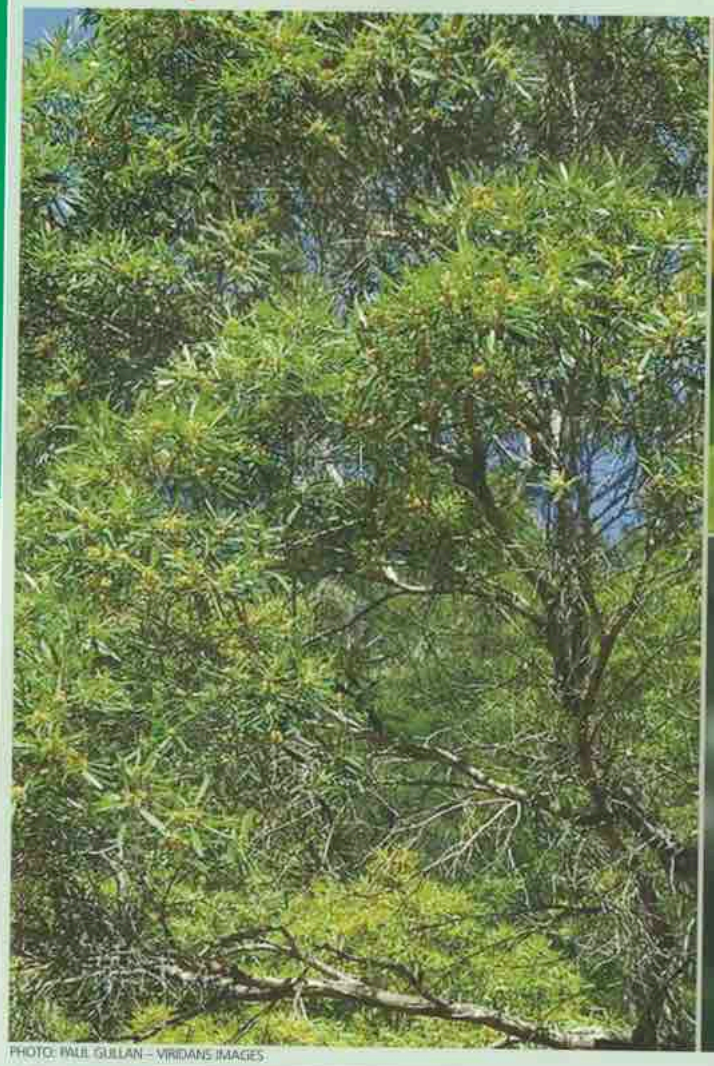


PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A tree, to 30 m tall, with smooth, pale brown and grey bark, long, glossy leaves and yellow flowers.

LEAVES: Oblanceolate, to 12 cm x 30 mm, alternate, dark green and glossy above, paler green and slightly hairy beneath. Giving off a lemon scent when crushed.

FLOWERS: Yellow, to 15 mm wide, with 5 round petals, numerous stamens in a ring and a central style. (Jan Feb Dec)

FRUIT: A papery, cup-shaped capsule, to 10 x 6 mm, splitting to release winged seeds.

ENVIRONMENT: Mostly riverine sites, often with rocky edges.

OTHER STATES: NSW QLD

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Syzygium smithii, Eucalyptus globoidea, Eucalyptus elata, Eucalyptus sieberi, Eucalyptus obliqua*

ANNUAL RAINFALL: 780 to 1012 mm

WARMEST TEMPERATURES: 25 to 27°C

OTHER SCIENTIFIC NAMES: *Melaleuca laurina, Tristania laurina*

OTHER COMMON NAMES: Kanuka, Kanuka Box, Water Gum

Uncinia nemoralis

River Hook-sedge

PHOTO: CHRIS ANDERSON – VIRIDANS IMAGES

GENERAL APPEARANCE: A tufted, perennial sedge, to 55 cm tall, with narrow leaves and a narrow spike, to 6 cm long, of small, chaffy flowers.

LEAVES: Linear, to 60 cm x 2 mm, flat, arched, hairless, arising from base of the 3-angled stem, to 0.5 mm wide.

FLOWERS: Spikelets 1-flowered, sessile and tightly overlapping (those on upper part of spike male, those on lower part female). Glumes of female flowers lanceolate, to 4 mm long, dull yellow, hairless. (Jan Feb Dec)

FRUIT: A yellow-brown, ellipsoid nut, to 3 x 1 mm long, enclosed by a chaffy capsule (utricle), to 6 x 1.5 mm. Projecting from the top of the capsule is a fine awn, to about 7 mm long, which is sharply bent backwards at the tip to form a hook.

ENVIRONMENT: Sheltered gullies of Wet Forests and Rainforests.

CONSERVATION: [r] Rare in Victoria.

OTHER STATES: NSW

COMMONLY ASSOCIATED TREES: *Elaeocarpus holopetalus, Atherosperma moschatum, Eucalyptus obliqua, Syzygium smithii, Eucalyptus fastigata, Eucalyptus cypellocarpa*

ANNUAL RAINFALL: 883 to 1165 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Uncinia riparia, Uncinia* sp. aff. *rupestris*

Uncinia tenella

Delicate Hook-sedge

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A delicate, leafy, grass-like sedge with erect, slender cylindrical flower stems 5–10 cm long. Inflorescence a narrow terminal spike 0.6–2 cm long, of small chaffy flowers.

LEAVES: In basal tufts, linear, 5–10 cm x 1 mm, flat or channelled, glabrous, margins smooth; basal sheath 2–4 cm long.

FLOWERS: Spikelets 1-flowered, sessile (those in upper part of spike male, those in lower part female and larger than males). Glumes lanceolate 3–5 mm long, green, glabrous, midrib prominent. Stamens 2. Styles 3-armed. (Jan Feb Dec)

FRUIT: An oblong, 3-angled nut, 2.0–2.5 cm long, contracted sharply at apex; enclosed by chaffy, glabrous capsule (utricle), 3–5 mm long, (usually shorter than its glumes). Projecting from the top of the capsule is a fine awn, to about 7 mm long, which is sharply bent backwards at the tip to form a hook.

ENVIRONMENT: Shaded gullies of Wet Forests.

OTHER STATES: NSW TAS

COMMONLY ASSOCIATED TREES: *Atherosperma moschatum, Eucalyptus obliqua, Nothofagus cunninghamii, Eucalyptus regnans, Eucalyptus cypellocarpa, Elaeocarpus holopetalus*

ANNUAL RAINFALL: 858 to 1392 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 0 to 4°C

ALTITUDE: 210 to 834 m ASL

Urtica incisa

Scrub Nettle

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: Slender erect or sprawling perennial herb 60–150 cm tall, bearing painfully stinging hairs on the narrow, serrated leaves, petioles and 4-ribbed stems.

LEAVES: Opposite, petiolate and rather widely spaced, lanceolate, sometimes with rounded, basal lobes, 4–15 x 2–5 cm, margins evenly toothed, upper surface dark green, bearing stinging hairs between major nerves, lower surface pale or faintly purplish, hairs confined to raised nerves, petioles usually about as long as leaf blades, stems often flushed crimson.

FLOWERS: In narrow spikes, usually 2–3 cm long, borne in small axillary clusters, male and female flowers in separate spikes on same plant, males: sepals 4, rounded, about 2 mm long, fused at base petals absent, stamens 4; females: sepals in 2 unequal pairs, the upper enclosing and expanding with ovary, 0.5–2 mm long, lower pair minute, stigma tufted, almost sessile on ovary (Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec)

FRUIT: Glabrous, lens-shaped achenes 1.5–2 mm diameter.

ABORIGINAL USE: Leaves used to treat sprains and rheumatism. When food was scarce the leaves were cooked and eaten.

BUTTERFLY FOOD PLANT: Food for caterpillars of Australian Admiral.

OTHER STATES: NSW QLD SA WA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus viminalis, Eucalyptus radiata* s.l., *Syzygium smithii, Eucalyptus regnans*

ANNUAL RAINFALL: 683 to 1229 mm

WARMEST TEMPERATURES: 23 to 27°C

COOLEST TEMPERATURES: 1 to 5°C

ALTITUDE: 84 to 738 m ASL

OTHER COMMON NAMES: Native Nettle, Stinging Nettle

Veronica calycina

Hairy Speedwell

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A perennial herb, to 50 cm tall, with leaves in opposite pairs along erect stems, and narrow racemes, to 8 cm long, of pale purple flowers, arising from leaf axils.

LEAVES: Ovate, opposite, petiolate, to 3 x 2 cm, sparsely hairy or hairless; margins with blunt teeth.

FLOWERS: Pale purple or pale blue, to 9 mm wide. Petals 4, almost circular, joined into a short tube at the base. Sepals 4, joined at the base, to 8 mm long, finely hairy on margins. (Oct Nov Dec)

FRUIT: A flattened, broadly ovoid capsule, to 6 x 5 mm.

ENVIRONMENT: A range of wet and damp forests, usually in relatively high rainfall areas.

OTHER STATES: NSW SA WA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus viminalis, Eucalyptus globoidea, Eucalyptus dives*

ANNUAL RAINFALL: 660 to 1188 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Veronica calycina var. parviflora, Veronica gunnii, Veronica calycina var. gunnii*

Viola hederacea

Ivy-leaf Violet

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A perennial herb, to 15 cm tall, with kidney-shaped leaves on long petioles, arising from the base of erect stems bearing purple and white flowers.

LEAVES: Roughly kidney-shaped, to 35 x 50 mm, with petioles to 8 cm long, more or less hairless, margins more or less smooth or shallowly toothed.

FLOWERS: Purple with broad, white margins, to 20 mm wide. Petals 5, obovate, lower petal broadest with dark purple veins, side petals hairy towards the base, upper petals usually swept backwards. (Oct Nov Dec)

FRUIT: An ovoid capsule, to 6 mm long.

NOTES: A very variable species which will undoubtedly be split into several species at some time in the future. *Viola fuscoviolacea* has recently been given full species status and some of the records attributed to V. hederacea are undoubtedly of this species. Conversely, many records previously attributed to Viola sieberiana are now considered to be referable to one of the many forms of Viola hederacea.

OTHER STATES: NSW QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus obliqua, Eucalyptus cypellocarpa, Eucalyptus radiata* s.l., *Eucalyptus sieberi, Eucalyptus globoidea, Eucalyptus viminalis*

ANNUAL RAINFALL: 661 to 1181 mm

WARMEST TEMPERATURES: 24 to 28°C

OTHER SCIENTIFIC NAMES: *Viola hederacea* s.l.

Wahlenbergia gracilis

Sprawling Bluebell

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A slender, tufted, perennial herb, to 80 cm tall, with narrow leaves, along the lower part of erect stems bearing pale blue flowers.

LEAVES: Oblanceolate to linear (up the stem), alternate, to 6 cm x 4 mm (broader, to 10 mm wide, near the base); more or less hairless or sparsely hairy; margins flat or wavy, smooth or finely toothed.

FLOWERS: Pale blue, to 10 mm wide. Petals 5, ovate, spreading, joined at the base into a tube, to 5 mm long. Sepals 5, narrowly triangular, to 3 mm long, hairless. Style with three arms. (Jan Feb Sep Oct Nov Dec)

FRUIT: A hairless, conical capsule, to 7 mm long.

ENVIRONMENT: A wide range of vegetation, usually in higher rainfall areas. It has probably been confused with the recently described *W. tumidifructa* in lower rainfall areas.

OTHER STATES: NSW NT QLD SA TAS ACT

COMMONLY ASSOCIATED TREES: *Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus obliqua, Eucalyptus sieberi, Eucalyptus radiata* s.l., *Eucalyptus viminalis*

ANNUAL RAINFALL: 506 to 1094 mm

WARMEST TEMPERATURES: 24 to 30°C

OTHER SCIENTIFIC NAMES: *Wahlenbergia gracilis* s.l.

Wittsteinia vacciniacea

Baw Baw Berry

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A sprawling shrub, to 40 cm tall, with large, dark green leaves and cream or pale green, bell-shaped flowers in leaf axils.

LEAVES: Elliptic or obovate, alternate, to 5 x 3 cm; upper surface dark green, glossy, hairless; lower surface pale grey-green, densely hairy; margins with shallow, regular teeth.

FLOWERS: Cream or pale green, tubular or bell-shaped, to 7 mm long, with 5, triangular petal lobes at the top. (Jan Nov Dec)

FRUIT: A pale green, globular, fleshy berry, to 10 mm long.

CONSERVATION: [r] Rare in Victoria. [endemic] Found only in Victoria.

COMMONLY ASSOCIATED TREES: *Nothofagus cunninghamii*

ANNUAL RAINFALL: 1182 to 1552 mm

WARMEST TEMPERATURES: 22 to 26°C

Zieria arborescens

Stinkwood

PHOTO: PAUL GULLAN – VIRIDANS IMAGES

GENERAL APPEARANCE: A shrub or small tree, to 10 m tall, with large leaves in threes and white flowers in a branched inflorescence.

LEAVES: Opposite, divided into three leaflets, which are elliptic, to 9 cm x 15 mm; upper surface dark green, glossy, hairless; lower surface paler green, hairy.

FLOWERS: White, to 10 mm wide. Petals 4, broadly elliptic. (Aug Sep Oct Nov Dec)

ENVIRONMENT: Wet forests.

ABORIGINAL USE: Leaves were used to ease pain and headaches.

OTHER STATES: NSW QLD TAS

COMMONLY ASSOCIATED TREES: *Eucalyptus regnans, Eucalyptus obliqua, Eucalyptus cypellocarpa, Atherosperma moschatum, Nothofagus cunninghamii, Eucalyptus sieberi*

ANNUAL RAINFALL: 784 to 1280 mm

WARMEST TEMPERATURES: 24 to 26°C

OTHER SCIENTIFIC NAMES: *Boronia arborescens, Zieria arborescens* subsp. *arborescens, Zieria macrophylla, Zieria smithii* var. *macrophylla, Zieria smithii* var. *tomentosa*

OTHER COMMON NAMES: Forest Zieria, Tree Zieria

Index of Differential Species by Common Name