

South West Slopes Revegetation Guide



*from little things
big things grow...*

South West
Slopes
Revegetation
Guide

(south of the Murrumbidgee River)

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(SOUTH OF THE
MURRUMBIDGEE RIVER)

Edited by Fleur Stelling
Murray Catchment Management Committee & Department of Land & Water Conservation
Albury, NSW
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With a major contribution by Karen Walker
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foreword

John Landy

The South West Slopes region of New South Wales runs from the Riverina plains to the mountains in the east, with an elevation of up to 600 metres. It is one of the most extensively altered landscapes in this country. The most radical modification has been on the lower slopes and plains, where the establishment of pastures and crops was most easily achieved. Clearing of the catchments in the rising country, mainly during the last century — has resulted in eroded streams and silt deposition, the latter encouraged by the widespread growing of willows.

Preserving the remaining areas of bushland that have so far escaped a significant decline in biodiversity is clearly a priority, and several chapters in this Guide offer advice on conserving and protecting these remnants. Much of the region has been so extensively cleared that new plantings are required. The practical suggestions for revegetation planning, re-establishing native vegetation, creek restoration and erosion control will be useful to landholders. Together with the vegetation profiles and plant descriptions, the chapters on seed collection and propagation provide a sound basis on which to undertake a revegetation project.

While the region's remnant vegetation is increasingly threatened, it is encouraging to see concern in the wider community. The Landcare movement in particular has created great interest in revegetation and retention of remnant vegetation. This, coupled with the heightened environmental awareness of us all, has contributed to a determination to do something — an objective that this Guide can help to achieve.

Biodiversity is a term often used these days, although its meaning may not always be understood. The resilience of bushland, and indeed some of the production systems we have replaced it with, is dependent on its complexity. Indiscriminate burning,

introduced species of plants and animals and grazing have all played a part in the decline in biodiversity of native vegetation. This book provides useful material for those seeking to control weeds, attract wildlife to the farm dam, or reintroduce native grasses and pasture. The practical information sheets will also be valuable in many aspects of land management.

Many farmers in the South West Slopes region (and elsewhere in the country) have struggled under increasingly adverse conditions. My family has a property in the south-east, near Tooma, and we have had to step up our fight against weeds (notably the blackberry), which infests pasture and modified bushland alike. We have seen the loss of Red Gums to leaf-eating lerps, and the death of many Stringybarks, ring-barked by cattle in late winter, as they seek roughage to supplement short, succulent improved pastures. The economic benefits of revegetation, the production of specialty timbers and native seeds, agroforestry, and developing tourism opportunities are discussed in the Guide, and will give landholders food for thought as prices continue to rise and farm incomes continue to drop.

This book contributes significantly to overcoming one of our most pressing problems — the decline in native vegetation, and the corresponding lessening of biodiversity. It is also immensely practical, and will enable landholders to make use of the information on conserving and extending remnant vegetation.

acknowledgements

Many people have assisted in producing this guide. I am particularly indebted to Karen Walker for her diligent efforts compiling the Murrumbidgee vegetation profiles, providing constructive comments, information and enthusiasm, and assisting in many other ways.

I would like to thank all the authors who contributed chapters and other material, in addition to constructive comments on drafts: Sue Brunskill; Louise Bull; Geoff Burrows; Ian Davidson; John Delpratt; Martin Driver; Anthony Dufty; Judy Frankenberg; Dick Green; Ian Lunt; Nicky Meeson; Jo Millar; Greg Moore; Digby Race; Mark Sheahan; Ian Shears; Jann Williams. Thanks are due to Tony Dawson and Peter Barker for generously giving their time to contribute details on soils for the native vegetation profiles.

I am indebted to the many farmers, Landcare members, Landcare Coordinators, Rural Lands Protection Board rangers, plant nursery growers and others who took Karen and myself on vegetation tours of their farms and districts, organised plant identification field days or group catchment tours, contributed knowledge and supported the project. Without such community support and enthusiasm this project would have been without foundation.

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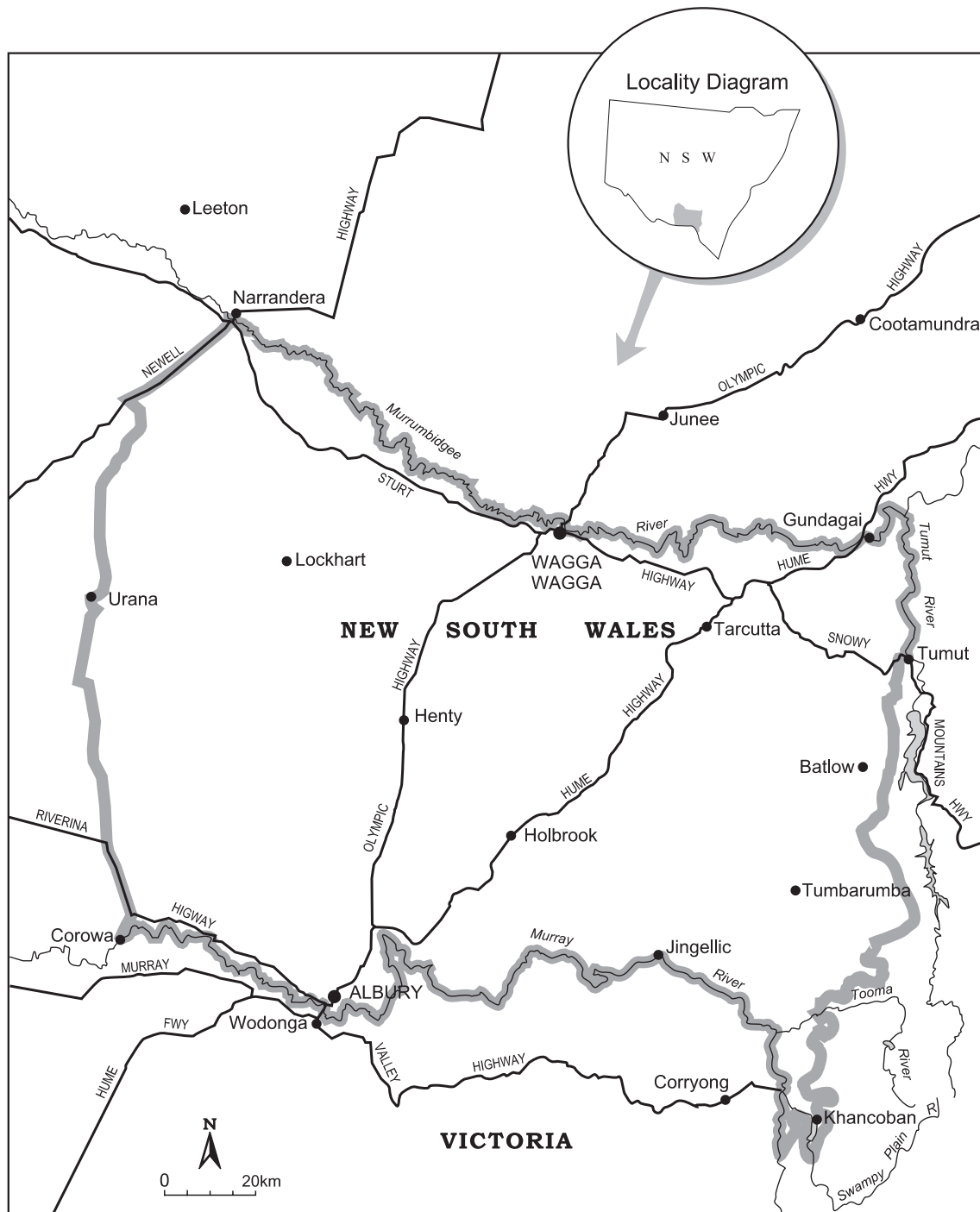
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area covered by the guide



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introduction

Fleur Stelling

Murray Catchment Management Committee, Albury, NSW.

This Guide covers the southern section of the South West Slopes in New South Wales, one of the most altered regions in Australia. In many areas we can glimpse only a small part of the natural beauty of the native vegetation that once existed across the region. Much of the remaining native vegetation is declining and faces a bleak future without prompt remedial action. Understorey shrubs in particular have been depleted on private land due to their palatability and shorter lifespans.

It is from patches of relatively natural bushland, however, that we can envision what we can achieve in restoring our declining remnant vegetation (see Figure 1). These areas hint at what the South West Slopes was like when the Kooris inhabited the area, and when the Europeans first entered the landscape. By regenerating and revegetating these areas with locally native species, we keep this part of our heritage alive.



(M. Bicker)

Figure 1. One of the outstanding geographical features of the region, Table Top Mountain, or Great Yambla Ridge, known to the local Kooris as ‘the breeding place of eagles’.



Successful revegetation is about knowing how to build on remnant vegetation in a way that benefits both the local environment and farm production. It also involves good planning, and planting the right shrubs and trees in the right places. This practical guide aims to assist anyone involved in revegetation in the region, by providing information on the local plants that belong in each locality, and on how best to tackle revegetation.

The Guide is a result of recognition on the part of the Murray Catchment Management Committee that revegetation built on our remaining native vegetation is essential to a healthy catchment in the future. West of the Hume Highway, less than 10 per cent remains of the South West Slopes’ pre-European native vegetation and in many districts less than 2 per cent remains. This remnant vegetation and its associated fauna is facing a chronic decline. Yet remnant vegetation is vital if the

natural checks and balances of functioning systems are to be revived and sustained across our rural landscapes. The first requirement is to protect what remains, before enhancing it through revegetating.

As our understanding of ecological complexities is limited, there is a strong emphasis on revegetating with locally native plants.

This Guide has benefited from generous contributions from a range of local people interested in local flora and fauna. While the general information presented in Part One was written by various enthusiasts and specialists, the guide as a whole has been shaped by constructive comments from across the region, from farmers and Landcare members to field naturalists and teachers.

ABOUT THE GUIDE

The Guide comprises three sections.

Part One contains information about the types of native vegetation; processes that threaten these plants and animals, and recommendations for management. Approaches to revegetation are covered, as are environmental weeds, local native plant seed collection and propagation. This section also contains information on the region's rare plants and animals, farm forestry, analogue forestry, landscaping with native plants, and economic uses of our remaining native vegetation, including pastures. Most of the chapters were contributed by a range of authors. Unless otherwise indicated, the editor compiled or wrote the remaining information in the Guide.

PART TWO contains maps of districts, subcatchments or groups of subcatchments so the reader can pinpoint their site or property and then refer to the related local native vegetation profile. These profiles are generalised pictures of the landscape, showing where each local native plant species tends to occur, from the hilltops to the lower country, including creeklines or rivers.

Karen Walker, (mostly the Murrumbidgee Catchment) and the editor (mostly the Murray Catchment), compiled the information in this section. Firstly, existing information from roadside surveys including Corowa, West Hume, Lockhart and Tumut; State Forest species lists, and other botanical surveys was collated. Secondly, surveys were conducted of the major and minor roads throughout the area, with many explorations onto private land and public reserves adding greatly to the information base. Members from most Landcare groups in the area assisted in information gathering, by arranging visits to local properties and contributing valuable local knowledge. A number of 'vegetation walks' were held as part of the information gathering that also provided an opportunity for local people to both improve their understanding of native vegetation and contribute local

knowledge. Over 140 plant specimens were collected and sent to the Royal Botanical Gardens in Sydney, for identification. Again, constructive comments from a range of local plant enthusiasts were received and used in compiling final drafts of the vegetation profiles.

PART THREE comprises detailed information on over 200 local native species that occur in the area covered by the guide. Comprehensive information is provided for the area's trees and shrubs, particularly those species considered to have the most potential for revegetation. Information on the remaining small shrubs, groundcovers, non-woody herbs, grasses and water plants is less comprehensive. Part Three was compiled by collating information from a wide range of sources (see Bibliography). Again, comments from local plant enthusiasts were incorporated to add valuable local experience and knowledge of South West Slopes conditions.

While this Guide covers the entire South West Slopes in New South Wales south of the Murrumbidgee River, there are also three smaller guides available, covering districts within the area. See Figure 2.

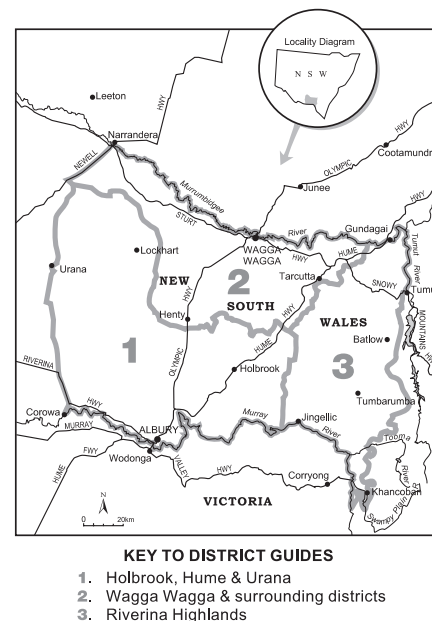


Figure 2. Areas covered by the three district revegetation guides.

Part One

Chapters



introduction to the South West Slopes region and its plant communities

Mark Sheahan

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The South West Slopes is an area of transition, forming the area between the mountains and high country to the east, and the Riverine Plain to the west. As such, it comprises a diverse range of vegetation communities.

The South West Slopes has been recognised as a distinct 'Biogeographic Region' containing unique assemblages of plant and animal communities. An outline of the South West Slopes biogeographic region, and the area covered by this Guide, is shown in Figure 1.

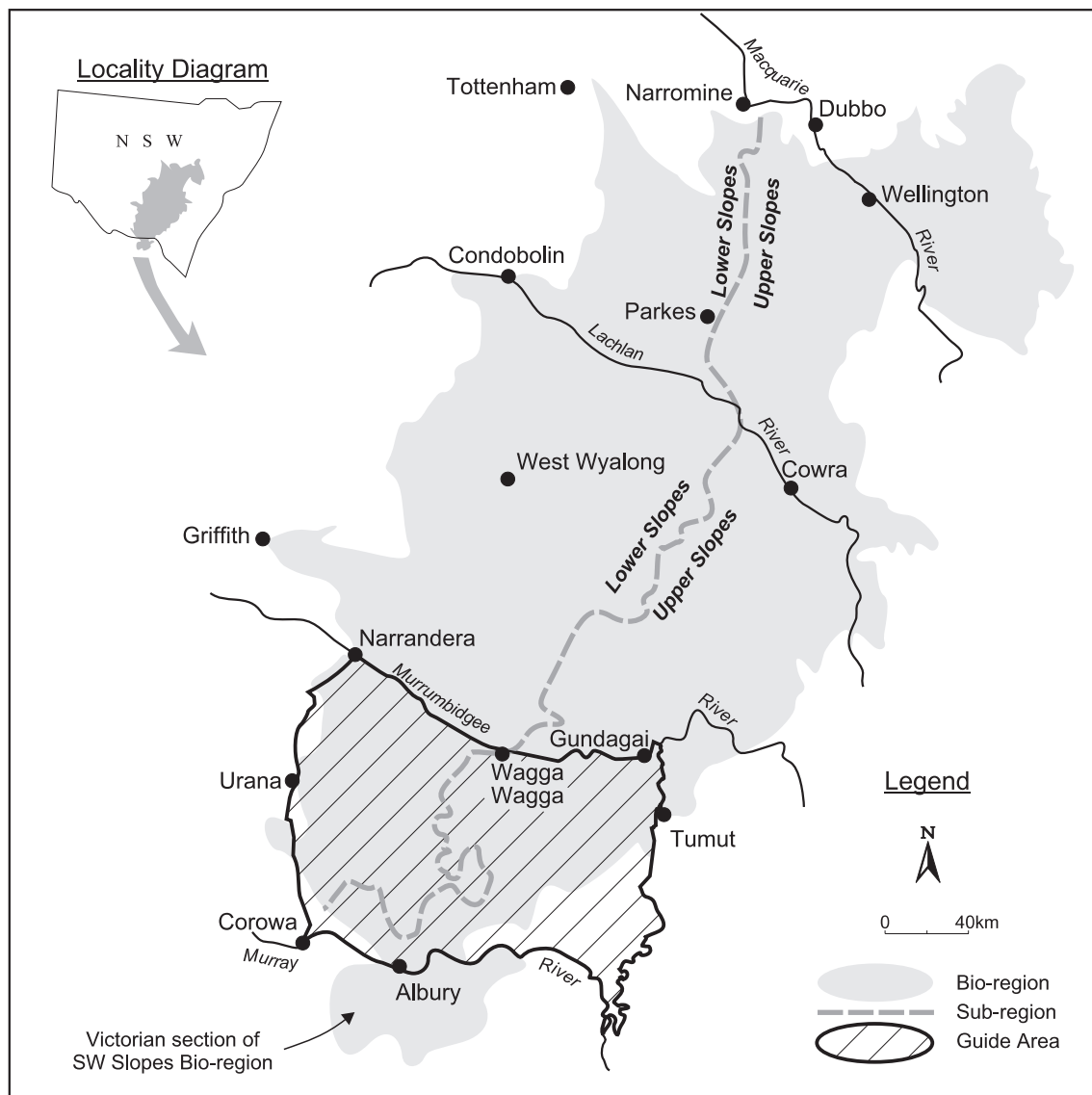


Figure 1. The South West Slopes biogeographic region and area covered by the Guide.

The South West Slopes is that area generally between 150 metres and 600 metres above sea level (see Figure 2). East of here, higher elevations (above 600 metres) mean lower temperatures, shorter growing seasons and

higher rainfall. To the west (below 150 metres) the South West Slopes gives way to the alluvial soils of the Riverine Plain, and lower rainfall.

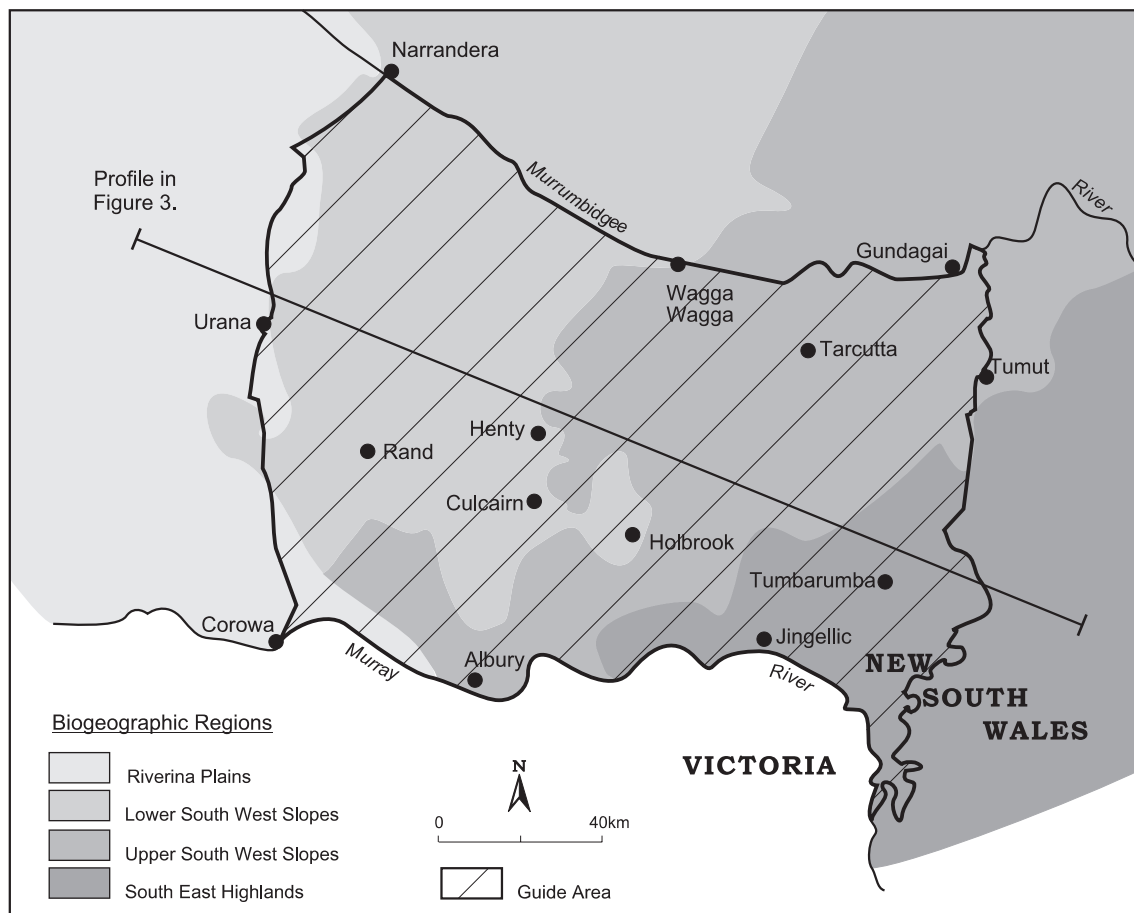


Figure 2. Bio-regions in the area covered by the Guide.

THE AREA COVERED BY THE GUIDE

The area covered by this Guide includes:

- that part of the South West Slopes Bio-Region between the Murray and Murrumbidgee Rivers;
- some parts of the South-East Highlands Bio-Region. In particular, the Upper Tarcutta, Paddy’s and Burra, Tumbarumba, Upper Adelong and Upper Gilmore catchments have vegetation more in common with the South-East Highlands than the South West Slopes; and

- some parts of the Riverine Plain Bio-Region (near the western edge of the area covered by this Guide).

Generally, the vegetation across the area reflects the transition in elevation (and rainfall). There are many different types of vegetation that make up this transition, each with unique structural characteristics and species composition. As a broad rule, the structure of the vegetation becomes taller and less open, from west to east (see Figure 3).

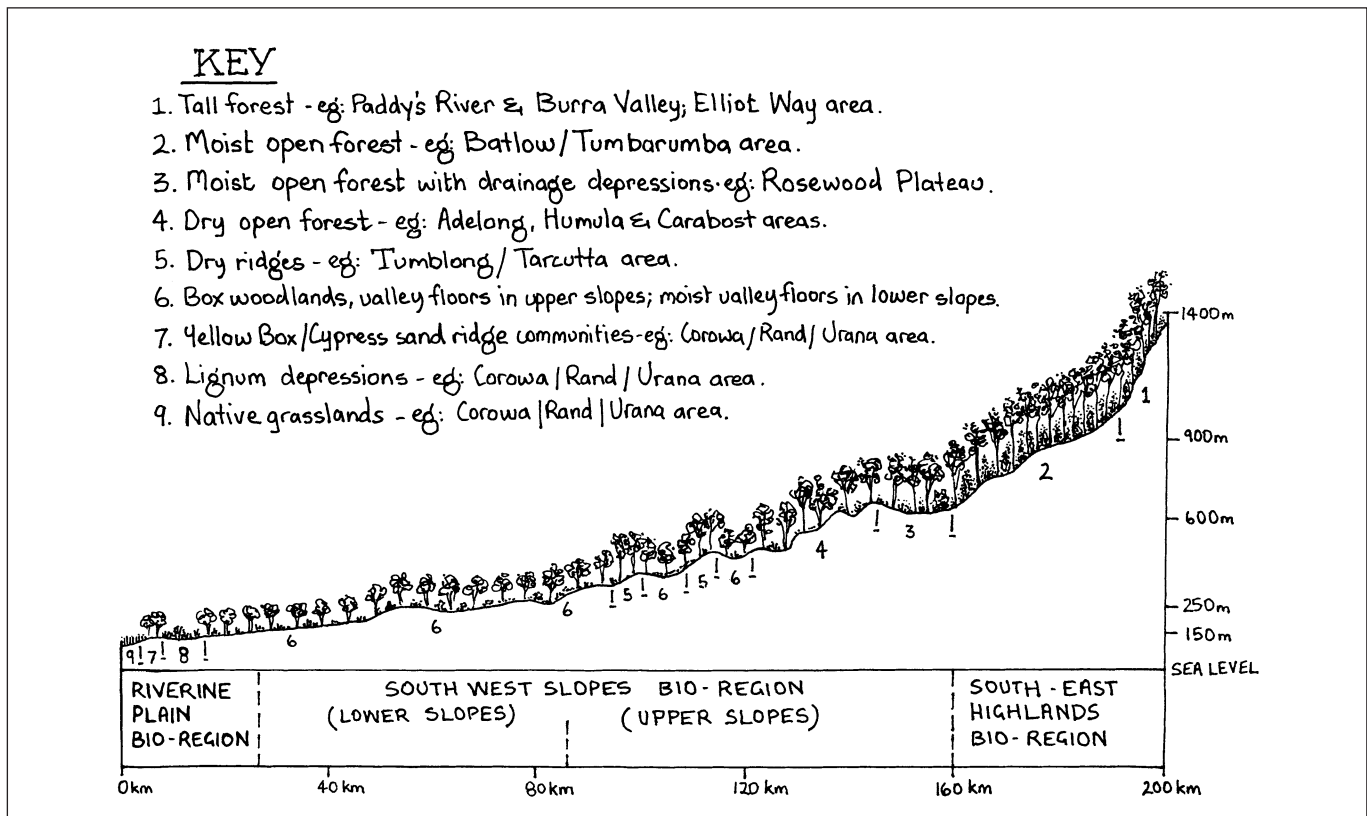


Figure 3. Transect across the South West Slopes.

Similarly, the species composition also changes — in the extreme east of the region there are tall forests and, as elevation and rainfall decrease, these give way to moist open forests and dry sclerophyll forests. On the more open, undulating country in the central part of the region are woodlands dominated by Red Box (*Eucalyptus polyanthemos*), Yellow Box (*E. melliodora*), White Box (*E. albens*) and Blakely's Red Gum (*E. blakelyi*). These have been extensively cleared. In the far west of the region, Grey Box (*E. microcarpa*) woodlands may dominate, but there are also woodlands dominated by Boree (*Acacia pendula*) and, on better drained soils, White Cypress Pine (*Callitris glaucophylla*), Bulloak (*Allocasuarina luehmannii*) and Yellow Box. Lignum (*Muehlenbeckia florulenta*) occurs on poorly drained sites, and there may also be open areas with native grasslands and shrublands.

There is also a subtle north–south transition in vegetation across the area covered by this Guide. This

north–south transition is reflected not so much in the structure of vegetation, but more in the species composition. Some species become more common in woodlands further north (e.g. Scribbly Gum/Snap Gum, *E. rossii*, Western Silver Wattle, *A. decora*), while others become more common further to the south (e.g. Gold-dust Wattle, *A. acinacea*, Golden Wattle, *A. pycnantha*).

SOUTH-EAST HIGHLANDS BIO-REGION

Tall forests

The eastern edge of the study area, between 900 and 1400 metres elevation, includes some tall sub-alpine forests dominated by one or more of Alpine Ash (*Eucalyptus delegatensis*), Mountain Gum (*E. dalrympleana*), Robertson's Peppermint*, (*E. robertsonii*), and/or White Sallee/Snow Gum (*E. pauciflora*), depending on altitude, aspect, soil fertility and incidence of frost.

Moist open forest

On sites between 600 and 900 metres elevation, the dominant species is Robertson's Peppermint. On moister sites, this may occur in association with Mountain Gum, Manna Gum (*E. viminalis*), Candlebark (*E. rubida*), Apple Box (*E. bridgesiana*) and Eurabbie (*E. bicostata*). Blackwood (*Acacia melanoxylon*) may also be locally common. On drier sites, it occurs with Brittle Gum (*E. mannifera*) and Red Stringybark (*E. macrorhyncha*).

Riparian vegetation

Along the creeks and rivers, Blackwood is common. Black Sallee (*E. stellulata*) and Swamp Gum (*E. camphora*) are also common along creeks, drainage lines and on poorly drained areas. Other species along creeks may include Woolly Pomaderris (*Pomaderris lanigera*), Woolly Tea-tree (*Leptospermum lanigerum*), Buffalo Wattle (*Acacia kettlewelliae*) and River Lomatia (*Lomatia myricoides*).

SOUTH-WEST SLOPES BIO-REGION

Dry open forest

In the upper South West Slopes, this is one of the most common vegetation communities. Dominated by a combination of Red Stringybark, Broad-leaved Peppermint (*E. dives*), Apple Box and Long-leaf box (*E. goniocalyx*), they may have a diverse understorey, including Heaths (Family Epacridaceae), Peas (Family Fabaceae) and a range of orchids, lilies and native grasses.

Red Box, more commonly associated with more fertile open country, is also a common species in areas of dry open forest.

Dry ridges

Many dry, rocky ridges with skeletal soil occur near the lower end of the upper slopes. This is where the Mugga Ironbark (*E. sideroxylon*) forests occur, often in association with Scribbly Gum/Snap Gum. Ironbark forests are renowned for their diversity of native plants, and in spring produce an abundance of wildflowers.

Interestingly, Ironbarks are found only on the border of, or in those catchments flowing north to the Murrumbidgee. There are no Ironbarks found in any of the catchments in NSW which drain to the Murray River (although they reappear in North-East Victoria). Similarly, Scribbly Gum/Snap Gum is generally confined to the Murrumbidgee catchment, an exception being the Four Mile Lane catchment. Unlike the Ironbark, Scribbly Gum/Snap Gum does not reappear in north-east Victoria, so the Four Mile Lane catchment, and the divide between the Murray and Murrumbidgee catchments (County Ridge), represents the southerly extent of its Australian distribution.

In the catchments which flow to the Murray River and Billabong Creek, dry ridges are dominated by Red Stringybark.

Box woodlands

On the flatter, more fertile country of the lower slopes and plains are woodlands dominated by species of the Box group of eucalypts. Yellow Box, Red Box and White Box are common at the eastern end of the Box woodlands area, and these give way to Grey Box further west.

Because the Box woodlands occur on more fertile country, they have been extensively cleared for agriculture. Although the trees may still be common, the associated species, such as shrubs and grasses have largely disappeared. These communities are a priority for protection and revegetation. Any small remnants of intact Box woodlands that remain are extremely rare and should be protected.

Yellow Box woodlands

Yellow Box occur on fertile, undulating country. Although the trees are still relatively common, the vegetation community has almost disappeared — less than 2 per cent of its former extent remains today. Originally, there would have been a groundcover of native herbs and grasses, with a shrub layer of wattles, including Silver Wattle (*Acacia dealbata*) and Hickory Wattle or Lightwood (*A. implexa*).

Yellow Box/Blakely's Red Gum associations

Yellow Box occur with other Box species, such as Red Box and White Box. It may also form an association with Blakely's Red Gum, which becomes dominant on the drier hill country. Often, in the undulating country in the centre of the South West Slopes, Yellow Box will dominate the flatter areas, while Blakely's Red Gum dominates the rises.

White Box woodlands

The White Box woodlands were originally found in a narrow belt along the inland slopes of the Great Dividing Range, stretching from southern Queensland to north-east Victoria. In the South West Slopes, this belt is generally between the 200 metres (in the west) and 350 metres (in the east) contour.

These woodlands originally had a grassy understorey composed of native grasses such as Kangaroo Grass (*Themeda triandra*) and Wallaby Grass (*Danthonia* species), with a diverse range of native lilies, orchids and other herbs.

Although the White Box trees are still quite common, the understorey of this community has almost completely disappeared, usually because of the influence of grazing and fertiliser use. One CSIRO study found that in the entire former range of the White Box, less than 0.1 per cent with an intact grassy understorey remained.

Grey Box woodlands

As rainfall decreases toward the west of the region, Grey Box replaces White Box as the dominant species. The distribution of Grey Box communities straddles the boundary between the South West Slopes and Riverine Plain Bio-regions.

Grey Box woodlands have been extensively cleared, and most remaining patches are severely modified. Other species associated with Grey Box woodlands include Drooping Sheoak (*Allocasuarina verticillata*) on rises, Bulloak (*A. luehmannii*), Golden Wattle (*Acacia pycnantha*), and Boree (*A. pendula*).

Riparian vegetation

The creeks and rivers of the South West Slopes are lined with River Red Gum (*E. camaldulensis*), together with Silver Wattle. Uncontrolled grazing of many riparian areas has resulted in the removal of understorey species, but occasionally River Bottlebrush (*Callistemon sieberi*) may persist. Phragmites (*Phragmites australis*) is a common reed growing on the waters edge, and plays an important role in erosion control and water quality maintenance. It has, however, been greatly reduced by grazing.

An interesting and important difference between the vegetation along the Murray and Murrumbidgee Rivers is that the River Sheoak (*Casuarina cunninghamiana*), which is common along the Murrumbidgee and its tributaries, is not found along the Murray River, or Billabong Creek.

RIVERINE PLAIN BIOREGION

Grey Box/Boree woodlands

Grey Box woodlands were common here as well, but like the South West Slopes, have been extensively cleared and modified. In places, Grey Box may be absent, and the dominant species rising above a grassy understorey is Boree.

Yellow Box/Cypress Pine/Bulloak woodlands

On the more freely draining soils of the Riverine Plain, such as on sandy soils, Yellow Box may be a dominant tree in association with White Cypress Pine (*Callitris glaucophylla*) and Bulloak.

Lignum communities

In drainage depressions and other poorly drained sites at the far western end of the area covered by this Guide, Lignum (*Muehlenbeckia florulenta*) may form dense thickets. There may be River Red Gums dominating the site. Further west again, Black Box (*E. largiflorens*) may become dominant. It is a common species in the Riverine Plain but not noted within the western margin of the area covered by this Guide.

Native grasslands

There may be some naturally treeless areas where grasses were the dominant plants. Most of the plant diversity in these native grasslands is made up of the variety of orchids, lilies, daisies, legumes and other herbs found *in between* the grass tussocks. Native grasslands are one of the most endangered ecosystems in Australia.

Additionally, many of the woodland communities of the area may have had a grassy understorey. Even though the trees may have been cleared from these communities, the grassy understorey may persist. This is what is called a ‘derived’ native grassland, and may contain a great diversity of native plants.

THE CONDITION OF VEGETATION IN THE SOUTH WEST SLOPES

The South West Slopes is one of the most modified bio-regions in Australia, and most of the vegetation communities listed above have been extensively cleared from their former range. The condition of the vegetation that remains is generally degraded. Commonly, understorey species have disappeared, weeds and introduced grasses have invaded, and there is a lack of regeneration. If these vegetation types are to persist, the remnants of the original vegetation need to be protected by fencing to control grazing, and managed to encourage natural regeneration.

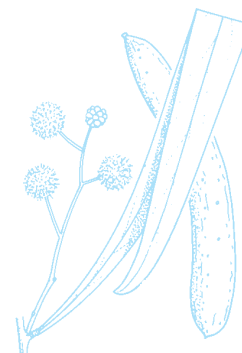
* this is commonly known as Narrow-leaf Peppermint (*E. radiata*) throughout the region. See Plant Descriptions for further details.

ACKNOWLEDGEMENTS

Thanks to Bob Gay and to Fleur Stelling, Dick Green and Martin Driver for their helpful comments.

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remnant vegetation ~ values and threats

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INTRODUCTION

The South West Slopes of New South Wales is an agricultural area of national significance and the value of the land for cropping and grazing has led to widespread clearing of the native vegetation. This has created patches of remnant vegetation around which most or all of the original vegetation has been removed (see Figure 1). Much of this native vegetation is located on steeper, rocky or infertile soils and some on travelling stock routes and railway lines. Few examples exist, however, of the vegetation types which once occurred on more fertile and accessible areas. Any remnants in these areas can be assumed to have high conservation value, even if they are degraded.



Figure 1.

Remnant vegetation is typically found along roadsides or travelling stock routes.

The remnant vegetation in the South West Slopes has many shapes, sizes and degrees of isolation. It represents a number of vegetation associations and occurs on a range of soil and ownership types. For example, State Forests manage remnant forests and woodlands which can cover an area of several thousand hectares. Typically however, remnants are small, including most of the conservation reserves in the region. These reserves do not adequately sample the range of biodiversity in the South West Slopes. For example, plant communities occurring on particular geological types, or grassy White Box (*Eucalyptus albens*) woodlands are not adequately represented in reserves.

Because remnants on private land contain much of the biodiversity outside these reserves, their ongoing management is critical for biodiversity conservation. However, while remnant vegetation has inherent and precious biodiversity value, it also has qualities that are particularly relevant to the sustainability of agriculture. Benefits of remnant vegetation include the prevention and amelioration of dryland salinity, minimisation of soil loss, habitat for native wildlife (important in natural pest control), the provision of shade and shelter for crops, pasture and stock, aesthetic values, the opportunity to maintain genetic diversity and to take advantage of a cheap regeneration method, via self-regeneration. Remnant health is also increasingly being acknowledged as one of the indicators of sustainable agriculture.



VALUES OF REMNANT VEGETATION

Prevention and amelioration of dryland salinity

Deep rooted, perennial native vegetation helps slow the development of surface salinity by utilising ground water. This water may otherwise contribute to rising water tables, waterlogging and accumulation of salt on the surface.

Minimising soil loss

Soil erosion removes valuable top soil and nutrients which causes pollution, salinisation, siltation and algal blooms in water bodies. The only effective way to reduce soil erosion is to maintain groundcover and keep surface run-off to a minimum by ensuring the soil structure is good enough to allow good infiltration of water into the soil. Retaining remnants on farms, particularly on steeper areas and along water courses, can help minimise soil loss and erosion and therefore contribute to farm productivity.

Biodiversity conservation

As already noted, remnant vegetation often represents the best remaining examples of particular ecosystems. Therefore, remnants are particularly important in the conservation of biodiversity and ecological processes in the South West Slopes.

Habitat for native wildlife

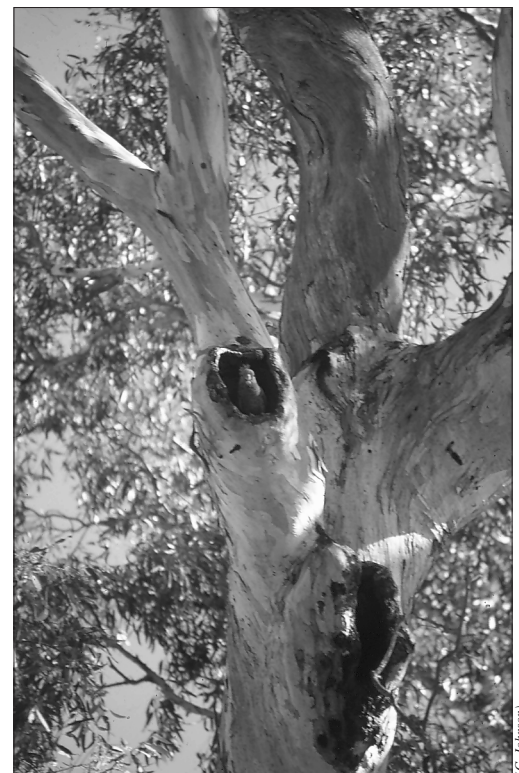
Remnant vegetation provides important habitat for local native wildlife including insects, birds, mammals, lizards and frogs. Hollows, which generally do not start forming until a tree is at least 100 years old, provide essential sites for nesting and shelter for animals such as birds, mammals and bats (see Figure 2). Due to their size, mature trees also provide more food resources than younger trees. Essential habitat is provided for insects, reptiles, frogs and birds by branches, twigs and leaves that fall to the ground (litter). Litter also reduces erosion and maintains soil fertility as it breaks down.

Natural pest control

Remnant vegetation may attract native wildlife that prey upon pasture, tree and crop insect pests, thus providing an alternative to pesticides, which are often harmful to useful species. Wildlife also assist in keeping remnant vegetation healthy, by preying on pests and by carrying predatory parasites and diseases that also reduce pest numbers. As the range and quantity of wildlife that preys on pests increases with habitat diversity, natural pest control is enhanced if there is a diverse habitat, with understorey being particularly important (see Practical Information Note — Natural Pest Control).

Shade and shelter

Remnant native vegetation can provide protection for plants and animals from wind, cold and heat stress. It can shelter stock which reduces lamb and sheep off-shears mortality and improves growth rate. It can shade stock, and reduce heat stress, leading to higher weight gains and improved fertility in sheep. Remnant vegetation can protect newborn sheep and cattle by sheltering them from wind and sun and reduces water



*Figure 2.
Hollows in
old trees
are nesting
sites for
many
native
birds.*

loss from crops and pastures by providing shade. The extent of the shelter partially depends on the height of the trees, with mature trees providing more benefits than recently planted trees. Enhanced shade and shelter is also provided if the vegetation is growing in clumps or in strips (common along roadsides) and includes understorey plants such as grasses and shrubs.

Economic values

There are potentially many sources of direct income from remnant vegetation. These include grazing, browse and fodder; tourism, education and amenity; specialty timbers, craftwood and fuelwood; native seed; cut flowers, foliage and fruits; tannins, resins and essential oils; bush foods and honey (see Chapter 12. The economic use of remnant vegetation, for details).

Aesthetic and other values

Remnants have aesthetic, educational, recreational and scientific values. They contribute an additional visual dimension to human-modified landscapes because they retain a relatively natural appearance. They are also valuable indicators of what the landscape used to be like. Mature trees, which can be up to 400 or 500 years old, are particularly valued for their beauty and contribution to wildlife habitat. Trees planted today will take at least 100 years to attain a similar dimension in the landscape. Because remnants are generally dispersed across the landscape, they are relatively accessible to local communities. They are also suited for research and interpretation. Taken together, these characteristics create a significant educational tool.

Maintenance of genetic diversity

Remnant vegetation, whether it is a lone paddock tree or a patch of bushland, provides a source of plant and animal genetic material that can generally be enhanced by encouraging regeneration. This is particularly important as remnants are often the best remaining examples of once-intact ecosystems. Unfortunately,

most remnant vegetation is either disappearing through continued clearing, or degrading more slowly due to factors such as livestock grazing, weed invasion and rural dieback. Once lost, these complex systems are extremely difficult, if not impossible, to recreate.

Indicators of sustainable agriculture

It has been proposed by the Commonwealth/State Standing Committee on Agriculture and Resource Management that the total area and health and degree of fragmentation of native vegetation (remnant and replaced) may be a useful indicator of sustainability in broadacre cropping areas. The contribution of native vegetation will depend on the health and degree of fragmentation (i.e. corridors or isolated patches of vegetation), the plant species involved, fauna habitat provided, soils, hydrology and topography.

THREATS TO REMNANT VEGETATION

Most remnants have been modified by activities such as grazing, weed infestation, forestry, fire wood collection, herbicide, pesticide and nutrient drift, and altered fire regimes. Rural dieback is also a major factor in the decline of remnants on farms (see Practical Information Note — Rural Dieback). These activities threaten not only existing vegetation, but also can have a major impact on the regeneration of native species, and hence the long-term viability of remnants.

Altered disturbance regimes (fire, impacts of domestic stock, water and nutrient transfers)

Fragmentation of natural vegetation into small patches generally leads to changes in the types of disturbances that occurred prior to clearing. This has the potential to alter the long-term functioning of the communities that remain. Alterations to the types of disturbance in remnants include changes in the frequency, timing and intensity of fires, or changes in grazing pressures. Additional disturbance may arise from new transfers of nutrients, pesticides and water between natural

vegetation and adjacent agricultural land. These transfers are likely to affect the dynamics of the remnants. In particular weed species may be favoured by greater nutrient availability.

Domestic stock do not only cause changes to the way native vegetation is grazed. They break down the soil structure by trampling, increase soil nutrient levels through their waste products (which appears to make trees prone to insect predation), ringbark trees (a particular problem with stringybarks) and introduce exotic seeds via faeces or body surfaces.

Pest plants and animals

Invasion of weed species into remnant vegetation is of particular concern. Once established, it is likely that weeds will have a detrimental effect on the vegetation by impeding regeneration of native species, through their impact on the availability of nutrients, water and light and potential alterations to the fire regime through changes in fuel characteristics (see Chapter 6. Environmental weeds). Pest animals such as foxes and cats can also have a detrimental impact on some of the fauna that inhabit remnants.

Rural dieback

Clearance of native vegetation, mainly by heavy machinery and herbicides, is a continuing threat to remnants. A more insidious loss of natural ecosystems on farms, however, results from rural dieback. Rural dieback is the premature and relatively rapid decline and death of native trees on farms, apparently as a consequence of interacting environmental stresses (see Practical Information Note — Rural Dieback). Deliberate tree clearing and the intensification of land use associated with it are pivotal factors in the development of rural dieback. Remnants with dieback are usually small and lack diversity of vegetation structure, numbers of plant

species, age classes and fauna. The pressure from grazing by insects is usually severe and sustained, leading to sparse crowns and considerable epicormic growth, and tree disorder and death is common (see Practical Information Note — Insects and Tree Decline).

Lack of regeneration of native species

All causes of tree mortality such as ageing, disease, drought, flooding, exposure to extreme weather, insect damage, lightning, hares and rabbits must be viewed in relation to the regeneration of new individuals. The increase in grazing intensity and trampling by cattle and sheep has reduced, and in many cases eliminated, the natural replacement of trees and shrubs (see Figure 3). This is because livestock have not been fenced out of bushland remnants on most farms. Grazing by pest animals such as goats can also be a problem in remnants on outcrops and in the ranges.



Figure 3.
Typical isolated paddock trees not regenerating and lacking associated understorey.

THE FUTURE

While the conservation and management of remnant vegetation is challenging, with strategic planning, sound technical advice and the enthusiasm and commitment of land managers and local communities, the long-term future of remnant vegetation in the South West Slopes is looking much brighter.

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protecting our wonderful woodland remnants

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When planning to revegetate an area, it is worth visiting patches of remnant bush to get an idea of how the trees, shrubs and ground plants have changed on your land over the past 150 years. In the mountains and foothills in the east of the area covered by the Guide, one can easily find patches of bush which contain lots of native plants. We can then develop a mental picture of what reasonably ‘natural’ bush looks like. On the plains and lower slopes, however, it can be hard to find a natural-looking remnant, and it can sometimes be almost impossible to determine how much the land has changed over the past 150 years, as very little is left to indicate changes in the past.

Woodland remnants on public and private land serve many important functions, including soil and water conservation, habitat for plants and animals, sources of native seeds for future revegetation, and to provide a model to guide revegetation efforts. These remnants are also important for our local history and heritage, as they are the only places where our children can see what the region looked like when the Aboriginals roamed the plains, and when the first white explorers and settlers entered, and how we have altered the landscape since then.

So where can such sites be found on the plains? Most of the best woodland remnants are small, hidden between the extensive crops and grazed paddocks. Not surprisingly, most native plants tend to survive in places which have escaped development, and which have not been ploughed, fertilised or continuously

grazed. Typical sites include small cemeteries, along railway lines and little-used travelling stock reserves, and on some stream frontages. Often the grassy areas within country airports and race tracks contain many plants which have vanished from the surrounding region.



Figure 1. *A remnant Grey Box woodland, with shrubby understorey and a mix of native and exotic grasses. Such sites are extremely important refuges for wildlife and native plants.*

A number of botanists have studied the plains and have described general changes in the landscape. They have found that the most important activities which have caused losses of native plants are continual grazing or grazing at high stocking rates, soil disturbance, fertilisation and water run-on, all of which deplete native species and promote exotics, including many weeds (see Chapter 6. Environmental weeds).

When an area which has rarely been grazed by stock is grazed more intensively, the first species to disappear are those which the stock prefer to eat (the palatable species), and which cannot survive being continuously grazed down. Gradually, other species decline and disappear, and at the same time many introduced species become more abundant. As most native woodland plants are perennials and many exotics are annual, the overall effect of increasing grazing is to change a woodland remnant dominated by perennial species to a degraded site dominated by introduced annuals. Many palatable native shrubs also disappear, removing habitat for nesting birds. Most people are so used to seeing roadsides and neglected paddocks dominated by tall weeds that it is a surprise to discover that many small, undisturbed patches of bush actually are very good at resisting weed invasion until the remnants get disturbed.

Because of the magnitude of the landscape changes over the past two centuries, it is often difficult to be confident about which native species originally grew in a particular place. Over most of the White Box woodlands, the landscape appears to have been relatively open originally, with scattered shrubs and a grassy understorey. The original grasses were not the Oats and Phalaris which now dominate most roadsides in the region, but the native Kangaroo Grass and



Tussock-grass. Kangaroo Grass is rapidly eaten out under moderate stocking levels, and has disappeared from all but small areas. Many of the native grasses which are most often observed nowadays, such as Red-leg Grass/Red-grass and Purple Wire-grass, probably became more common as Kangaroo Grass and Tussock grass were eliminated.

To many people, the simplest way to identify a high quality woodland remnant is the wealth of native wildflowers which, in a good season, can cover the ground in a carpet of colour. It is a pity such species have disappeared from our roadsides as they would make a colourful display, far preferable to the bands of Paterson's Curse and Capeweed. In spring, many small cemeteries are bejeweled with the yellow Everlastings and Scaly Buttons, erect spikes of Creamy Candles, Purple Donkey-orchids, nodding yellow Yam-daisies, and sprays of Native Bluebells. Not surprisingly, many gardeners and local councils are using many of these plants in colourful garden beds (see Chapter 15. Landscaping with native plants).

As pointed out in Chapter 4. Threatened flora of the South West Slopes, the South West Slopes region does not contain a large number of species which are nationally rare or threatened. Instead, the extensive foothill and plains land systems contain many widespread species. Nowadays, it is important not to focus too much on nationally rare or threatened species, simply because (by definition) these plants occur in very few places and are absent from many otherwise important remnants. In most places, a more important focus is the large group of species which tenuously survive in many cemeteries, railway easements, stock routes and the odd, lightly grazed paddock, because these species represent the core natural heritage of the woodlands of the South West Slopes region. Regrettably, *many of these species are still slowly declining throughout the region* (and in many other regions as well), as many small remnants are unwittingly degraded or destroyed.

By appreciating and protecting the small remnants which survive in the region, we can save our own local history and natural heritage, important seed supplies, and nature's models for future revegetation efforts. Fortunately, most remnants can be protected very simply, by ensuring that the soil is not disturbed or dug, that fertiliser and water run-on are excluded, and that grazing levels are not increased. No doubt, future revegetators will doubly respect our efforts to conserve these natural seed sources now.

Native species mentioned above:

Creamy Candles	<i>Stackhousia monogyna</i>
Common Everlasting	<i>Chrysocephalum apiculatum</i>
Grey Box	<i>Eucalyptus microcarpa</i>
Kangaroo Grass	<i>Themeda triandra</i>
Native Bluebells	<i>Wahlenbergia</i> species
Purple Donkey-orchid	<i>Diuris dendrobioides</i>
Purple Wire-grass	<i>Aristida ramosa</i>
Red-leg Grass/Red-grass	<i>Bothriochloa macra</i>
Scaly Buttons	<i>Leptorhynchos squamatus</i>
Tussock-grass	<i>Poa sieberiana</i>
White Box	<i>Eucalyptus albens</i>
Yam-daisy	<i>Microseris scapigera</i>

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threatened flora of the South West Slopes

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INTRODUCTION

The South West Slopes of New South Wales have been extensively cleared, and consequently the native vegetation is fragmented and remnants are generally small in size. Only a small area of public land is dedicated to flora conservation, so the management of remnants on private land and non-reserve public lands (e.g. state forests) will play a critical role in the long-term maintenance of native flora in this region. Indeed, less than 0.5 per cent of the region is in the reserve system, compared to the Statewide average of more than 5 per cent. Chapter 3 discusses the large group of plants that are surviving in remnants and need active management to persist. This complementary chapter focuses on plant species in the region that are recognised by legislation as being under threat. Ensuring that these species survive in the future is an important goal of vegetation management activities. It is therefore important that both the terminology and legislative framework surrounding threatened species is understood, and so this chapter gives a brief overview of these issues in the context of the South West Slopes.

DEFINING RARE OR THREATENED PLANT SPECIES

Why have native plant species become 'rare', 'threatened', or 'presumed extinct'?

To the first European settlers Australia appeared to be a land of unlimited resources. It has taken time to realise that this is not the case. Nor has it always been appreciated that:

- some plant species were not widely distributed to begin with and some have become extinct because they happened to be in the way of roadworks, a car park or suburb;

- clearing of native vegetation and the resulting fragmentation of habitats is a major threat to ecological communities;
- many native plants and animals are dependent on each other for survival — the removal of one leads to the decline or death of the other;
- the introduction of exotic plants and animals has had a major impact on native species;
- alteration of fire regimes has led to the decline of some species.

Some plants are rarer or more threatened than others. The main terms used to describe the conservation status of Australian native plants are listed below.

- **presumed extinct:** species not definitely located in the wild during the last fifty years despite thorough searching in all known and likely habitats, or of which all known wild populations have been destroyed more recently.
- **endangered:** species in danger of extinction and whose survival in the wild is unlikely if threatening processes continue operating.
- **vulnerable:** species likely to move into the endangered category in the near future if the threatening processes continue to operate.
- **threatened:** species considered to be either endangered or vulnerable.
- **rare:** species which are uncommon but are not currently threatened with extinction.
- **poorly known:** species which are suspected of belonging to one of the above categories but more information from the field is needed.

Species which are classified into the above categories are often referred to as ROTAPs (Rare Or Threatened Australian Plants), a description given in Briggs and Leigh's work in the area.

OVERVIEW OF THREATENED, RARE OR POORLY KNOWN PLANTS IN THE SOUTH WEST SLOPES

Twenty two threatened, rare or poorly known plant species are currently listed for the South West Slopes (Table 1). Of these 22 species 4 are considered endangered, 10 vulnerable, 3 rare and 5 poorly known (Table 1). Of these 22 species only two are within the conservation reserves of the South West Slopes (Table 1) and six species are presumed extinct in the region.

This leads onto an important aspect when assessing the flora of the South West Slopes. In New South Wales there are 14 botanical subdivisions (see any volume of the Flora of New South Wales for a map of the borders) and of these 14 divisions the South West Slopes has the second lowest area (0.2 per cent or approximately 7000 ha) of reserved land in the state. This reserved land consists of no national parks, 6 nature reserves and 2 state recreation areas. The average for the whole of New South Wales in 1997 was 5.7 per cent or approximately 30 times greater. Thus it is not surprising that so few ROTAP species are conserved within the South West Slopes (Table 1). In addition, of the 12 ROTAP divisions in New South Wales the South West Slopes has the lowest number of ROTAP species recorded. This indicates that a combination of: (i) extensive and intensive land disturbance, (ii) a small area of remnant vegetation, (iii) a small percentage of this remnant vegetation is in conservation reserves, and (iv) limited botanical research has probably meant that many ROTAP-type species have been lost from the South West Slopes without ever having been recorded.



Table 1 RARE OR THREATENED AUSTRALIAN PLANTS OF THE SOUTH WEST SLOPES, NSW.

Table 1 provides the following information on these species.

Botanical name: the botanical or scientific name is listed.

Family: the plant family is listed.

Threatened status: see the text for an explanation of these conservation status terms.

Conserved in Australia? and Conserved in the South West Slopes?: these columns indicate whether the species has at least one population within a national park, nature reserve or other area dedicated for the protection of flora in Australia or the SWS, respectively.

Habitat: describes the typical areas and/or conditions under which the species grows (information from the Flora of New South Wales).

Figure 1. The Woolly Ragwort (Senecio garlandii), a vulnerable species growing on the upper slopes of The Rock Nature Reserve. Note the relative abundance of this species at this site.

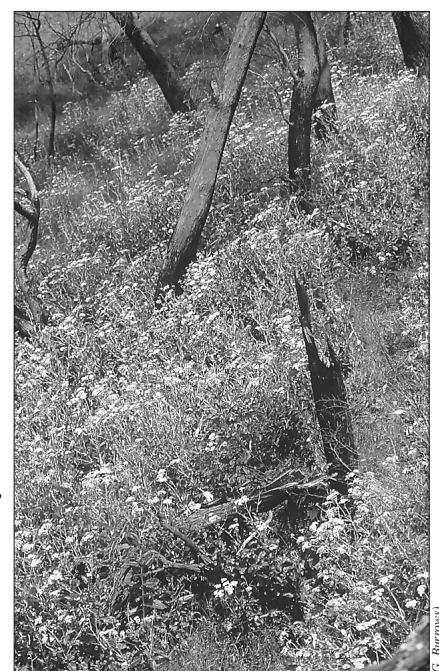


Table 1 Rare Or Threatened Australian Plants of the South West Slopes, NSW.

This table is largely based on information in Briggs and Leigh (1996).

Botanical name	Family	Conservation status	Conserved in Australia?	Conserved in the South West Slopes?	Habitat
<i>Ammobium craspedioides</i>	Asteraceae	Vulnerable	no	no	sclerophyll wood-land, forest and on roadsides
<i>Brachyscome gracilis</i>	Asteraceae	Rare	yes	no	on rocks in dry areas
<i>Brachyscome muelleroides</i>	Asteraceae	Vulnerable	yes	no	damp areas, on margins of claypans; south from Wagga
<i>Brachyscome papillosa</i>	Asteraceae	Vulnerable	unknown	unknown	saltbush plains; chiefly from Mossgiel to Urana
<i>Senecio garlandii</i>	Asteraceae	Vulnerable	yes	yes	sheltered slopes of rocky outcrops; from West Wyalong to Albury
<i>Stemmacantha australis</i>	Asteraceae	Vulnerable	no	no	heavy soils
<i>Taraxacum aristum</i>	Asteraceae	Rare	yes	no	(species not listed in Flora of New South Wales)
<i>Brasenia schreberi</i>	Cabombaceae	Rare	yes	no	shallow freshwater lagoons or backwaters
<i>Psoralea parva</i>	Fabaceae	Endangered	yes	no	(species not listed in Flora of New South Wales)
<i>Swainsona murrayana</i>	Fabaceae	Vulnerable	yes	no	on heavy soils, in depressions, often with <i>Maireana</i> species
<i>Swainsona recta</i>	Fabaceae	Endangered	yes	no	in grassland & open woodland, often on stony hillsides
<i>Goodenia macbarronii</i>	Goodeniaceae	Vulnerable	yes	no	damp, sandy soil
<i>Acacia phasmoides</i>	Mimosaceae	Vulnerable	yes	no	damp granite-derived soils, often on creek banks; Holbrook district
<i>Caladenia concolor</i>	Orchidaceae	Vulnerable	yes	no	sclerophyll forest on clay loams or gravel beds; south from Bethungra
<i>Caladenia rosella</i>	Orchidaceae	Endangered	no	no	(species not listed in Flora of New South Wales)
<i>Diuris tricolor</i>	Orchidaceae	Poorly known	no	no	sclerophyll forest among grass, often with <i>Callitris</i>
<i>Pterostylis petrosa</i>	Orchidaceae	Poorly known	yes	yes	sparse sclerophyll forest, in crevices and ledges on rock outcrops; confined to the Riverina
<i>Amphibromus fluitans</i>	Poaceae	Vulnerable	no	no	permanent swamps
<i>Amphibromus pithogastrus</i>	Poaceae	Poorly known	no	no	seasonally swampy areas
<i>Grevillea iaspicula</i>	Proteaceae	Endangered	no	no	on limestone, in rocky outcrops; Wee Jasper and Burrinjuck areas
<i>Aphanes pumila</i>	Rosaceae	Poorly known	no	no	(species not listed in Flora of New South Wales)
<i>Gratiola pumilo</i>	Scrophulariaceae	Poorly known	no	no	seasonally inundated, damp ground

OTHER SOUTH WEST SLOPES STUDIES

Recent studies of remnant vegetation in the South West Slopes by Burrows in 1997 have recorded three species (*Ammobium craspedioides*, *Senecio garlandii* and *Diuris tricolor*) on the ROTAP list for the South West Slopes and one species (*Brachyscome papillosa*) which is listed as a ROTAP but not for the South West Slopes.

- *Ammobium craspedioides* is recorded in the Flora of New South Wales as ‘rare, confined to the Yass district’ but a small population has been subsequently found in Livingstone State Forest (approximately 30 km south of Wagga) and presumably there may be further populations in the intervening distance of over 100 km.
- *Senecio garlandii* (Woolly Ragwort) is probably the most easily observed of the ROTAPs in the South West Slopes as it is a conspicuous part of the flora of the upper part of The Rock Nature Reserve and is sometimes mistakenly considered a weed. Previously *S. garlandii* was known from six or seven sites and only one of these, The Rock Nature Reserve, was a conservation area. *Senecio garlandii* has now been recorded from a further three sites of which two are conservation areas (Table Top and Ulandra Nature Reserves) and its apparent habitat preference for the upper scree slopes of steep sided hills and rocky outcrops in the



Figure 2. Woolly Ragwort. Note the yellow daisy-type flowers and the large soft leaves which are bright green above and covered by a dense mat of white hairs below.

area has been confirmed by Burrows in 1995.

- *D. tricolor* has been recorded at several sites in the White Cypress Pine country to the west of Wagga. While never abundant, the ‘Poorly known’ listing may not be appropriate.
- a small population of *B. papillosa* has been recorded in the small annexe of Ganmain State Forest which is just east of Ganmain township.

RELATED LEGISLATION

To support the protection of native plants, Commonwealth and State legislation has been developed, which is relevant to the SWS, as follows:

1. The Commonwealth's *Endangered Species Protection Act* (ESPA, 1992). This chapter used an August 1997 revision that is available on the World Wide Web at <http://www.biodiversity.environment.gov.au/plants/threaten/list.htm>;
2. The NSW Government's *Threatened Species Conservation Act* (TSCA, 1995) No 101. This chapter used a December 1996 update available from NSW National Parks & Wildlife Service (NPWS); and
3. The NSW *National Parks and Wildlife Act* (1974 No. 80 Schedule 13 — Protected Native Plants). This chapter used a January 1996 update available from NSW NPWS.

A useful book to learn more about native plants under threat is *Rare or Threatened Australian Plants* by Briggs & Leigh (1996). This chapter is mainly based upon information in this book, and updates from the Commonwealth Department — Environment Australia. Another couple of useful publications are *Threatened Australian Flora* prepared by the Endangered Flora Network for the Australian and New Zealand Environment and Conservation Council and *Management of Endangered Plants* by Cropper (1993). Also worth obtaining are two journals or newsletters which are not overly scientific in style. These are: *Danthonia*, jointly published by the Australian Network for Plant Conservation and the Australian National Botanic Gardens, and *On the Brink* which is published by Environment Australia.

MANAGING THREATENED SPECIES

How can we stop threatened species from becoming extinct and other plants from becoming threatened? Through preparing and carrying out Recovery Plans we can take positive action to protect threatened species. Recovery Plans determine the research and management actions needed for species to recover. The aim of recovery is to ensure the long-term survival of species in the wild.

Conservation of a species involves more than setting up a National Park or other conservation reserves around it. Conservation requires active management, research and monitoring to ensure the most suitable conditions are maintained for the species. Recovery of threatened species involves removing or controlling threats such as clearing, overgrazing, some recreational activities, illegal collecting, etc. Removing threats will also help other species in the area and improve the quality of the habitat generally.

REVEGETATING WITH THREATENED SPECIES

Recovery of threatened plant species often involves growing the plants away from their natural habitat, in nurseries or gardens. New plants raised from these plants can then be replanted into existing wild populations or to re-establish the species in areas where it has died out. Off site collections are an important genetic resource, particularly if a wild population is lost through events such as fire or disease (anon. 1993). However, collection of seed or cuttings from natural populations should be controlled and not become a threatening process in itself.

CONCLUSION

This chapter lists the ROTAP species that have been identified to date in the South West Slopes. While they are few in number, they are an important part of our heritage and require active management so that they can be enjoyed by future generations. If you suspect that you have found a ROTAP species, especially outside a conservation reserve, the appropriate organisations to contact are the Royal Botanic Gardens

in Sydney, the Australian National Botanic Gardens in Canberra or the New South Wales National Parks and Wildlife Service, which will provide advice about the appropriate management activities for that particular species. It should also be remembered that all plant species have a role to play in our environment, whether they are rare or common. We have a duty of care to sustain our indigenous vegetation and this Revegetation Guide will go some way towards meeting that aim.

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ACKNOWLEDGEMENTS

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wildlife of the South West Slopes

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INTRODUCTION

Remnant vegetation and the wildlife therein are all part of a complex web of life. The complexity of these natural systems (or ecosystems) is what affords them their resilience — the in-built checks and balances ensure that natural systems function. Healthy sustainable farming requires healthy diverse ecosystems.

As these natural systems break down we begin to notice increasing problems such as problem wildlife; more cockatoos and galahs, due in part to less predation by goannas; less effective natural pest control exacerbates tree dieback and more outbreaks of pest insects; and tree loss leads to major groundwater increases, resulting in high water tables.

MAJOR REGIONAL HABITAT TYPES

Wildlife is dependent on remnant vegetation for its survival. The natural vegetation is a key component of each species habitat. The type, condition and extent of remnant vegetation will determine the wildlife present in an area. The major types of habitats in the South West Slopes are wetlands, riverine forests, Cypress Pine/Box woodlands, and foothill forests.

SPECIALISED WILDLIFE IN THE REGION

Specialised wildlife of these habitats include:

Species*	Wetlands	Riverine forests	Cypress Pine/Box woodlands	Foothill forests
Brolga	✓	-	-	-
Apostlebirds	-	-	✓	-
Grey-crowned Babbler	-	-	✓	-
Stone Curlew	-	-	✓	-
Superb Parrot	-	✓	✓	-
Regent Honeyeater	-	-	✓	✓
Carpet Python	-	✓	✓	-
Squirrel Glider	-	✓	✓	-
Brush-tailed Phascogale	-	-	✓	✓
Platypus	-	✓	-	-

* see Appendix 3 for corresponding scientific names.

Definitions:

- **Wetlands** — areas regularly inundated by water for more than two months.
- **Riverine forests** — strip of vegetation, mostly dominated by River Red Gum (*Eucalyptus camaldulensis*), along creeks and rivers.
- **Cypress Pine/Box woodlands** — mostly west of the Hume Highway. Less than five per cent of this habitat remains because it occurs on the relatively fertile soils. Varies from a mix of Box species (usually Grey Box, *E. microcarpa*, White Box, *E. albens*, or Yellow Box, *E. melliodora*, and Blakely's Red Gum, *E. blakelyi*) and White Cypress Pine, *Callitris glaucophylla*, to pure stands of either. Has a mainly grassy understorey.
- **Foothill forests** — mixed eucalypt forests (species include Red Box, *E. polyanthemos*, Red Stringybark, *E. macrorhyncha*, Broad-leaved Peppermint, *E. dives*, Brittle Gum, *E. mannifera*, and Long-leaf Box, *E. goniocalyx*) on ridge tops and slopes usually higher than 300 metres elevation, generally east of the Hume Highway. Often has a shrubby understorey.

SPECIALISED WILDLIFE DETAILS

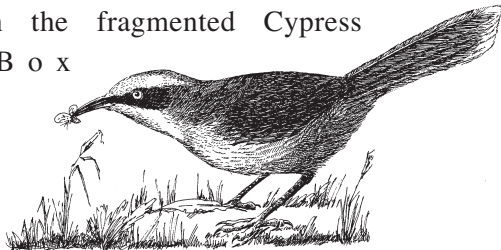
Brolga (Native Companion)

A large crane dependent on shallow, mostly open wetlands for breeding. Feeds on water plants, frogs, small mammals, insects and larvae. Occasionally seen foraging in stubble and pasture. It is now rare in the region. Major threats include fox predation of young and draining of wetlands.



Grey Crowned Babbler (Happy Family)

Medium-sized bird with broad white eyebrow over black eye mask. Most noticeable by large stick nests usually in saplings or large shrubs 3–6 m high, or loud ‘Yahoo’ call. Lives communally in family groups of 4–13 birds. Feeds on insects and larvae under bark of trees and on the ground. It is now endangered in Victoria and appears to be declining in the South West Slopes. Major threats include lack of tree and shrub regeneration and increased isolation between groups in the fragmented Cypress Pine / Box habitats.



Apostlebirds

Dumpy, restless, noisy grey-brown bird, which lives in groups of 6–20 birds. Makes a large mud bowl to nest in, with dominant male and female breeding while the rest of the group assist in chick rearing. Appears to be mostly associated with Cypress Pine woodlands, in particular relatively dense stands. It is endangered in Victoria but numbers



appear to be stable in the region. Major threat appears to be lack of tree and shrub regeneration of Cypress Pine woodlands.

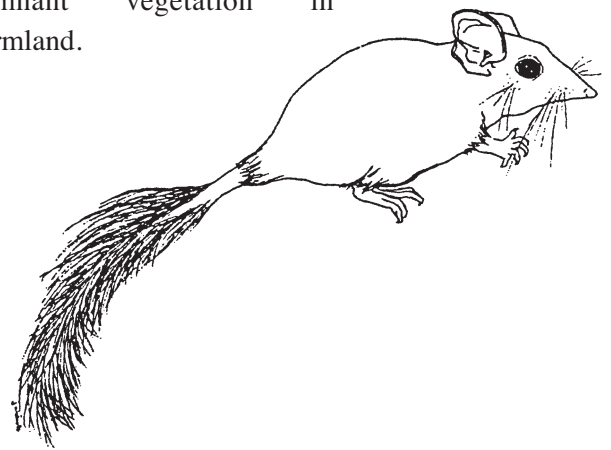
Carpet Python

Large snake to 3m long with distinctive patterned pale brown blotches on dark brown. This harmless, non-venomous snake feeds mainly on small mammals (e.g. rabbits, rats, possums) and bird eggs or nestlings. These snakes are rare in riverine forests and rocky outcrops west of the Hume Highway. Major threats are not known, but may include fox predation, loss of hollow bearing trees (for shelter and nesting) and increased isolation of hilltop populations.

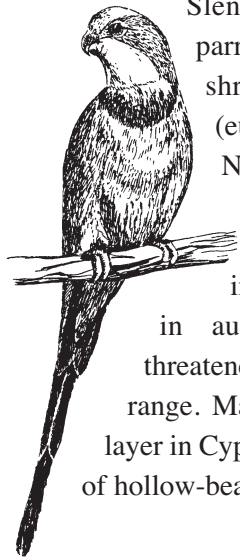


Tuan (Brush-tailed Phascogale)

A native carnivorous marsupial about the size of a large rat with a distinctive, black bottle-brush tail. Forages mainly on the trunks and large limbs of eucalypts for large insects under bark. It is a rare inhabitant of the Cypress Pine/Box woodlands and Foothill forests, with very few recent sightings. The major threats appear to be loss of large hollow-bearing trees, which the Tuan needs for shelter and nesting, and the increased isolation of remnant vegetation in farmland.



Superb Parrot



Slender, long-tailed, bright green parrot. Feeds on seed (particularly shrubs and grasses) and blossom (eucalypts, acacias and mistletoes). Nests in large hollow-bearing Red Gums in riverine forest, e.g. Barmah–Millewa and migrates into Cypress Pine/Box woodlands in autumn/winter. This species is threatened with extinction throughout its range. Major threats include loss of shrub layer in Cypress Pine/Box woodlands and loss of hollow-bearing trees for breeding.

Squirrel Glider

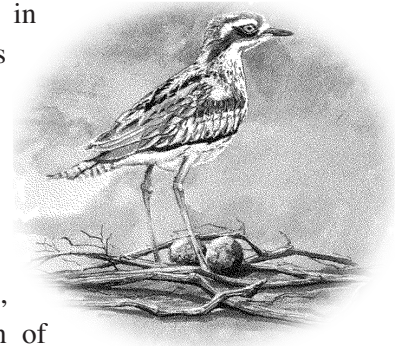
Gliding possum, similar to Sugar Glider except it is larger, with a more pointed face and a bushier tail. Nocturnal, and breeds and roosts in hollows of trees, usually with small entrance, about 4 cm in diameter. Feeds mainly on insects (e.g. caterpillars, weevils, beetles and moths), but also utilises plant sap, gum, honeydew and nectar. The presence of large wattles, such as Silver Wattle (*Acacia dealbata*), Golden Wattle (*A. pycnantha*) and Hickory Wattle/Lightwood (*A. implexa*), appears to be important to provide gum for food when insect numbers are low in winter/early spring. The Squirrel Glider is rare in the region. Major threats include lack of shrubs in Cypress Pine/Box woodlands and Riverine forests and loss of large hollow-bearing trees.



**Bush Stone Curlew
(Willaroo or Bush Thick Knee)**

Large mottle-coloured ground dwelling bird, more often heard than seen. Calls mainly at night, with an eerie, far carrying, whistling call. Long lived bird (30+ years) which roosts amongst sticks on the ground under open Cypress Pine/Box woodland with a sparse grassy understorey. Feeds on insects, frogs and mice.

The Curlew is rare in the region and is threatened with extinction. Major threats include fox predation of eggs or young, tidying up of sticks under trees, lack of regeneration of trees in day roosts and use of tall crops and pasture (e.g. *Phalaris* species) amongst day roosts (reducing the Curlew’s ability to see).



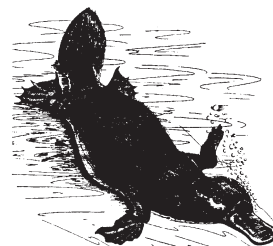
Regent Honeyeater

Medium-sized honeyeater with striking bold, scaly plumage pattern with bright yellow edges on black feathers. Feeds on flowering eucalypts and insects. Utilises Mugga Ironbark, White Box and Yellow Box habitats in winter/spring; its summer whereabouts is not well known. Occasionally seen in planted gardens, e.g. Red Flowering Yellow Gum, *Grevillea* and *Callistemon* species. The numbers and range have seriously declined this century such that the bird is endangered throughout its range. The threats are not well understood, but the continued degradation of high quality flowering sites (e.g. best fertile remnants with Mugga Ironbark, Yellow Box and White Box) is thought to be implicated.



Platypus

The platypus feeds entirely in water on aquatic insects and molluscs on the stream floor. It rests and nests in a burrow in the bank of a stream, with the entrance usually covered by vegetation. The platypus is rare in the lower reaches of our streams and does not adapt well to large, deep dams. Platypus require relatively good water quality for their food supply and stable, well vegetated stream banks for burrowing.



KEY HABITAT COMPONENTS

Some of the key habitat components for the region's wildlife include:

- **Nectar** The production of nectar and pollen by native plants is integral to the survival of many birds, including Honeyeaters (18 species), Parrots and Lorikeets (5 species). The prolific winter/spring flowering eucalypts such as White Box, Yellow Box, and Mugga Ironbark are particularly important.
- **Rocky outcrops** These are particularly valuable for basking and shelter for reptiles. Also, in many cases the cracks in rocks provide shelter from grazing animals, allowing succulent native plants to survive.
- **Understorey (shrubs)** These provide increased opportunities for wildlife in woodlands and forests through more shelter, for resting and nesting and more feeding opportunity through seeds, nectar and pollen. The loss of shrubs, due to their palatability and relatively short life spans (less than 50 years) has greatly reduced wildlife diversity in Cypress Pine/Box woodlands and Riverine forests. Regrowth eucalypt saplings may temporarily fulfill the shelter role for some wildlife.
- **Groundlayer** This is mostly grass or forbs on the more fertile sites with small shrubs becoming more common in steeper rocky sites. Gaps between plants are common in natural areas, allowing animals to feed on insects and seeds on the ground. In areas with mostly introduced plants, such as improved pasture and crops, the sward is often too dense for many species to feed on the ground. As well, tall dense grasses reduce the opportunity for many species to roost on the ground because their ability to see potential predators is restricted.
- **Large hollow-bearing trees** Many of the region's birds and mammals are dependent on these trees for survival. Hollows can take over 100 years to form. A major ecological problem facing our district is the loss of paddock trees, as they are mostly old and are not regenerating. Their loss without

replacement will greatly reduce local wildlife opportunities. Big trees also have an important suppressing role, ensuring that regeneration is not too dense, thereby maintaining its open woodland setting.

- **Dead trees** Large dead standing trees provide valuable nesting and resting for wildlife, just like live trees. Bats and reptiles in particular favour these trees. Dead trees may stand for over fifty years before falling (where they provide habitat for other wildlife such as reptiles).
- **Litter layer** The fallen timber and sticks under trees provide many forms of wildlife with food and shelter. Ground dwelling birds and reptiles are particularly susceptible to the removal of this layer. Note that in areas where feral animals (e.g. rabbits and foxes) are a problem, some habitat destruction may be required to destroy warrens or dens. In areas where fallen timber is a major problem (for instance, a cropping paddock or regularly used access) timber removal is required. However in most grazing situations fallen timber is an environmental asset.

FLORA AND FAUNA IN REMNANT WOODLAND

A healthy 10-hectare remnant woodland in the South West Slopes, would typically contain:

- eucalypts of various ages, including hollow-bearing trees and regeneration;
- shrub layer/s (particularly wattle and pea species);
- mostly grassy understorey, with various native herbs;
- 60–100 species of vascular plants (i.e. plants more highly evolved than mosses and liverworts);
- abundant fallen timber;
- 30–40 species of birds (mostly insectivores) including: Thornbills (2–5 species); Robins (1–5); Golden or Rufous Whistler; Grey Shrike-thrush; Pardalotes (2); Honeyeaters (2–10); Treecreeper (1–2); Crested Shrike-tit; Sittella; Jacky Winter;

Grey Fantail; Firetail (1–2); Peaceful Dove; Cuckoo-Shrike (1–2); Babbler (1–2); Silvereye; Restless Flycatcher; Woodswallow (1–5); owls (1–4); Kingfisher (1–3); White-winged Triller and birds of prey (2–9);

- over 10 mammals (mostly bats) including: Eastern Grey Kangaroo; Swamp Wallaby; Echidna; Wombat (east of the Olympic Highway); Ringtail and Brushtail Possum; Gliders (1–5); Antechinus (1–3); and Bats (1–8);
- up to 10 species of reptile including: Tree Goanna; Snakes (1–3); Skinks (1–4); Blind Snakes (1–2); Gecko (1–2); and Legless Lizard (1–2);
- a diverse range of insects; and
- a healthy canopy of leaves.

Most woodlands of 10 hectares in farmland throughout this region contain:

- eucalypts of one age class (usually old pre-European);
- no shrubs;
- mainly grassy understorey with perennial spring/summer growing native plants mostly replaced by 2 or 3 annual grasses such as Barley Grass and Silver Grass;
- less than 10 vascular plants;
- branches tidied up and burnt;
- less than 10 birds, usually dominated by large aggressive species such as Noisy Miner; Magpie; Eastern Rosella; and Mudlark;
- about 5 species of mammals, Eastern Grey Kangaroo, Brushtail Possum, Ringtail Possum and Bats (1–2);
- 1–2 species of reptile, e.g. Brown Snake;
- abundant insects (few species); and
- eucalypt dieback common.

KEY ACTIONS TO RETAIN WILDLIFE IN RURAL AREAS

- Fence remnant vegetation and manage grazing to allow tree and shrub regrowth.
- Reintroduce local shrubs for farm woodlots.
- Retain sticks and logs under trees, where possible.

- Retain all large trees, where possible, alive or dead.
- Widen narrow habitats, e.g. green lanes and roadsides (most wildlife are more likely to utilise wide habitats; some honeyeaters for instance are seldom seen in roadsides narrower than 40 metres).
- Maintain natural wetting and drying of wetlands.
- Minimise weeds, including aggressive pasture species (e.g. Phalaris, Barley Grass) in remnants.
- Undertake regular fox, rabbit and feral cat control in remnants.
- Reduce superphosphate and chemical spray drift into remnants.
- Maintain existing vegetated strips or copses between remnants by fencing and managing grazing to allow regeneration.
- Better understand wildlife, by watching and enjoying them.

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environmental weeds

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DEFINING ENVIRONMENTAL WEEDS

A common definition of a weed is ‘a plant growing where it is not wanted’. When we think of bushland or remnant native vegetation, a plant that is not a local original plant is considered to be out of place. The occasional non-locally native plant growing in remnant vegetation is not a problem, however many of these plants spread and invade remnant vegetation and can be considered *environmental weeds*.

Plants can be weeds in terms both of agriculture and remnant vegetation, but many are specific to either one or the other. Some plants are desirable in one situation but a weed in another — bracken fern (*Pteridium* species) belongs in native vegetation but when it moves on to farmland it is considered an agricultural weed. Phalaris is a desirable farm plant, but also an environmental weed when it invades native vegetation. So it is often the situation or context that determines a plant’s status, not the plant itself.

Apart from actual clearing of native vegetation, environmental weeds and grazing are the greatest threats to the long-term viability of remnant vegetation in agricultural areas. As Stella Humphries found in the 1991 CSIRO study on environmental weeds, ‘weed invasions pose one of the most serious nature conservation problems in Australia’.

Environmental weed invasion is an insidious problem, not unlike salinity. Many people see gum trees and assume that all is well in the bush. Few people can identify understorey plants (shrubs, grasses, herbs) and often we are not aware that many of our ‘understorey plants’ are weeds. Some environmental weeds, such as Cape Broom (*Genista monspessulana*), could be mistaken for native plants.

Native plants can also be environmental weeds, such as Cootamundra Wattle (*Acacia baileyana*), when it grows outside its home territory.

HARMFUL EFFECTS OF ENVIRONMENTAL WEEDS

Environmental weeds take up the physical space where locally native plants would normally grow, hence reducing the numbers of such plants by crowding them out. There are often few natural predators of weed species to keep them in check. Environmental weeds also have many other detrimental effects that may be not so obvious.

Environmental weeds affect regeneration of locally native plants by changing the environmental conditions — providing more shade and humidity; producing chemicals that inhibit germination of other plants; producing different leaf litter; and using up nutrients and moisture.

They alter the balance of fauna by favouring some species, particularly introduced animals. When weeds reduce the number of locally native plants, they reduce the food supply for animals that rely on these plants. Animals play a large part in the health and regeneration of native vegetation, for example by keeping insects in check, pollinating plants, spreading seeds, and helping leaf litter to decompose. It is often rare species that are most affected, as they tend to have specific needs and don’t have the capacity to use other food or resources (see Chapter 4. Threatened flora of the South West Slopes). Many changes are probably occurring on a level that we do not notice. The consequences of such changes are yet to be discovered. It is not easy, for example, to notice what is happening to insect and reptile populations, yet they have a direct relationship to the health of remnant vegetation.

Weeds can change the way our natural systems work. They can increase the risk of fire or change the temperature of burning, for example wild oats (*Avena fatua*) may burn hotter than smaller, greener native grasses. Much of the vegetation in this area is closely associated with fire and depends on particular fire regimes for its survival. Weeds can change water flows. For example changes in creek courses are often caused by willows.

Weeds simplify ecosystems by reducing their diversity. Diversity of structure (provided by trees, shrubs and groundcovers) and diversity of species is desirable for the health of remnant vegetation.

THE SPREAD OF ENVIRONMENTAL WEEDS

There are various methods through which weeds are spread. Seeds are transported in soil (particularly along roadsides by graders, in car tyres, and in soil used for road construction). Disturbing the soil encourages seeds to establish. Often invasive plants are planted near remnant vegetation due to lack of understanding of the threats or consequences. Dumping of garden prunings spreads seeds, bulbs and cuttings. This method of spreading appears to have increased since garbage tips began charging for rubbish disposal.

Any plant with a small or medium sized berry (e.g. Privet, *Ligustrum* species, Hawthorn, *Cretaeagus monogyna*, and Cotoneaster, *Cotoneaster* species) has the potential to spread by birds. Foxes are known to spread blackberry seed in their droppings after eating the fruit. Seeds are carried on the coats of animals. Water and wind are seed dispersers, for example spreading the seeds of Tree Lucerne (*Chamaecystisus palmensis*), and Rose Briar (*Rosa* species).



USEFUL PLANTS AS ENVIRONMENTAL WEEDS

A plant can be desirable in the farm or garden, but become an environmental weed in native vegetation nearby. Phalaris is a serious environmental weed of remnant vegetation on roadsides and creeks due to its invasive nature, but will continue to be planted because of its qualities as a pasture grass (see Figure 1). We need to manage these types of situations for the benefit of both farmland and native vegetation. If a phalaris paddock is next to remnant vegetation, a buffer area should be left. This could be planted with a shelter belt or farm forestry and managed so that the phalaris does not invade. Buffer zones have protection value, as well as many other benefits, such as providing habitat, preventing erosion and keeping chemicals out of the water (see Chapter 13. Farm forestry æ trees for productive farming).



Figure 1.
Phalaris dominates the understorey of many roadsides in the region.

Tree Lucerne (Tagasaste) is another plant promoted for farm planting but is a serious weed when it invades native vegetation. If thought is given to this in the planning stage, Tree Lucerne can be planted away from remnant vegetation. Pruning before seed set will guarantee it does not invade and will also keep the plants in a useful form for grazing. Willows (*Salix* species) widely planted along watercourses for stabilising banks, have become the dominant feature of many watercourses at the expense of native vegetation (see Figure 3). Refer to Chapter 10. Creek revegetation and erosion control, for further details on willows.

TACKLING ENVIRONMENTAL WEEDS

While the environmental weeds problem was earlier compared to salinity, it is much easier to rectify than salinity if environmental weeds are tackled while there is still remnant vegetation. However, the sooner environmental weeds are tackled, the better the chances of survival for native vegetation, as the remnant patches continue to degrade at an ever increasing rate.

Because our native vegetation has developed in a land of disturbances and unpredictability, particularly fire and drought, it has a significant capacity to regenerate naturally. Given some assistance, particularly the removal of environmental weeds, native vegetation tends to regenerate. There are a number of other forms of assistance that are used successfully, such as fire, direct seeding and channelling of water.



Figure 2. Injecting herbicide into a woody weed is a removal method involving minimal disturbance.

MANAGING ENVIRONMENTAL WEEDS IN REMNANT VEGETATION

Weeds tend to invade native vegetation when it is disturbed, so avoid disturbing it — keep to tracks, keep heavy machinery use to a minimum, don't overgraze, and don't over-burn. Use weed removal techniques that require the least disturbance (e.g. cutting and poisoning and injecting trees rather than bulldozing — see Figure 2).

Remove environmental weeds from native vegetation before they have become established. If they have set and dropped seed, more seedlings will germinate, requiring removal. If weeds can be removed before they drop seed, the work needed to restore the native vegetation will be greatly reduced.

Remove environmental weeds from gardens or farm plantings.

Find out about bush regeneration (see References and further reading below). This is particularly important if an area is heavily infested with weeds.

Become more familiar with locally native plants so that weeds will be recognised (see Practical Information Note — Getting to Know your Local Plants).

When planting windbreaks and shelter belts check that you are not planting environmental weeds. Planting locally native species is safest and has many other benefits.

When planting near bush use locally native species from locally collected seed, to avoid altering the gene pool (i.e. 'genetic pollution').

Weed invasion is usually worst around the edges of remnant vegetation. Try to minimise the length of the edges of areas of remnant vegetation (blocks have less edge than strips), and join isolated patches.

AVOIDING ENVIRONMENTAL WEEDS IN THE GARDEN

Gardens are often a source of environmental weeds, particularly in relation to native vegetation in urban areas. Plants known to be environmental weeds should be removed. There are many locally native plants that make excellent garden specimens. Gardens don't have to be *either* native or exotic. Many native species blend well with exotic species. Locally native plants have many benefits in gardens: they need less water; they attract a variety of birds and insects; they can have an important conservation value; and give the garden a 'local' flavour (see Chapter 15. Landscaping with

locally native plants). Contrary to common belief, most native shrubs in a garden situation look better with pruning, so planting natives doesn't automatically mean a 'wild' garden, although many like this look.

ENVIRONMENTAL WEEDS IN THE AREA COVERED BY THE GUIDE

This list is not exhaustive and any non-local native plant showing invasive tendencies in remnant vegetation should be considered an environmental weed for the particular area. Some plants have shown very invasive tendencies in other parts of Australia and although they are not a problem in this region, it is thought that their potential is such that they should not be planted here. Athel Pine (*Tamarix aphylla*) is one such plant.

Trees

Pines	<i>Pinus radiata</i> and others
Willows	<i>Salix babylonica</i> , <i>S. fragilis</i> and others
Poplars	<i>Populus nigra</i> , <i>P. alba</i> and others
Hawthorn	<i>Crataegus monogyna</i>
Cherry Plum	<i>Prunus cerasifera</i>
False Acacia	<i>Robinia pseudoacacia</i>
Pepper Tree	<i>Schinus</i> species
African Olive	<i>Olea africana</i>

Shrubs

Cootamundra Wattle	<i>Acacia baileyana</i>
Firethorn	<i>Pyracantha angustifolia</i>
Cotoneaster	<i>Cotoneaster</i> species
Cape Broom	<i>Genista monspessulana</i>
Blackberry	<i>Rubus fruticosus</i>
Broadleaf Privet	<i>Ligustrum lucidum</i>
Small-leaf Privet	<i>Ligustrum sinense</i>
Boxthorn	<i>Lycium ferocissimum</i>
Sweet Briar	<i>Rosa rubiginosa</i>
Tree Lucerne/ Tagasaste	<i>Chamaecystis palmensis</i>

Grasses, herbs and creepers

Phalaris	<i>Phalaris aquatica</i>
Paspalum	<i>Paspalum dilatatum</i>
Wild Oats	<i>Avena fatua</i>

Bridal Creeper	<i>Myrsiphyllum asparagoides</i>
Paterson's Curse	<i>Echium plantagineum</i>
Horehound	<i>Marrubium vulgare</i>
St John's Wort	<i>Hypericum perforatum</i>
Shell grass	<i>Briza maxima</i>
Silver Grass	<i>Vulpia</i> species
Barley Grass	<i>Hordeum leporinum</i>
Bathurst Burr	<i>Xanthium spinosum</i>
Brome	<i>Bromus</i> species

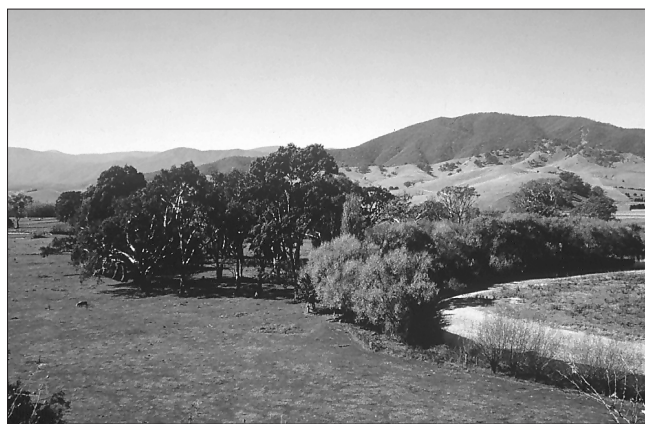


Figure 3. Willows are dominant along much of the Murray River in the region, preventing the growth and regeneration of locally native vegetation.

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native grasses and pastures of the South West Slopes

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INTRODUCTION

Native grasslands were once the key understorey component throughout the grassy woodlands and plains of the South West Slopes of New South Wales. Today, remnants of the original lowland temperate grasslands amount to less than 1 per cent of their original area, and are confined to small areas on public land such as roadsides, rail reserves, cemeteries and parks, or lightly grazed areas on private land. The remaining areas have been modified by grazing, fertiliser, burning, cultivation and introduction of exotic species (see Chapter 2. Remnant vegetation — values and threats). Native grasses are still present in pastures and public land across the region. The composition of native pastures and grasslands in reserves varies greatly according to the habitat, history of management and natural events. Most native pastures contain a large number of locally native and naturalised grasses as well as legumes and weeds. The dominance of any species will change from year to year depending on rainfall, temperature, stocking rate and fertiliser application.



MAIN SPECIES

The main native grass species* across the South West Slopes include:

<i>Danthonia</i> species	Wallaby grasses
<i>Microleana stipoides</i>	Weeping Grass
<i>Bothriochloa macra</i>	Red-leg Grass/Red Grass
<i>Joycea pallida</i>	Red-anther Wallaby Grass
<i>Themeda triandra</i>	Kangaroo Grass
<i>Elymus scaber</i>	Common Wheat-grass
<i>Chloris</i> species	Windmill grasses
<i>Digitaria</i> species	Umbrella Grass, Cotton Panic Grass
<i>Enteropogon acicularis</i>	Spider grass
<i>Austrostipa</i> species	Spear grasses
<i>Poa</i> species	Tussock grasses
<i>Aristida</i> species	Wire Grasses

* see Part Three for descriptions of grasses.

Wallaby Grasses and Weeping Grass are most often found in pastures that have been consistently grazed and fertilised. Kangaroo Grass and certain Wire Grasses and Spear Grasses are less likely to persist under grazing, and can be found in pastures that have been intermittently grazed or fertilised. Red-leg Grass/Red Grass, Tussock Grasses and Common Wheat-grass will tolerate moderate grazing and fertiliser regimes.

THE VALUE OF NATIVE GRASSES

Most native grasses are perennial which means they provide groundcover for most of the year. Species vary in their seasonal growth patterns, growth habits and feed value. The warm season perennials such as Kangaroo Grass and Red-leg Grass/Red Grass grow



Figure 1.
Kangaroo Grass
(*Themeda triandra*) provides
green feed over summer.

mainly in the spring, summer and autumn months, providing feed for wildlife and livestock, as well as soil protection (see Figure 1). Other species such as the Wallaby grasses, Spear grasses and Weeping Grass, grow in both winter and summer with two flowering periods. Most native grasses are relatively drought and frost tolerant.

The diversity of native grasslands provides ecological benefits as well as a variety of feed for livestock. They provide feed and shelter for birds, small vertebrates, invertebrates and soil biota, and habitat for native flora. Remnant native grasslands can serve as wildlife corridors, linking remnant woodlands, waterways and alpine environments. The benefits of native perennial grasses also lie in their adaptive characteristics in areas where exotic species will not persist, or where lower input costs are important.

MANAGEMENT OF NATIVE GRASSLANDS AND PASTURES

Remnant native grasslands and native pastures need to be managed, whether for conservation, production or persistence. It is important to determine:

- which species are present and why (i.e. the effect of past management practices);
- what changes are necessary (i.e. desirable species);
- the possible constraints to achieving desired changes (i.e. weeds, vermin, difficult terrain); and
- how to monitor changes.

Protection of remnant native grasses or development of native pastures should be considered as part of a property management plan. The suitability of native grass species to land class, aspect, soil erodibility and acidity, and enterprise management needs to be determined across the landscape or farm. Learning to recognise plants, when they flower and when they establish will make planning easier (see Practical Information Note — Getting to Know your Local Plants). With sound knowledge and planning, opportunities exist to increase the production and persistence of native pastures by manipulating grazing,



Figure 2.
Mix of native and
introduced
perennial grasses
on hilly country.

fertiliser use, burning, spelling, slashing, use of herbicides and introduction of new species.

PROTECTING REMNANTS

Fencing off remnant native grassland areas is essential to control vermin and stock, and to manage a grazing program. Strategic grazing (varying stocking density and frequency at certain times) can be used to control the dominance of some species and to target undesirable weeds. By resting areas when plants are flowering and seeding down, and during seedling establishment, the density and persistence of some desirable plants may be increased. Heavy stocking pressure when plants are under stress from drought, frost or waterlogging should be avoided. To reduce the introduction of weeds, use clean stock (off shears and empty stomachs), and minimise vehicle disturbance.

Burning may be used to reduce excessive grass cover and increase grassland diversity. Irregular burning (every five to seven years), preferably in mosaics, will open the canopy of grasslands dominated by Kangaroo Grass, Tussock Grass, Spear Grass and Wire Grass. Late winter/early spring is the best time to burn, to minimise weed germination and allow continued spring growth. Timing of burning will depend on seasonal conditions and target species. Fire will change the diversity and composition of grasslands and the results need to be monitored.

MANAGING NATIVE PASTURES

Most native pastures contain a mixture of native grasses, introduced grasses, legumes and weeds. Management of existing native pastures will depend on the species present and options for increasing diversity or production of those pastures. A combination of grazing, fertiliser use, burning, direct drilling and selective herbicides can be used to manipulate composition and improve herbage quality. For example, topdressing native pastures with fertiliser and oversowing with subclover will lift productivity. However, Wallaby Grass and Red-leg Grass/Red Grass pastures are susceptible to clover dominance in spring, and must have adequate grazing pressure to prevent smothering. Rotational and strategic grazing can be used to increase seeding of desirable species, achieve better utilisation of feed, allow root and soil regeneration and target species with different growth cycles. A combination of grazing, slashing and burning can be used to reduce Wire Grasses and Tussock Grasses, and increase utilisation.

Selective herbicides can be used to reduce annual grasses and broadleaf weeds in native pastures. Attention needs to be given to timing of herbicide application and seasonal conditions. Winter cleaning, spray topping and spray grazing may be the options if native grass species are not susceptible or flowering, and potential weed invasion can be managed after spraying. Pastures can be thickened up by direct drilling with either introduced or native grasses.

However, herbicide tolerance will vary with different native grasses. For example, Weeping Grass is tolerant of Glyphosate-based herbicide at a certain rate, whereas Wallaby Grass is extremely sensitive. Kangaroo Grass and Red-leg Grass/Red Grass pastures can be direct drilled after frost using no herbicides, if winter annuals are absent.

Overall, management should be aimed at encouraging diversity of native grasslands and pastures, and maintaining adequate perennial groundcover for reducing soil erosion, soil acidity, salinity and weed invasion. Regular monitoring of pasture composition and groundcover is essential for good management. The best times to assess native pastures are mid-spring and late summer. Permanent sites can be set up for recording species and taking photographs, or transects taken by walking across the paddock and throwing a stick at random to record species. Consult the references or your local advisor for further information.

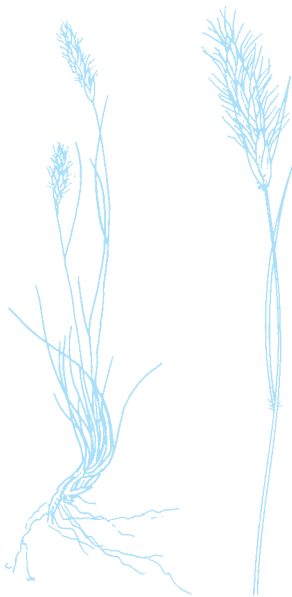
HARVESTING AND ESTABLISHING NATIVE GRASSES

Interest in harvesting and establishing native grasses for amenity, turf, rehabilitation or pastoral uses has stimulated recent research and development. However, information is limited and generally not specific to local conditions and ecotypes. Various harvesting technologies are now available, including the brush harvester, suction harvesters, and hand-held harvesters. The quality of seed harvested can vary greatly and yields are generally low. Managing natural stands to reduce weed contamination and refining harvesting techniques may reduce the need for seed cleaning.

Options for sowing native grass seed will vary for different climatic zones. Native grasses have evolved under high stress environments, and do not necessarily establish easily. To maximise the chances of successful establishment, it is important to plan strategies for pre-sowing treatments, sowing times/techniques and

management after sowing. The following recommendations should be helpful.

Choose sites carefully. Concentrate seed over small areas. Use local provenance seed if possible. Ensure that the seed is of good quality. Spray out annual weeds in prior season. Seek advice on herbicide tolerance (there is limited data available). Choose optimal sowing time based on germination temperature, soil moisture, follow-up rainfall and time to flower before going dormant. Sowing rates vary between 100-200 viable seeds per square metre. Do not apply fertiliser. Choose sowing method and depth according to species (e.g. free flowing seeds can be sown using conventional seed boxes; chaffy seeds need specialised equipment); soil type (e.g. Bandseeder); hill country (broadcast); and weeds present (e.g. laying Kangaroo Grass hay and burning).



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strategic planning for whole farm revegetation

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INTRODUCTION

Native vegetation or bushland is part of the natural Australian environment, and is integral to sound land management for agricultural productivity. Bushland patches, or remnant vegetation, consists of trees, shrubs, grasses and other native groundcovers. These are the areas that are left in the rural landscape. Remnant vegetation provides opportunities for recreation, education and tourism, and protects land from erosion and other degradation, which in turn helps to protect the Murray and Murrumbidgee Catchments. Remnants also provide habitats for wildlife and help preserve biodiversity, or the variety of life (see Chapter 5. Wildlife of the South West Slopes).

To reap the many benefits of the retention, regeneration and enhancement of this remnant vegetation, careful planning and management of all stages of any programme are essential. Native vegetation management through retention, regeneration and re-establishment is best carried out through the framework of a Farm or Catchment Plan (farmland) or a Vegetation Management Plan (public land).

IDENTIFYING, ASSESSING AND MANAGING REMNANT VEGETATION

The base map

The most suitable basis for a vegetation plan is an aerial photograph at an appropriate scale æ from 1:2,000 to 1:10,000 depending on the land size. This provides a large clear picture of the specific area, including the remnant native vegetation.

Aerial photographs can be purchased through the Department of Land & Water Conservation. You will need to supply the parish name and portion or lot numbers of the property to ensure allocation of the correct photograph. Aerial photographs can be supplemented with information from a topographic map at 1:25 000 or 1:50 000 scale. The aerial photograph will show all the features of the land, including remnant vegetation and planted trees. Remember that the photograph is a snapshot in time. If the photograph is a few years old, it may not reflect the current situation.

Locating remnant vegetation patches

Areas of remnant vegetation may be marked and numbered on a plastic overlay on the aerial photograph. Areas for replanting and direct seeding can be highlighted with different colours and/or hatchings.

Assessing remnant vegetation

Once marked, remnant vegetation areas can be assessed for the degree of disturbance (how altered they are), health and/or conservation value. Several methods are available to assess remnant vegetation, including Table 1, which consists of simple assessment questions. Table 2 shows the health ratings derived from the assessment. A more comprehensive assessment can be undertaken through the Fencing Remnants Incentives Programme, operated by Greening Australia for the Murray and Murrumbidgee Catchment Management Committees.

Table 1. Bushland Assessment Sheet

Bushland Patch (number or name from map)	Insert T if true					
1 Bushland is never or rarely grazed by stock.						
2 Seedlings or suckers less than 2 m high are present.						
3 Bush is burned infrequently, i.e. at intervals greater than 5 years.						
4 Trees mainly healthy, with little or no dieback.						
5 There are no rabbits in the bushland.						
6 Weeds are absent or found only around the edges.						
7 Trees are not harvested for timber or firewood.						
8 Free of land degradation e.g. soil erosion, salinity.						
9 Free of fertiliser application or herbicide drift.						
10 Less than 20% of trees have mistletoe.						
11 Free of vehicle tracks (other than fire trails).						
12 Free of feral predators such as cats and foxes.						
13 Native shrubs are present in the understorey.						
14 Old trees with hollows are present.						
15 Dead timber is left standing.						
16 Fallen timber and logs are left on the ground.						
17 Ground plants are mostly native grasses and herbs.						
18 Ground is covered with litter of leaves, bark and twigs.						
19 Bushland patch area is greater than 0.6 ha.						
20 Joined to other bushland by bush corridor or scattered trees no more than 50 m apart.						
Total number of True (T) answers						
Bushland Health Rating						

Adapted from D. Goldney & S. Wakefield, 1997, *Assessing Farm Bushland. A Landholder's Guide*, Charles Sturt University, Bathurst.



Table 2. Bushland Health Ratings

True scores	Bushland health rating	General description
16–20	1	Quality bushland. Mostly undisturbed. There should be a good mix of tree ages, and natural regeneration should be occurring. The understorey is comprised of native grasses and herbs or native shrubs. The patch contains a range of habitats for wildlife (litter, logs, shrubs, tree hollows etc.).
10–15	2	Moderately disturbed bushland. Some regeneration of trees and shrubs. May be a regrowth area with trees of even age. Native shrubs and grasses present in the understorey, but there may be some weed invasion. Important habitat elements may be missing.
less than 10	3	Highly disturbed bushland. Cannot be sustained under current management practices. Native understorey removed and replaced with ‘improved’ pasture species or weeds. Dead and dying trees present. No natural regeneration of trees or shrubs. Can be improved, but only with considerable time and effort.

Adapted from D. Goldney & S. Wakefield, 1997, *Assessing Farm Bushland. A Landholder’s Guide*, Charles Sturt University, Bathurst.

PLANNING TO MANAGE AND PROTECT REMNANT VEGETATION

Once the quality and health of remnant vegetation patches have been assessed, a management and protection programme can be implemented. The following steps in deciding how to manage remnant vegetation are those proposed by the Disappearing Islands Group (see References and Further Reading).

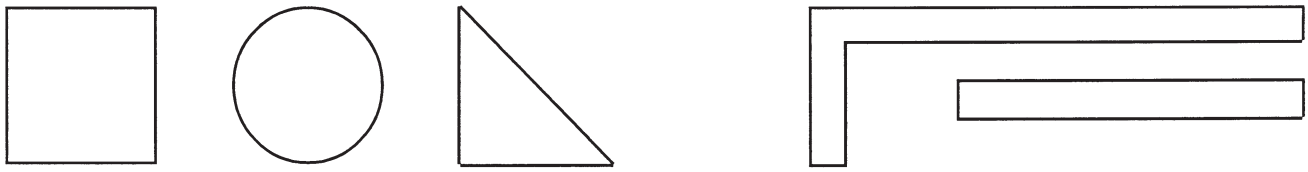
- 1 inspection of area, preferably with an experienced naturalist, and the completion of a checklist of site quality factors;
- 2 deciding on the management strategy to apply to the remnant, considering its condition, and any special conservation value it has;
- 3 choosing whether to maintain the remnant in its present condition (with appropriate farm uses) or to work at improving the condition (or ‘naturalness’) of the vegetation;
- 4 choosing management works necessary to sustain the remnant in its present condition or to enhance its conservation values; and

- 5 choosing what farm uses are compatible with the owners’ aims of protecting the remnant.

Planning and management options

There are several options:

- Alter paddock sizes to reduce paddock grazing times, reduce pressures on particular areas and allow paddock trees to regenerate naturally.
- Link patches of remnant vegetation using shelterbelts and woodlots, preferably using locally native trees and shrubs from local seed (the wider the strips the better from a conservation perspective).
- Minimise the perimeter of remnants to reduce edge effects’ or disturbances, such as changes in levels of weeds, predators, noise, humidity, sunlight, wind, temperature and nutrients. Square, circular or triangular remnants have less perimeter than linear and multi-sided remnants, and so suffer less edge effect (see Figure 1).



These areas have less perimeter...

...than these

Figure 1. Edge lengths of different-shaped remnants vary.

- Fence remnant vegetation to manage stock access and allow natural regeneration. Certain fencing types such as single strand electrics provide a cheap means of excluding stock.
- Exclude stock from remnant vegetation during flowering and seed set (generally spring/summer) to allow natural regeneration of native plants.
- Control pest animals such as rabbits which reduce regeneration, and foxes and cats which harm native wildlife.
- Control weeds prior to native species seed fall, and maintain good native ground cover (minimise soil disturbance).
- Develop a fire management plan.

See also Table 3 for guidelines.

Natural regeneration versus planting

Natural regeneration of remnant vegetation is the preferred method of revegetating. The cycle of replacement of native vegetation by germination of self-sown plants occurs, if somewhat infrequently (depending on the seasons). Fencing clumps of remaining trees and shrubs well out from mature plants, on the leeward side, will greatly assist this process (see Figure 2). Weed competition needs to be reduced, as do the effects of livestock, rabbits, hares and possibly insects. Opportunities for natural regeneration may be limited by the low range of species remaining; a depleted understorey; land degradation such as soil salinity; and/or long periods between ideal conditions (see Chapter 9. Re-establishing native vegetation).

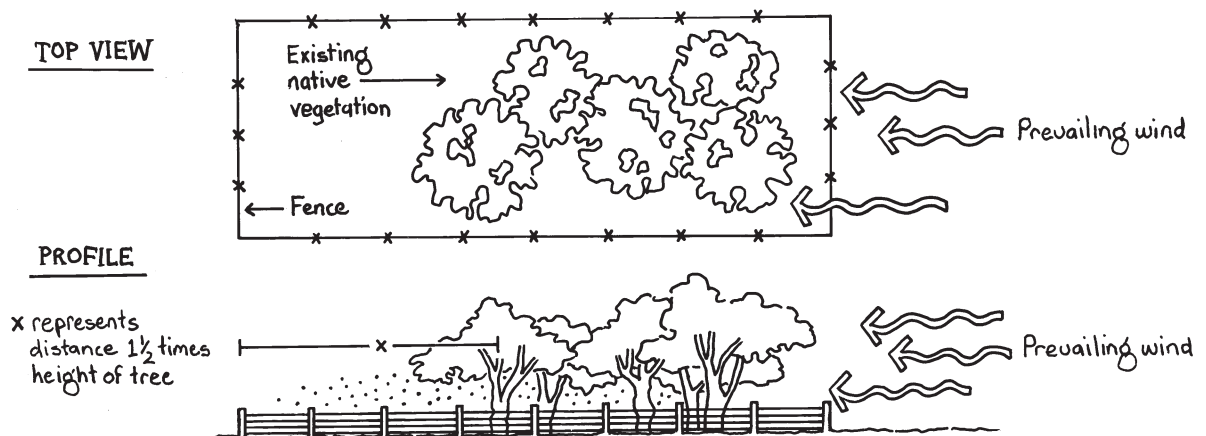


Figure 2. Fencing to allow trees to regenerate.

Adapted from South Australian Tree Centre, 1991, *Natural Regeneration Fact Sheet*, Primary Industries, Adelaide.

If remnant vegetation is scarce, or vegetation is needed in cleared areas, planting or direct seeding is recommended. By using locally native trees and shrubs from local seed, maximum environmental outcomes can be achieved. Planting trees and shrubs at a ratio of

at least 1:1 is recommended, although planting 20 per cent trees to 80 per cent shrubs will allow trees to reach their full potential, and provide substantial habitat benefits from bringing back the local native understorey (see Figure 3).

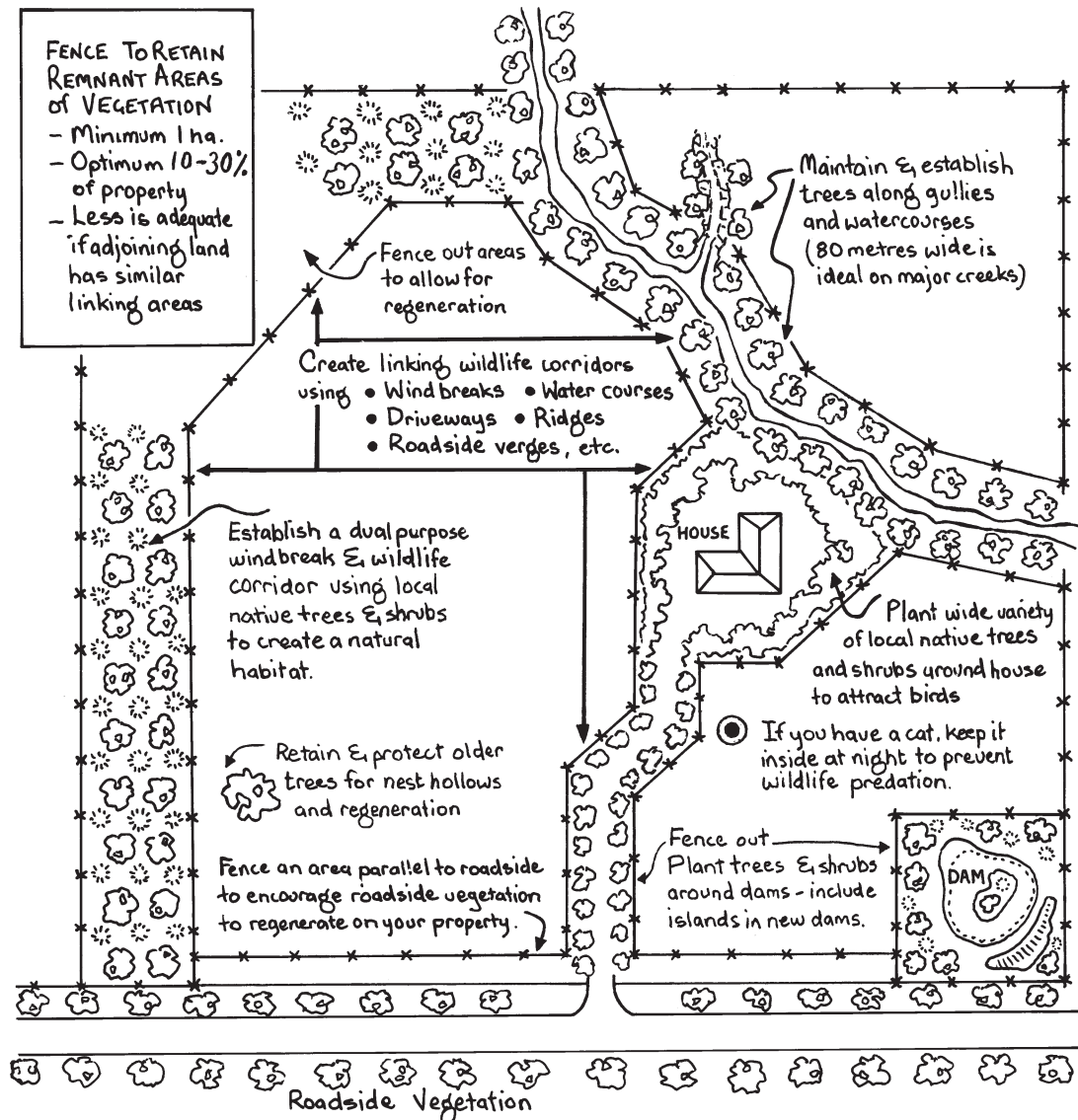


Figure 3. Strategic whole-farm revegetation.

Table 3. Remnant Vegetation Management Guidelines

Remnant condition	Fencing	Revegetation/dead timber/habitat	Weeds	Pest animals	Fire	Erosion
Healthy	<ul style="list-style-type: none"> fence off to control stocking rates and encourage natural regeneration (permanent fencing preferred) 	<ul style="list-style-type: none"> re-establish missing native shrubs & grasses — use local native seed link remnants using shelterbelts or woodlots retain standing dead timber, rocks, logs & stumps as habitat identify the plant species 	<ul style="list-style-type: none"> control weeds prior to seed fall use environmentally sensitive control methods 	<ul style="list-style-type: none"> remove all non-native animals (rabbits and foxes can be controlled using 1080 poison — doesn't harm most native animals) 	<ul style="list-style-type: none"> use fire only for ecological purposes (seek advice) 	<ul style="list-style-type: none"> stabilise erosion without using earth works maintain good native ground cover
Struggling	<ul style="list-style-type: none"> fence off to control stocking rates and encourage natural regeneration (temporary fencing may be an option) 	<ul style="list-style-type: none"> establish native trees, shrubs and grasses to supplement natural regeneration link remnants using shelterbelts and woodlots retain standing dead timber, rocks, logs & stumps as habitat identify the plant species 	<ul style="list-style-type: none"> control weeds prior to seed fall use environmentally sensitive control methods 	<ul style="list-style-type: none"> exclude rabbits, remove foxes, cats and goats (rabbits and foxes can be controlled using 1080 poison) 	<ul style="list-style-type: none"> use fire to reduce fuel loads & to trigger regeneration 	<ul style="list-style-type: none"> stabilise erosion, minimise earthworks maintain good native groundcover
Sick	<ul style="list-style-type: none"> fence off to control stocking rates and encourage natural regeneration (temporary fencing may be an option) 	<ul style="list-style-type: none"> establish trees to supplement aging trees; establish missing shrubs; use tree guards link remnants using shelterbelts retain standing dead timber, rocks, logs and stumps as habitat 	<ul style="list-style-type: none"> control noxious weeds 	<ul style="list-style-type: none"> exclude rabbits manage other pests 	<ul style="list-style-type: none"> use fire if needed to reduce fire hazard 	<ul style="list-style-type: none"> stabilise erosion using earthworks/native grasses
Dying	<ul style="list-style-type: none"> desirable to control stocking rate off-set fencing of aging clumps of paddock trees will encourage regeneration 	<ul style="list-style-type: none"> establish trees and shrubs, using tree guards retain standing dead timber, rocks, logs and stumps as habitat identify the plant species 	<ul style="list-style-type: none"> control noxious weeds 	<ul style="list-style-type: none"> exclude rabbits manage other pests 	<ul style="list-style-type: none"> use fire if needed to reduce fire hazard 	<ul style="list-style-type: none"> stabilise erosion using earthworks/native grasses

Reproduced with permission from M. Sheahan, 1996, *Field Notes – Remnant Vegetation Assessment*, Department of Land and Water Conservation, Wagga Wagga.

WHOLE FARM NATIVE VEGETATION MANAGEMENT – PLANNING SUMMARY

At the start...

Consider all aspects of soil, water and vegetation resources when planning farm development and land use. Include:

- crop, pasture and/or livestock production;
- water supplies;
- erosion control;
- bushland and tree planting management; and
- land capability.

Native vegetation management, regeneration and tree planting

Look at purpose/s for native vegetation, such as:

- wind shelter (livestock, crops, pastures);
- shade (stock, buildings, people);
- reclamation (erosion and salting control);
- woodlots (firewood, fodder, fencing);
- wildlife habitat and aesthetics;
- economic returns (livestock, pastures, crops, timber, bush resources);
- capital gains; and
- social/lifestyle aspects.

Establish a long-term management and planting plan

- Draw up a 5–20 year remnant vegetation management plan and tree and shrub planting programme (with a proposed yearly fencing and planting plan).
- Keep a map and record of planting and species.
- Prepare each planting site one season ahead.
- Plant or fence only the number of trees and shrubs manageable annually.

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re-establishing native vegetation

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INTRODUCTION

Re-establishing native vegetation is an essential part of land management for many reasons. It can be significant in improving farm productivity, as well as benefiting the local flora and fauna. It can also be of benefit in terms of lower plant establishment and maintenance costs, compared with establishing exotic vegetation. Before embarking on planting, you will need to plan your project in relation to your reasons for planting and the nature of your site. You can then select appropriate species and prepare your planting site. A useful guide for various aspects of site preparation and plant establishment is *local experience*. Enquire and learn from those experienced in planting in your district. This chapter offers guidelines and suggestions to complement local knowledge.

PLANTING PURPOSE

Most farm plantings in the area are designed to:

- provide shade and shelter for pastures, crops and livestock;
- control gully and creek erosion;
- reduce salinity problems through controlling recharge;
- enhance biodiversity;
- provide timber and other products;
- improve farm and district aesthetics.

SPECIES SELECTION — LOCALLY NATIVE OR NATIVE?

Throughout Australia there is an emphasis on replanting locally native or indigenous species from locally collected seed. In doing so, the ‘precautionary principle’ is being applied. Our understanding of ecological complexities is limited. It is therefore

widely thought that the best approach is to restore our declining remnant native vegetation and enhance it through replanting locally native species.

Generally, locally native plants fulfil the requirements of farm plantings, from controlling gully erosion to providing shelter, and particularly for enhancing biodiversity. Nevertheless, there are some reasons for considering non-local species. In some cases, farming practices have rendered sites unsuitable for replanting locally native species, grown from local seed. Few locally native plants of the region could tolerate saline sites for instance. Additionally, for timber production, there are many other species that may be more appropriate.

DEFINITION OF LOCALLY NATIVE PLANTS

Locally native plants are those occurring naturally in your area, or members of the original native vegetation. ‘Locally native’ does not mean just another native species. Even within a single species, plants can show significant variation, and the local variety of species will often do better at your site than plants of the same species from elsewhere, because they are adapted to a particular set of local site conditions. Old Man’s Beard (*Clematis* species) from the Dandenong Mountains and from the Maribynong Valley were planted under the same conditions at Keilor in spring. There was no irrigation, and at the end of the first summer none of the Dandenong Mountains plants had survived, but the Maribynong plants were growing vigorously. On the other hand, there are examples of locally native plants, such as Red Gums, being prone to severe damage from insects, while Red Gums from elsewhere, such as Silverton, have not been affected by insects when planted in the region. Some biologists, however, posit that if existing remnant vegetation (i.e.

the last reserve of biodiversity) is not protected and expanded through fencing and replanting understorey, periodic insect infestations will damage even those species and provenances that have so far resisted insect activity, due to lack of natural pest control (pers. comm. I. Davidson, 1998).

How local is local? Some plants may be alike over large distances, while others vary considerably over short distances. Collecting seed as local to your site as possible is the best policy, although this is not always possible, particularly in areas with few remnants remaining. Applying a '15 km maximum radius rule' is as good a guideline as any. Ensure that you are collecting seed from plants growing in similar conditions to those of your site. For example, seed from ridgetops is best grown for planting on ridgetops.

BENEFITS OF USING LOCALLY NATIVE PLANTS

The values associated with preserving and conserving remnant native vegetation also apply to using locally native plants, and include:

- increasing biodiversity;
- meeting the habitat needs of the local flora and fauna;
- maintaining genetic diversity within species;
- providing habitat for local wildlife that act as 'natural pest controllers' (see Practical Information Note — Natural Pest Control); and
- retaining or regaining a sense of local identity.

In many cases one can replant with one objective in mind, but achieve many others as a consequence of the primary objective. Other benefits from using locally native plants (which can also be met by non-local species) include the following:

- improving the appearance and aesthetics of properties and rural landscapes;
- increasing farm yields by providing important shade and shelter for crops and livestock;
- providing habitat for 'generalist' wildlife such as Willy Wagtails and Honeyeaters;

- reducing soil erosion and improving soil structure; and
- improving water quality and the ecosystems of rivers and streams.

Using locally native plants brings other advantages, outlined below.

Adapted to local conditions

The plants are likely to be better adapted to local soil and climatic conditions than from other sources, unless the local environment has been significantly altered. Generally, the plants will establish more readily than plants from other sources and so require less management. This can substantially reduce post-planting management costs. For example there is generally no need for fertilizers or irrigation, and little need for summer watering under conditions that may see non-local plants failing. The plants are usually well adapted to cope with local pests and diseases that may devastate exotics and non-local native plants (although the reverse can also occur). Locally native plants are also likely to regenerate readily.

Nearby local examples

Locally native plants are growing near you. Remnant vegetation is a wonderful community asset, and is well worth valuing and preserving. As environmental issues such as salinity, the quality and cost of water, and global warming become more important to local communities, remnant vegetation sites from which we can source locally native plants will become vital parts of revegetation schemes.

It is easy to see what is successful when you are using locally native plants, because you can see what is growing well, or otherwise, nearby. You can also see what conditions favour successful establishment and growth.

Availability

The availability of locally native plants is another advantage, if you are prepared to grow plants yourself, or buy locally. There are a range of local nurseries stocking such plants (see Appendix 4), and many will grow locally collected seed if you provide it to them.

SELECTING SPECIES TO PLANT

The particular mix of species you choose will depend on the purpose of your planting. Generally, however, a mix of 50 per cent trees and 50 per cent shrubs is recommended (see Figure 1). It is important to include a good mix of wattles (*Acacia* species). They may not be long-lived, but grow quickly and provide shelter for slower growing species. They provide nectar for wildlife and improve soil fertility by ‘fixing’ nitrogen. Upon dying they generally regenerate vigorously from suckers or seed. Refer to the General Native Vegetation Profile for your area.



Figure 1. A windbreak planted with a good mix of locally native trees and shrubs.

It is important to plant species in locations similar to where they grow naturally in your area. For example if Stringybark (*E. macrorhyncha*) only occurs on northerly aspects in your district, it is best replanted on northerly aspects. If Blakely’s Red Gum (*E. blakelyi*) only grows on the lower country in your area, it is best replanted on the lower country, rather than on hilltops.

NATURAL REGENERATION TECHNIQUES

There are several techniques that can be used to establish locally native vegetation. Factors influencing which technique to choose include the history of the site, costs involved and the philosophy driving the revegetation works. The following are alternatives for consideration.

Fencing off to restrict grazing

This simply involves fencing an area, usually a paddock corner, and keeping livestock and other grazing animals, such as rabbits, from the site. There is often a reservoir of locally native seed, or a ‘seedbank’ in the topsoil. This approach relies on this material being viable as a seed source. Even after 100-150 years of farming, it can be surprising to see what will grow and the diversity of species that may eventually appear. However, it is rare that all locally native plants will re-establish. Remember that the seasonal conditions necessary to trigger regeneration may not occur for several years, so patience may be required.

If there are remnant trees or shrubs in or near the fenced area, you will not need to rely exclusively on seed stored in the soil for regeneration. Most regeneration will occur beyond the drip-line of existing trees (i.e. outside of the ground beneath the tree canopy), within 1 to 2 tree height distances from the trees. For example, if you have a seeding tree 20 metres high, expect seedlings to regenerate up to about 40 metres around the tree (and place your fence accordingly).



Figure 2. Mugga Ironbark (*Eucalyptus sideroxylon*) trees regenerating.

Burning off and fencing

Competition from pasture and weeds often reduces the capacity of locally native plants to establish and grow. This technique involves burning off an area to encourage seed germination, provide a fertile ashbed and eliminate competition. This is usually followed by

fencing off, as described above. Cool to moderate burning is normally carried out in early spring and can trigger a diverse range of species to regenerate (late autumn burns are another option). Longer term establishment usually requires successful control of plant competition, pests and diseases. Weed control is particularly important in the first year after burning, to prevent weeds from seeding and building up seeds in the soil.

Herbicide treatment

As an alternative to burning off, herbicides can be applied to clear the site and control weeds. Exercise care to reduce the risk of the spray drifting. Pre-emergent herbicides such as simazine should not be used, as they can damage the soil seedbank. Furthermore, herbicide use is only recommended for sites where weed, and particularly exotic weed, numbers are very high. The glyphosate-based herbicides are most commonly used for this technique. Longer term maintenance is the same as described above. This technique rarely gives a full range of locally native plants, so generally some of the more traditional techniques of plant establishment are also used.

TRADITIONAL ESTABLISHMENT TECHNIQUES

The two traditional establishment techniques are:

- container-grown plants which include tubes, containers, plugs, speedlings, root training trays, spring rings and bags, and bare rooted plants, and
- seed of known source and quality from which plants can be established by direct seeding into the field.

Container-grown and bare rooted trees

Careful selection of container-grown or bare rooted plants is vital. It is essential that plants are free from two common root defects found in plants produced conventionally, which are:

- kinked roots in which the major roots are bent, and
- circling or girdling roots in which the roots circle round the base of the stem or the other roots.

Many deformities in container-grown plants result from lack of attention to detail in the production system and from inappropriate components of that system. For example, round containers without baffles or ridges on the inside are inappropriate for woody plant growth. It is also worth noting that many native plants produce lengthy tap roots as part of their juvenile phase. Plants that are 1-1.5 cm tall may have a tap root 10-20 cm long. Conventional growing trays and some pricking out techniques can be inappropriate for growing such plants, leading to both kinked and girdling roots.

Plants with defective roots should be discarded. It is highly unlikely that these plants will recover from such root defects. Recommendations for remedial action, such as removing parts of the root system, or slashing through the rootball, are generally ineffective or may simply be an uneconomic use of time and resources. It is far better to replace a defective plant with a healthy one.

Direct seeding plant establishment

Direct seeding is a revegetation technique still undergoing development in the region. It can be a cheap method of establishing quick-growing plants with strong root systems. However, results can be unpredictable due to fluctuating seasonal influences (e.g. drought, flood), and seed in sufficient quantity may be difficult to obtain. Paying attention to site preparation, weed control, species selection and timing can maximise the chances of success. See Practical Information Note — Direct Seeding. By using a combination of planting and direct seeding, a site can develop a more ‘natural’ look compared with a planted site.

SITE PREPARATION FOR PLANTING SEEDLINGS

Regardless of the type of planting stock used, good site preparation is generally the key to successful growth and establishment. The following significant steps can be undertaken cheaply and effectively. Neglecting some of the steps in an effort to save time and money may jeopardise your project.

Weed control

Weed control is a critical part of site preparation, in sites dominated by competitive exotic pasture grasses and weeds. Weeds compete with the desired plants for water, nutrients, light and space. Competition tends to severely reduce both survival and growth of many native plants. Weed control techniques include applying herbicide, mechanical removal and applying mulch (see Figure 3).

If weed control is required, applying herbicide is generally the most cost-efficient option. Specific herbicides and targeted application reduce the threat of damaging desired plants nearby. You can reduce the amount of herbicide needed by spot or strip spraying, rather than blanket spraying. Apply a knockdown herbicide (such as Glyphosate) a few months before planting, and again just prior to planting. Spraying the second time with a knockdown and residual herbicide ensures longer term control, but necessitates allowing four weeks before planting after spraying. Always use in accordance with directions on the label.

Applying herbicide or disturbing the soil can encourage weed invasion in the longer term. In sites dominated by native grasses and groundcovers, this is undesirable, as such plants are an ideal groundcover for revegetated areas. The potential for weed invasion, however, can be minimised by confining herbicide application to spots at each planting site where weed invasion is a concern.



Figure 3. Site spot-sprayed with herbicide.

Mechanical weed removal is time consuming and costly, and provides an opportunity for re-invasion by weeds. However, it can be effective in eliminating weeds from revegetation sites, particularly if used with herbicides.

An alternative to herbicides is mulching with material including newspaper, seedless straw or old carpet squares, particularly for small-scale projects. Mulch is best applied in late spring after the ground has warmed. Mulching before then can retard plant growth by retaining a low soil temperature. For large scale revegetation, mulching is generally time consuming and expensive.

Deep-ripping sub-soils

When establishing trees which have extensive root systems, there are advantages in deep-ripping the sub-soil, particularly if it has been compacted or cultivated over many years. Ripping may be of value on heavier clays, or for large scale projects to enable easier planting, and increase water availability at planting sites. Ripping may not be required, or should be carried out with caution, in sandy or good loamy soils, and can damage highly erodible sites such as river banks.

Ripping involves the use of a single ripping tyne (or multiple tynes if available), usually to a depth of about 50 cm. To avoid plants with boxed or linear root systems, do not plant into single rip lines. Always rip at least a double line about 50 cm apart for each planting row, and plant into the ground between the rip lines. For blocks of trees, rip on a grid system and plant where rip lines intersect.

Rip soon after the autumn break, when the ground is moist enough to work, but sufficiently dry to shatter. If planting in autumn, roll the rip lines down with the tractor tyre. If planting in spring, the rip lines should settle down with winter rains.

Heavy clays should be ripped or chisel ploughed to a depth of 20-30 cm. Avoid ripping wet clay soils as this does not shatter the soil. Furthermore, it is costly and causes soil compaction.

Planting season

The best guide for the ideal time to plant is *local experience*. Enquire and learn from those experienced with planting in your district. It is also important to look closely at the local conditions at your site, such as aspect, frost and wind. Planting in either season can be successful for many species, if other aspects of planting and establishment are carried out well.

Spring planting takes advantage of good growing conditions and rainfall. The plants should be established before the stresses of summer affect them. Plant when you would lock up a paddock for producing hay. In the first growing season after spring planting, supplementary watering may be necessary if the summer is particularly dry. Monitor plants, and water as required. Irregular deep waterings are preferred to regular shallow waterings. Installing irrigation, such as drip systems, is unnecessary if planting healthy locally native plants into a well-prepared site.

Autumn planting can take advantage of good growing conditions just prior to winter. Autumn plantings should be undertaken as early as possible in the season to maximise the growing period before winter. This period is particularly important for the growth of the root system. During winter some protection of young plants from frost, such as tree guards, may be required. If residual herbicides are used, return visits to control weeds are necessary for autumn plantings, as residual herbicides generally lose their effect by the end of winter.

Planting

If the site has been cultivated or ripped, tools including Hamilton Tree Planters and Potiputkis can be used as a quick and easy option. One person using such tools can plant up to 1500 trees per day into a well prepared site. Mechanical planters towed behind a ute or tractor can plant up to 1000 seedlings per hour with a crew of four people. Enquire at your local office of Greening Australia, Department of Land & Water Conservation or Landcare group to borrow or hire tree planting equipment.

For sites that haven't been cultivated, digging a hole with a mattock or shovel will be necessary. The planting hole is best wide and shallow, rather than narrow and deep. Dig the hole to twice the depth of the plant's container. Fill in around the plant with soil dug from the hole.

Fertilising

Fertilising newly planted trees and shrubs is generally unnecessary, unless rapid growth is required such as for farm forestry. However, in particularly poor, infertile soils, placing a slow release fertiliser tablet beside the plant and just below the soil surface could be beneficial. Placing fertiliser at the bottom of the planting hole is not recommended. Aim to encourage roots that spread outwards more than downwards. If the roots grow to the bottom of the planting hole, high concentrations of fertilisers can burn off the growing tips of the roots and retard plant growth.

Staking

The use of stakes to hold plants upright is not recommended. Stakes can hinder plant growth and establishment by discouraging strong root growth.

Protection from livestock and pests

Fencing out livestock and preventing damage by vermin is essential. The easiest way of preventing damage from livestock is to fence off paddock corners, or plant parallel to existing fences. Many young plantations are seriously damaged by a single animal or occurrence of grazing. Using low cost mobile electric fencing may be an option, particularly if livestock are accustomed to electric fencing.

Grazing by rabbits and hares, and in some cases damage from birds (e.g. cockatoos) can severely reduce establishment rates. The use of appropriate tree guards, such as 2-litre milk cartons, for the first year or two of growth will generally minimise this type of damage. Such guards, including a peg generally cost less than 15 cents per tree. Tree guards may also reduce the impact of high winds on the evaporation of water around the base of plants.

MAINTENANCE AND SUCCESS

Aim for survival rates of 80-95 per cent for most locally native trees and shrubs. Some plants are more difficult to establish, but if the guidelines provided are followed, for most healthy locally native plants you should be aiming for at least an 80 per cent survival rate.

In many cases, post-planting maintenance will be the difference between a successful project and one that fails. People may mistakenly believe that the task of plant establishment has been completed when the seedlings have been planted. Having gone to the effort of planning, preparing and planting, it is essential that post-planting maintenance be undertaken on a regular and planned basis.

Such maintenance should include managing weed competition, removing unwanted grazers, controlling pests and diseases, and perhaps occasionally watering. Grasshoppers can inflict serious damage on young plants from late spring to summer. They are controlled to an extent by parasitic flies and wasps, but if numbers become excessive, spraying with an insecticide could be considered. Baiting can also be effective, and does not harm predator flies and wasps. For those preferring to avoid chemicals, guinea fowl are known for their appetites for grasshoppers.

It is also important when dealing with large trees to remove obvious defects such as damaged branches or twin or multiple trunks on species that are prone to splitting. Having made the initial investment it is only sensible that there is follow-up maintenance to ensure long-term success.

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creek revegetation and erosion control

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INTRODUCTION

The streams of the South West Slopes region are generally in a very degraded condition. Typically both the stream channel and the banks have a very low diversity of plants. In many cases there will be very few or no locally native species present. This is particularly the case for the smaller streams, which may be seasonal or ephemeral, and for a large part of the year are reduced to a string of pools or are dry. While the larger streams will often have a fringe of trees, the understorey is usually deficient in locally native species. The banks of the streams are also frequently eroded and the streams are deepening or silting up.

STREAMSIDE VEGETATION

Healthy diverse streamside (riparian) vegetation can improve the environment of the stream and of the surrounding land. Vegetation will improve water quality by filtering the water, and by reducing or preventing bank erosion. The aquatic habitat also benefits from shading, food supply and from woody debris, which provides shelter and living space for aquatic animals. Riparian vegetation also provides shade and shelter for the surrounding land, and is important for many terrestrial animals and birds in a cleared landscape (see Figure 1).

STREAMSIDE DEGRADATION

Erosion of stream banks can be caused by loss of vegetation or by changes in the flow of the water. A stable stream is in balance with the flow, and if the amount of water, or the rate at which it moves, changes, there will often be erosion of the banks or bed



Figure 1. Creekbank protected by Common Reed (*Phragmites australis*), Silver Wattle (*Acacia dealbata*), Weeping Grass (*Microlaena stipoides*) and River Red Gum (*Eucalyptus camaldulensis*).

of the stream to adjust to the new conditions. Many streams eroded and changed their shape soon after settlement. This was a response to the clearing of trees in the catchment and grazing which reduced the amount of ground cover vegetation and increased the rate of run-off.

Many streams are now relatively stable, having reached a new balance, but some are still eroding, because of the lack of vegetation on the banks, so that the soil has no protection from high flow. In some streams, a new phase of erosion is beginning, possibly because of increasingly saline water, which changes the soil structure and makes the bed and banks more erodible. Even the stable streams are still in a very degraded condition, with very poor aquatic and riparian habitat.

The main cause of the degradation of stream bank vegetation today is grazing. Streams, particularly those

which are tree lined, are very attractive to stock, and they suffer far greater impact than the rest of the paddock as the stock use the stream for shade, shelter and water. The heavy grazing pressure and trampling keep stream banks bare and exposed, so that they can be easily eroded by high flows.

STREAMSIDE RESTORATION

Increasing the density of the vegetation on the banks and in the stream will make most streams more stable, and will reduce erosion. In some cases, particularly if the stream is deepening, vegetation will not be enough, and some extra works may be needed to stop the erosion. This work should ideally be done before revegetation. Advice is available from the Department of Land and Water Conservation.

The most important step in restoring the riparian habitat of a stream is to fence. It is not essential to exclude stock permanently, but it is essential to control grazing. The next most important step is the design of the fencing, particularly the width of the fencing. A single row of trees will provide very little diversity and habitat to a stream. It is better than nothing but only just. The wider the fenced corridor, the more effective it will be as a buffer for the stream, to filter the water, and as riparian habitat with good diversity. If the fenced area is wide, up to 30 metres, management can become easier. It can be used as a small paddock, and, once the planted trees are large enough, it can



Figure 2. Creekbank protected by Common Reed (*Phragmites australis*), River Bottlebrush (*Callistemon sieberi*), Weeping Grass (*Microlaena stipoides*), Tussock Grass (*Poa species*) and River Red Gum (*E. camaldulensis*).

occasionally be grazed for short periods, without causing damage.

THE USE OF WILLOWS

One traditional way of revegetating and stabilising a stream is to plant willows (*Salix* species). This initially can be very effective in stopping erosion, and providing shade for stock. However many serious problems have now been recognised where willows have been used.

Willows are not native, and are very different from locally native species in many ways. They are deciduous, and not many native insects eat them. This is partly why they grow so well, compared to native trees which provide food and shelter to many leaf-eating insects. This may seem an advantage, as willows generally look healthy and grow quickly. It is not an advantage for insect-eating birds however, as there is no food supply on a willow, and a willow-lined stream will support only a fraction of the diversity of birds which live along a stream lined with red gums, or other eucalypts in higher rainfall areas. Willows don't form many hollows in their branches, unlike red gums, and therefore hollow nesting birds, such as kingfishers and parrots, bats and possums, generally cannot breed or shelter in willows.

The quality of the leaves is also very different for the aquatic animals. Most fish, like birds, eat insects that live for part of their life cycle in water (for instance, dragonflies). Willow leaves are soft, and are all shed in autumn. Red gum leaves are tough and fall mostly in summer. The aquatic insects and other animals are adapted to red gum leaf fall patterns.

Willows can be initially very effective at preventing erosion in a stream. Their root systems smother the banks and bed of the stream and trap silt. This can then become a problem, as the stream loses capacity, and floods can increase as the stream becomes blocked with roots. The deep holes which allow fish to survive periods of low or no flow can also disappear. A lot of money is now being spent on removing willows from

small streams because of the way they choke the stream.

Finally, willows cast a very heavy shade during the summer. This prevents the growth of understorey plants, and it is almost impossible to maintain diverse locally native vegetation in combination with willows. The bare ground under willows provides poor animal habitat and little or no filter to improve water quality in the stream.

STREAMSIDE REVEGETATION

Revegetation of streams should be based on locally native species, with a mixture of trees and shrubs. In the higher rainfall areas, where streams are generally permanent, or flow for a considerable period of the year, there are often distinctive riparian species, which occur only or mainly on stream banks. In the drier areas, where streams are seasonal or ephemeral, the natural vegetation along the stream may be a reflection of the higher nutrient status of the stream banks rather than the increased supply of water. The species may not be very different from those growing on the good soil flats away from the stream. Species selection should be based on these species, and the general native vegetation profiles provided in this guide.

Natural regeneration is the best way to revegetate streambanks, particularly if there are remnant trees and shrubs nearby. Often, even if trees are present, there is no remnant understorey. Replanting locally native shrubs is then recommended.

The sedges and rushes which grow along streams will generally appear naturally within a few years once the grazing has been removed. There may initially be a strong growth of weeds in the absence of stock. Depending on the species, these may gradually be replaced by native species, particularly once the trees and shrubs begin to mature.

Rushes, sedges and grasses which may occur along streams in the area* include:

Rushes	<i>Juncus</i> species
Umbrella Sedges	<i>Cyperus</i> species

Common Spike rush	<i>Eleocharis acuta</i>
Water Couch	<i>Paspalum distichum</i>
Tussock Grass	<i>Poa labillardieri</i>
Sedge	<i>Carex appressa</i>
Sedge	<i>Carex tereticaulis</i>
Common reed	<i>Phragmites australis</i>
Native Mint	<i>Mentha</i> species
Cumbungi	<i>Typha orientalis</i>
Narrow-leaf Cumbungi	<i>Typha domingensis</i>

Aquatic plants* which may occur in the stream:

Pondweed	<i>Potamogeton tricarlinatus</i>
Milfoil	<i>Myriophyllum</i> species
Water Ribbons	<i>Triglochin procerum</i>

* most of the above species are described in detail in Part Three of this Guide.

Unfortunately stream banks are often prone to weed infestation and it will always be necessary to do some weed (and fox) control. Once the trees and shrubs are well enough established, crash grazing can sometimes be appropriate to assist with weed and fox management.

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enhancing farm dams

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INTRODUCTION

Farm dams can be bare muddy holes with water in them. They can also function as wetlands, with a range of native plants and animals taking advantage of the aquatic environment. The difference results from control of stock access. If part or all of the dam margin can be fenced to exclude stock, particularly cattle, aquatic and amphibious plants can colonise the margins and the water, and wildlife will use the improved habitat. Even quite small dams, with aquatic plants, can provide feeding areas for a number of ducks and other water birds, nesting sites for birds such as Little Grebe, and good habitat for frogs.

Cattle are more damaging to the aquatic environment than sheep, as they like to wade into the water, pug up the margins and disturb the bottom of the dam. Sheep will prevent the growth of marginal vegetation but don't affect aquatic plants.

DAM DESIGN OR MODIFICATION FOR WILDLIFE

Shape and depth

The shape of a dam can influence the diversity of plants which will grow around and in it, and the range of wildlife it will attract. Most dams are built economically with the shortest possible margin for the required storage volume. For habitat value, a large surface area, a variety of depths, and the longest possible margin is the best. The water margin is where the greatest plant diversity and wildlife activity occurs. This margin moves up and down as the water level rises and falls, and the area of shallow water or exposed mud is also of value for habitat. Therefore a good wildlife dam has a long margin with bays and promontories, and a gently sloping bank. The incorporation of islands in larger dams provides more

margin, and a refuge area from cats and foxes.

Margins and islands should be spread with topsoil if possible, to improve the growing conditions for plants. Stumps and logs in shallow water areas will provide roosting sites for many species.

Floating islands

Existing dams are generally far from the ideal shape for habitat, but any modifications which can be made to the shape of the dam which increase the length of the margin will be an improvement. Artificial floating islands can be used successfully to provide additional habitat on dams. There are a variety of designs. Rafts made of PVC pipes (with watertight joints), covered with a double layer of wire netting or shade cloth filled with straw, and anchored with something heavy, will be used by many water birds. The islands can be planted with rushes and an assortment of wetland plants.

Dam revegetation

When stock are excluded from a dam, many aquatic and amphibious plants will gradually appear, growing on the margins or in the water. They may be spread by blown seed or by birds. Some (possibly many) aquatic species such as spike-rushes can only grow from seed which is eaten by water birds and passed through the gut. If the bird flies to a new wetland during this process, the plants will be spread, and if the conditions are suitable, will establish. If a dam is in a catchment or water course with other well vegetated dams upstream, seed may be carried in water flow from one dam to another.

This process is something of a lottery, and may take some years. Planting the appropriate species is a more reliable way of vegetating farm dams which are isolated from other wetlands. It will generally be necessary to plant locally native trees and shrubs (see

Figure 1). Willows will contribute very little habitat value to a dam, and use a lot of water.

It is difficult to prescribe the wetland species which will establish well at any particular dam, as the water regime will have a big influence on what will grow. Species which occur locally should be used. In any particular dam, a variety of species can be introduced, but the final vegetation composition will be determined by the conditions at the particular site.

Some of the wetland plants which can be used to plant around a dam are available from plant nurseries, particularly if ordered in advance (see Appendix 4 — Further assistance & contacts). Others can be easily transplanted from existing wetlands, by hand digging, or with a bucket or back-hoe, provided there is no significant damage caused to the existing wetland. Many grow from tubers or rhizomes, and transplant well. The following list can be used as a basis for selection (see Sedges, Rushes and Water plants in Part Three for greater detail on most of the following species).

Amphibious plants for the dam edge

- Rushes (*Juncus* species): many species, easily transplanted or some are available from nurseries;
- Common Spike-rush (*Eleocharis acuta*): good fringing species;
- Smartweeds (*Persicaria* species): grow on margins, on damp ground;
- Water Primrose (*Ludwigia peploides*): grows on margins and floats out on the water — attractive yellow flowers; and
- Nardoo (*Marsilea drummondii*): a water fern, like a four leaf clover.

Aquatic plants

Emergents

- Common Reed (*Phragmites australis*): only for large deep dams, as it can dominate other species;
- Cumbungi (*Typha* species): will probably appear, also only suitable for large deep dams;
- Water Ribbons (*Triglochin procerum*): long narrow leaves and tall flowering spikes;

- Water Plantain (*Alisma plantago-aquatica*): broad leaves and white flowers; and
- Tall Spike-rush (*Eleocharis sphacelata*): grows in permanent water.

Submerged plants

- Ribbonweed (*Valisneria gigantea*): grows in deep permanent water;
- Pondweeds (*Potamogeton tricarinatus*): submerged with some floating leaves; (*Potamogeton ochreatus*): grows submerged;
- Milfoils (*Myriophyllum* species.): will also grow on the damp margins;
- Swamp Lily (*Ottelia ovalifolia*): floating leaves and showy flowers;
- Starfruit (*Damasonium minus*): floating leaves, and will grow on exposed mud; and
- Wavy Marshwort (*Nymphoides crenata*): floating leaves and yellow flowers.

Trees and Shrubs

Local trees and understorey shrubs planted around a dam add diversity to the environment and ultimately will provide roosting and nesting sites for waterbirds. Refer to the appropriate General Local Native Vegetation Profile in this Guide to select locally native species. Small dams should not be completely surrounded with trees as water birds need a flight path in to the water (see Figures 1 & 2). Trees and shrubs should not be planted on constructed dam walls, as soil spaces left when plants die can cause water to leak from the dam.



Figure 1. Fenced and revegetated dam, containing an island.

WILDLIFE ON DAMS

As well as planting, habitat for wildlife can be improved by providing roosts, such as logs and branches on the water margin, or posts and rails, and preserving any old trees, dead or alive.

Some of the birds* which may be attracted to a fenced, well vegetated farm dam are:

Maned Duck	Dusky Moorhen
Reed Warbler	Black Duck
Eurasian Coot	Little Grass Bird
Grey Teal	Little Grebe
Golden-headed Cisticola	Chestnut Teal
Purple Swamp Hen	Red-kneed Dotterel
Australasian Shoveller	Black-tailed Native
Hen	Intermediate Egret
Plumed Whistling-duck	Black Swan
Little Egret	Australian Shelduck
White Ibis	Great Egret
Hardhead	Sacred Ibis
Pied Cormorant	Blue-billed Duck
Yellow-billed Spoonbill	Great Cormorant
White-faced Heron	Little Pied Cormorant
Pacific Heron	Little Black Cormorant

* see Appendix 3 for corresponding scientific names.

DAMS FOR FISH

Native fish can do well in dams and Murray Cod, Golden Perch and Silver Perch have all been stocked successfully in farm dams. None are likely to breed. Catfish also do well, and in a fenced dam will breed. Yabbies also do well in dams, as do freshwater mussels. Yabbies provide a valuable food source for fish and farmer. Care should be taken not to introduce carp, which will have a detrimental effect on water clarity and aquatic plant growth, or mosquito fish, which eat tadpoles. Introducing hollow logs, branches or pipes into the water will provide some shelter for fish and protection from cormorants.

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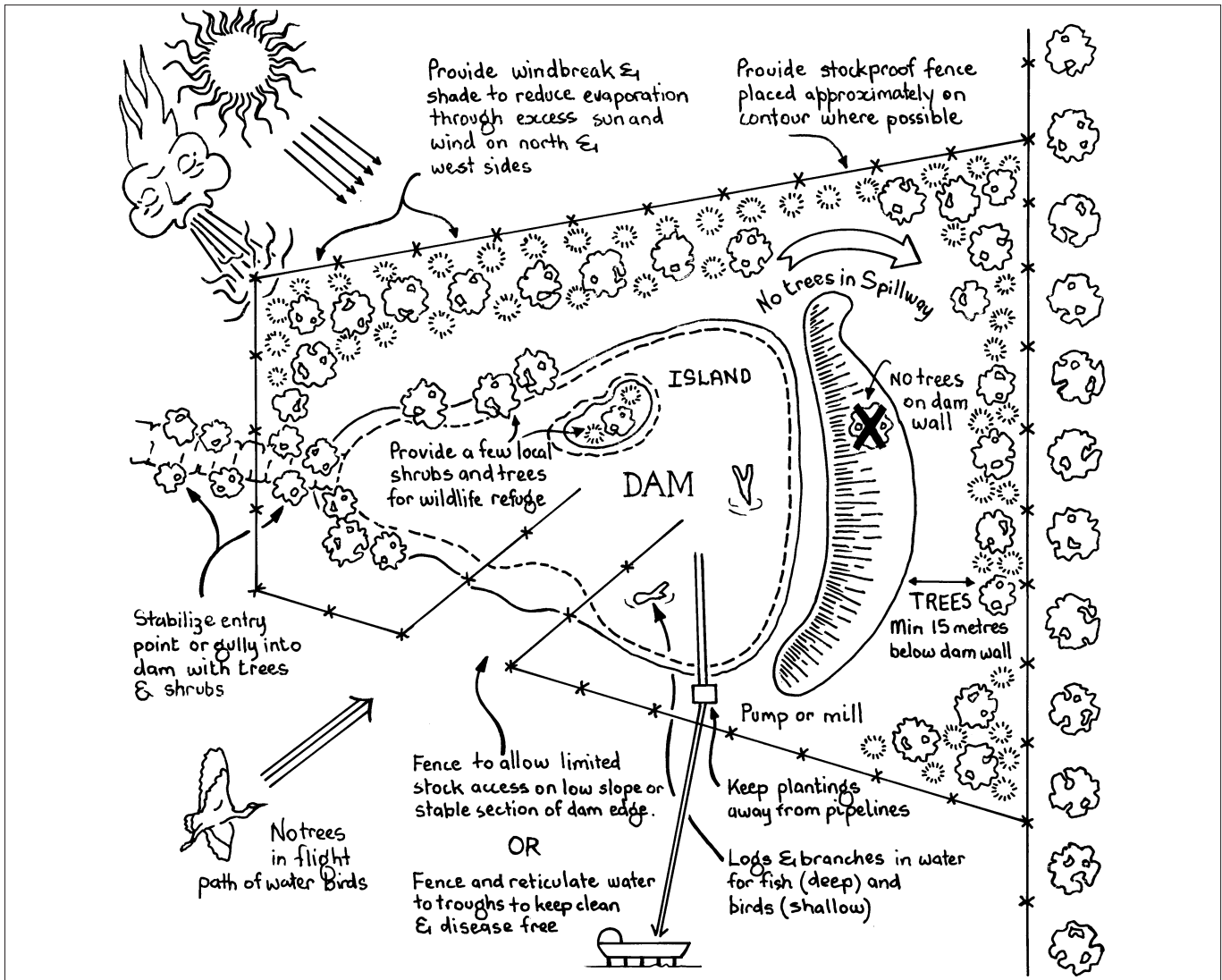
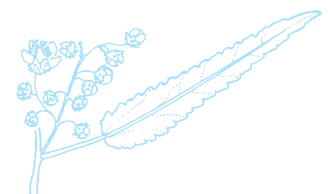


Figure 2. Dam designed to provide habitat for wildlife.

N.B. Idea from D. Green, Greening Australia, Wagga Wagga.



the economic use of remnant vegetation

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INTRODUCTION

The protection and management of remnant vegetation in agricultural areas is pursued for a diverse range of objectives by individual land managers. It is often, and vaguely, cited as a component of ‘ecologically sustainable’ agriculture of the future. To achieve such a future three core elements of the rural environment need to be sustained. These are:

- 1 the diversity of indigenous life forms (biodiversity) of an area and the ecological processes that maintain them;
- 2 the protection and maintenance of land and water resources and the balance of hydrological and physical processes that assist in land health; and
- 3 the direct and indirect supply of income and wealth to individual landholders and the nation as a whole.

Intuition and cumulative research indicates that the first two objectives can be met through securing protection and improved management of our native remnant vegetation. So how then do we derive an income and wealth from these areas of remnant vegetation?

The diversity of the management objectives, interests and opportunities of different land managers will obviously dictate the options available to individuals on their land. The list of opportunities available to land managers given here is generic, speculative and far from exhaustive. New ideas and opportunities are continually presenting themselves.

However, there needs to be concerted and organised efforts by government, industry and individuals to bring some of these opportunities to commercial

reality. If we want and need management of remnant vegetation, the costs of management to the landholder have to be borne by the whole community through incentives or market returns.

INDIRECT INCOME

The first point that needs to be stressed is that all remaining remnant vegetation is deriving income or reducing costs for individuals and the nation all the time — we are just not harvesting it directly. Healthy areas of remnant vegetation are helping to maintain the biological and hydrological balance that enable the harvest of agricultural products from cleared land. These remnant areas provide wind protection, provide habitat for valuable predator species, help reduce recharge, runoff and erosion and generally maintain landscape stability. In many areas the balance between cleared and vegetated land has been exceeded, but this only makes remaining remnants more valuable and the need for rehabilitation more important.

SOURCES OF DIRECT INCOME (see Table 1)

Grazing, browse and fodder

While fencing for stock exclusion and control provides the primary tool for protection and management of remnant vegetation, the chance for opportunistic grazing may still exist. Any grazing management strategy should focus primarily on the needs of the remnant vegetation, not the dietary requirements of domestic stock.

Generally speaking, any grazing should be of short duration and high intensity rather than prolonged set stocking. A range of vulnerable target species (grasses,

forbs, shrubs, trees) at varying stages of growth should be monitored to assess the impacts of grazing. Stock should be removed in response to predetermined impact levels.

Any grazing should avoid flowering and seed set of vulnerable (and preferred) species or when there has been a significant germination event. Careful observation of your remnant will help with your understanding of management and when to graze. It is likely that the maximum benefits can be derived for both vegetation and stock during dry autumn periods when there is a moisture deficit for other pastures and many natives are still green but dormant. Many native species, such as Kangaroo Grass (*Themeda triandra*) and Wallaby Grass (*Danthonia* species) are highly drought tolerant, grow on infertile sites and produce valuable selective grazing and browse, even in dry times and respond quickly to rain. Some of the native legumes, such as Swainson peas (*Swainsona* species), Glycines (*Glycine* species) and wattles (*Acacia* species), are also highly nutritious and palatable and are preferentially grazed.

Tourism, education and amenity

The yearning for a ‘bushblock’ or a ‘bit of bush’ has a strong hold on the Australian psyche and spirit. This is often based on a romantic and unrealistic notion of what land ownership and management entails. However, the dream still exists. This supply and demand equation will make good quality remnants more valuable in their own right and also present opportunities for income from providing varying levels of ‘bush experience’ and access.

The range of opportunities will depend on the skills, knowledge and desires of individual owners and the attributes of particular sites. Farm stays, day trips and picnics, wildflower and photography tours, birdwatching, school, urban, Government agency, farmer and landcare training days and workshops are all legitimate and promotable opportunities to provide additional income through chargeable services to various target audiences. The better the quality of the

site, the skills, knowledge and flair of the owner, the better the potential derived income and tax opportunities. Demonstration of various management techniques in different vegetation communities will become increasingly sought after.

Specialty timbers, craftwood, timber harvesting and fuelwood

While carefully managed high-volume/low-value fuelwood harvesting will become an increasing opportunity for large bush remnants, it probably represents little return for effort. There is also some opportunity for post and construction timbers from remnant vegetation areas. However the real financial gains to be made are in the provision of craftwood/specialty timbers and value adding of these same timbers.

The value of green timber is relatively low compared to kiln-dried timber. Mugga Ironbark, for instance, can reach a value of up to \$3000 per cubic metre or more when kiln-dried. Value is again added when timber is transformed into furniture or craftwood. Many other tree species of the South West Slopes have valuable timbers, including Bullock (*Allocasuarina luehmannii*), Silver Wattle (*Acacia dealbata*), Hickory Wattle/Lightwood (*A. implexa*), and many of the Box (*Eucalyptus*) species.

Not only do these timbers offer unique beauty, character and features which are highly sought after, but they have the added marketable appeal of supporting the wise management of a precious vegetation resource. Many people are prepared to pay beyond the face value of the wood and products to support the values that the product and its production represents.

For these timbers to provide economic returns to landholders in the long term, preparation of a management plan for the bush block, which includes a harvesting plan based on sustainable management, is essential.



Figure 1. Specialty timbers — red gum coffee table and vase.

Native seed

The seed from remnant vegetation represents the stored genetic information of tens of thousands of years of evolution for that site and surrounding similar ones. As such it is literally irreplaceable and obviously has economic value for the production of seedlings for revegetation and land rehabilitation work. Generally, native seed has a market value of up to \$200 per kilogram. As demand for more site restoration and direct seeding increases there will be an increasing demand for seed, especially seed of known provenance.

Seeds of native grasses, in particular, offer landholders very promising economic returns. The increasing interest in native grasses, such as Kangaroo Grass (*Themeda triandra*), Wallaby Grass (*Danthonia* species) and Weeping Grass (*Microlaena stipoides*) for environmental rehabilitation works and for re-sowing of native pastures means that cleaned seeds can have a value of up to \$1000 per kilogram. Landholders with healthy native pastures may find that managing these areas for seed production will be more lucrative than managing them for livestock production.

Many of the commercial opportunities for use of remnant vegetation are also based on the expansion of plantation resources of some species for specific

harvest management (for example, craftwood woodlots, farm forestry, flower and seed orchards). Without our native populations for seed stock selection these potential new industries cannot expand from the current bush exploitation base. The potential use of native seeds for human consumption is an opportunity that is addressed under ‘Bush foods’.

Cut flowers, foliage and fruits

While export floristry is an ever-expanding and capital intensive business, there are always local and regional opportunities for small-scale ventures and opportunistic harvesting. The South West Slopes has many trees, shrubs, grasses and herbs that are beautiful and decorative. Examples of species that could be used for flowers include Lemon Beauty Heads (*Chrysocephalum* species), Everlastings (*Bracteantha* and *Helichrysum* species), Guinea-flowers (*Hibbertia* species), Orchids, and Tea-trees (*Leptospermum* species). Foliage is also gaining popularity, and various species can be used for this purpose, including a range of eucalypts and wattles, grass trees, sedges and native grasses. Many species are suitable for drying to act as a foundation for more elaborate floral arrangement.

It is important to gain knowledge of the extent of plant populations and differing flowering times to avoid over-harvesting and to have good post-harvesting techniques to avoid wastage. Cut flowers and foliage can be harvested directly from their natural environment, or ‘bush-picked’. Bush-picking has an important role in ‘test-marketing’ potential new products, but ultimately it is best if these species are cultivated on existing cleared land to ensure consistency in the quality of the product. It is important that you check with the National Parks and Wildlife Service as to whether a permit is required for bush picking (see Appendix 4. Further assistance and contacts, for details).



Figure 2. Bush fruits.

Tannins, resins and essential oils

Tannin production from harvested wattle bark was a traditional and widespread bush product. Replacement with synthetic and substitute tannins has caused the recent demise of the industry, though Australia still imports \$5 million worth of tanbark extract. There may still be opportunities for import replacement, particularly in a market pursuing the use of natural products and processes, although there is presently no major commercial processing. The major species opportunities for the South West Slopes are Golden Wattle (*Acacia pycnantha*), Hickory Wattle/Lightwood (*Acacia implexa*), Deane's Wattle (*Acacia deanei*) and Black Wattle (*Acacia mearnsii*).

There have also been past industries based on native plant exudates and resins for a variety of uses from a range of South West Slopes species, including Cypress Pine (*Callitris* species), wattle (*Acacia* species) and Grass trees (*Xanthorrhoea* species). Rutin, a plant extract used as an anti-oxidant, can be produced from Red Stringybark (*Eucalyptus macrorhyncha*). Sweet Bursaria (*Bursaria spinosa*) can be harvested to produce aesculin (an ingredient of sunscreens and bacteriological agents) and Kangaroo Apple (*Solanum aviculare*) can produce Solasodine (a steroidal contraceptive). Again, a renewed interest in natural products may be capable of supporting a cottage industry based on such products.

The analysis and extraction of essential oils (including *Eucalyptus* oil) from native flora presents a significant and generally unexplored area for utilisation. These oils may be present in any part of a wide variety of plants and are extracted by distillation. They may be used for a wide variety of products such as soaps, perfumes, flavourings, cleaning fluids or pharmaceutical bases or additives. There would be obvious advantages in expanding a plantation resource of viable industry options beyond remnant vegetation harvesting.

There is still the need for widespread analysis and evaluation of Australia's native flora for pharmaceutical alkaloids. Some South West Slopes plant species are known to contain chemicals sought as bases or precursors to pharmaceutical products. There are probably many more yet to be evaluated for both chemical content and/or commercial viability.

Bush foods

The marketing of 'bush tucker' products is becoming an increasingly popular niche in the restaurant and health food industries. These products are aimed at the low-volume/high-value gourmet markets and have significant potential for value-adding to other products and as minor foodstuff additives.

One of the major bush-food species found in Australia is the Quandong (*Santalum acuminatum*). Already, there are over 40 000 Quandong plants in commercial cultivation around Australia, and the species is locally native or indigenous to the western part of the area covered by this Guide. A number of wattles have seed which can be ground for flour. Native Pepper (*Tasmannia lanceolata*) which grows naturally on the eastern edge of the area covered by this guide is grown commercially for its spice. As yet, no other species of native plants local to the South West Slopes are grown commercially.

Honey

The production of honey from stands of remnant vegetation is already an economic reality for many landholders. The Eucalypts, particularly the Box and Ironbark species found in the South West Slopes, are world-renowned for their quality honey. It is important to remember that it is not just the trees that are valuable for honey production. Although it is the tree species that provide the nectar (carbohydrates), bees also require pollen (protein). This pollen comes from the range of understorey plants, including wattles. So it is important to retain all the species in remnant vegetation to maximise honey production, not just the trees.

The marketing of discrete species and provenance honey provides opportunities for cottage industry to add value for landholder honey producers. Site rental

fees from apiarists are very rare or in-kind and unlikely to represent real financial returns for management of bush remnants to landholders.

Untapped genetic resources

As the previous examples for the pharmaceutical industry demonstrate, there is an enormous untapped resource in genetic material still held in remnant vegetation. Very few species have been evaluated for their chemical constituents or properties. Probably fewer have been assessed for genetic traits or tapped for genetic improvement of existing or new crop varieties or industries.

Table 1. Indicative economic uses of some South West Slopes locally native species/vegetation communities

Species	Grazing/ browse	Tourism/ education/ amenity	Specialty timbers	Seed harvesting	Cut flowers/ foliage/ fruit	Tannins/ resins/ oils	Bush foods
Wallaby Grass (<i>Danthonia</i> spp.)	✓	✓		✓			
Kangaroo Grass (<i>Themeda triandra</i>)	✓	✓		✓	✓		✓
Golden Wattle (<i>Acacia pycnantha</i>)	✓	✓		✓	✓	✓	✓
Swainson peas (<i>Swainsona</i> spp.)	✓	✓		✓	✓		
Silver Wattle (<i>A. dealbata</i>)	✓	✓	✓	✓	✓		✓
Bullock (<i>Allocasuarina luehmannii</i>)	✓	✓	✓	✓	✓		
Mugga Ironbark (<i>E. sideroxylon</i>)		✓	✓		✓	✓	
Hickory Wattle/ Lightwood (<i>A. implexa</i>)	✓	✓	✓	✓	✓	✓	
Quandong (<i>Santalum acuminatum</i>)		✓		✓	✓		✓
Broad-leaved Peppermint (<i>E. dives</i>)		✓	✓	✓	✓	✓	
Red Stringybark (<i>E. macrorhyncha</i>)		✓	✓	✓		✓	
Red Box (<i>E. polyanthemos</i>)		✓	✓	✓	✓		
Sweet Bursaria (<i>Bursaria spinosa</i>)		✓		✓		✓	
Hop-Bush (<i>Dodonaea</i> spp.)		✓		✓	✓		
Grevillea (<i>Grevillea</i> spp.)		✓		✓	✓		
Tea-trees (<i>Leptospermum</i> spp.)		✓		✓	✓	✓	✓

The opportunities of realising this potential are enormous but currently left to the entrepreneurial flair of a few individuals at a cottage-industry level. There is an urgent and increasing need for co-ordinated effort to exploit this resource through incentives — particularly while current financial signals are giving contrary messages. The co-ordination of research and development relating to commercial resource opportunities (linked with the commercialisation, marketing and net economic benefits to the individual landholders and managers and the nation as a whole) is needed.

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farm forestry: trees for productive farming

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INTRODUCTION

Farm forestry can be described as the integration of trees and shrubs with farming for multiple benefits. The term farm forestry can be used interchangeably with agroforestry. Well designed farm forestry is a means of integrating trees and shrubs with farming to provide:

- commercial opportunities with forest products;
- shade and shelter for livestock and crops;
- land protection with groundwater and erosion control; and
- conservation of native plants and wildlife on farms.

Farm forestry is best developed with property management plans to ensure the range of benefits can be optimised for a farm and local catchment. It is only through systematic planning that farm forestry can successfully provide a range of environmental, economic and social benefits. The introduced tree Radiata Pine (*Pinus radiata*), is often used in farm forestry due to its reliable growth, versatile timber, and established markets. Native trees however, are increasingly being used in farm forestry as understanding increases of the potential growth, products, and markets. While native and introduced plants can equally be used in farm forestry, this chapter focuses on the use of native plants. There is much diversity in farm forestry designs and purposes throughout Australia, as a response to the different and varied needs of farming families.

COMMERCIAL OPPORTUNITIES

The most common commercial product from farm forestry in Australia is timber. It is important to understand that timber markets can vary considerably

between regions, as can the value of different species. Timber products from native trees include: high-quality sawlogs for appearance features (e.g. Sydney Blue Gum, *Eucalyptus saligna*; Red Stringybark, *E. macrorhyncha*; Red Ironbark, *E. sideroxylon*; Blackwood, *Acacia melanoxylon*; Hickory Wattle/Lightwood, *A. implexa*; White Cypress Pine, *Callitris glaucophylla*; Silky Oak, *Grevillea robusta*), structural building timber (e.g. Spotted Gum, *E. maculata*; Southern Blue Gum, *E. globulus*; Flooded Gum, *E. grandis*; Shining Gum, *E. nitens*; Black Wattle, *A. mearnsii*), firewood (e.g. Red Box, *E. polyanthemos*; Yellow Box, *E. melliodora*), and pulpwood (e.g. Shining Gum; Southern Blue Gum). Farm forestry using native species is also being developed for oil (e.g. mallee eucalypts; Lemon-scented Tea-tree, *Leptospermum petersonii*), edible seed (e.g. Golden Wattle, *A. pycnantha*), flowers (e.g. Banksia, *Banksia* species), foliage (e.g. Argyle Apple, *E. cinerea*) and supplementary fodder (e.g. Old man Saltbush, *Atriplex nummularia*). These forest products can be harvested from a wide range of native species (see chapters 12 and 14). A careful assessment of the commercial opportunities for farm forestry within a region is strongly advised before planting.



Figure 1. Farm forestry allows trees and shrubs to become an active part of farming.

Production requirements

Individual trees and shrubs need to be matched to the anticipated growing conditions. Species performance can best be gauged by assessing local trials and earlier plantings, discussing options with neighbours, and consulting with experienced tree growers and other professionals within the region. Productive farm forestry enterprises typically require good water availability and fertile well-drained soils. There are examples of sawlogs produced in high rainfall (>750 mm/year) and irrigation areas after 20–30 years. Also, thinning of forests can produce commercial pulpwood, poles, posts, or firewood after 12–15 years on such sites. Rainfall of 600 mm/year is usually considered a minimum requirement for commercial timber production. Importantly, access to drainage water, groundwater, or irrigation can greatly improve the potential for commercial timber production in low rainfall areas (<600 mm rainfall/year). Low rainfall areas have proved to be suitable for growing native plants for oil, seed and fodder.

Equipment

Farm equipment can often be used for establishing farm forestry, although large areas (>20 ha) may warrant hiring a contractor with larger equipment. Establishing trees and shrubs requires a tractor, deep-ripper and preferably a moulder. Once the trees are established, pruning shears, ladder, and a small chainsaw will be required — especially if producing high-quality sawlogs. Further handling of sawlogs for loading, transport, and/or processing will require specialist handling equipment, and an experienced operator.

Capital costs

Establishment costs for 1000 plants/ha range from about \$600/ha (if the farmer's equipment and labour is used) to \$1400/ha (if fully contracted). Items include: deep-ripping and mounding, weed control, plants, fertiliser, and planting.

Silviculture

As with other successful farm enterprises, farm

forestry requires careful attention to establishing and managing the plants (i.e. silviculture). Good establishment usually includes:

- preliminary and on-going control of weeds and pest animals;
- deep-ripping to loosen the hardened subsoil; mounding the topsoil along planting rows (e.g. mounds 0.5 metre high, rows 4 metres apart);
- planting along rows every 2–3 metres (i.e. 800–1200 plants/ha); and
- fencing to control livestock (electric fencing can be as low as \$600/km).

Maintaining the vigour of plants for commercial farm forestry is important if the enterprise is to be economically viable. Removing poor performing plants, and fertilising and pruning the better plants will require seasonal attention. To produce high-quality sawlogs, 1000 trees/ha may need to be established, with the best trees pruned and managed throughout the 20–40 year growing period to leave a final crop of 250–400 trees/ha. High-quality sawlog trees usually require pruning to ensure a straight single trunk, with side branches progressively removed as the tree matures. A typical rate of 150 trees/day/person is a guide for the final pruning phase when using hand-shears and a ladder. To produce pulpwood, 1000 trees/ha are usually established, with pruning after the first growing year to remove multiple 'leaders' (vigorous upward-growing stems) to leave a single dominant leader. No pruning of side branches is required for pulpwood trees. Apart from regular checking for insect plagues, little is required by the pulpwood crop until harvest after about 12–15 years of growth. Producing commercial quantities of other quality forest products will also require specialist silviculture.

Financial potential

The viability of farm forestry depends on growers producing a forest product that can meet the market needs of quality, quantity, location, and continuity. Small-scale growers should consider joining a regional growers' co-operative or market broker to link with

marketing expertise and allow products to be aggregated with other growers to create a larger supply volume. Market opportunities vary widely between regions, with indicative minimum areas being: high-quality sawlogs = 2 ha/harvest; pulpwood = 10 ha/harvest. Recent economic analyses suggest that the combined benefits from well managed farm forestry can have financial returns of 5–10 per cent internal rate of return (IRR).

Potential problems

Difficulties with farm forestry include: changes in regional markets, poor plant growth (e.g. due to insect predation, inappropriate silviculture), and damage by fire.

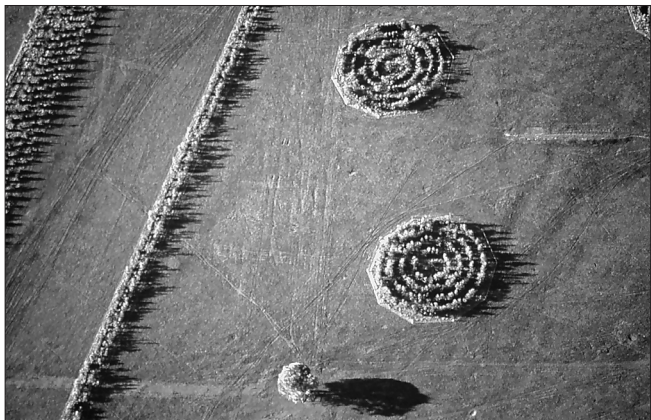


Figure 2. Farm forestry is a flexible concept that encourages the use of various planting designs.

SHADE AND SHELTER

Trees and shrubs arranged as shelterbelts, woodlots or clumps can improve farm production by protecting livestock, pastures and crops from harsh weather. The value of shade and shelter depends on how harsh the weather is on individual properties, and when and for how long the livestock/crops are exposed. Remnant vegetation can provide valuable shade and shelter, particularly if understory shrubs are present to provide low-level shelter. Harsh weather can be excessive heat or severe cold with rain and wind. An effective shelterbelt can be one that combines self-sustaining locally native trees and shrubs to provide

protection from harsh weather from ground level to the mature height of trees (see Practical Information Note — Windbreaks).

Providing shade and shelter is important to reduce stress in livestock. Stress from harsh weather has been found to reduce fertility in sheep and cows, and affects the health and size of lambs and calves. Combining pre-lamb shearing and windbreaks or woodlots is a useful way of reducing lambing losses. Newborn lambs are greatly affected by cold conditions. If ewes have recently been shorn, they too will feel the cold and are likely to seek shelter, taking their lambs with them to the protection provided by trees and shrubs. Strong winds can damage plants by abrasive sandblasting, stripping and tearing of leaves, and dislodging whole plants. Reduced wind flow can also conserve soil moisture, leading to better pasture and crop growth.

Maximum shelter is provided if the protective trees and shrubs are aligned at a right-angle (perpendicular) to the most common direction of harsh weather. The amount of wind speed reduction depends on the gaps or ‘openness’ of the windbreak (i.e. porosity). The extent of shelter depends on the height and length of the windbreak. Ideal shelterbelts are aligned against the direction of harsh weather and have 50 per cent foliage openness, providing protection up to 20 times the height of the shelterbelt.

LAND PROTECTION

Farm forestry is a design concept that allows trees and shrubs to be integrated with farming for multiple benefits, including land protection, such as lowering water tables. Put simply, when more water goes into a catchment than comes out, the water table rises. Rising water tables can reduce soil fertility by waterlogging of the topsoil and bringing mineral salts to the surface (dryland salinity). Well placed vigorous trees and shrubs can use much more groundwater than annual pastures and crops, and so have the potential to control

waterlogging and salinity. Trees and shrubs can also conserve soil by: reducing soil erosion (caused by wind and water), increasing soil organic matter; improving soil structure, and recycling nutrients.

CONSERVATION ON FARMS

Farm forestry can assist in conserving native plants and wildlife on farms by:

- increasing the area of habitat for native species to occupy; and
- protecting remnant native vegetation from environmental and physical pressures that can lead to its decline.

Farm conservation will be enhanced by farm forestry, particularly if a wide range of locally native trees and shrubs are established. Diverse plant layers (e.g. groundcover shrubs, middlestorey shrubs, upperstorey trees) and plant ages (e.g. young and mature trees) add greatly to the conservation potential of farm forestry. Well designed farm forestry can create 'ecological

buffers' when plants are established around the edges of remnant native vegetation, along waterways, and as corridors to link existing habitat (see Figure 3 below). Ecological buffers reduce the environmental (e.g. high watertables) and physical (e.g. livestock shelters) stresses that can cause the decline of valuable conservation areas. Silviculture can also add to diversity by encouraging coppicing (regrowth from dormant buds under the bark of tree stumps) and low-impact selective harvesting (removing a small portion of trees, such as less than 10 per cent of trees every five years). Selective harvesting can allow for a perpetual upperstorey and encourage regeneration of plants over a staggered time (e.g. diverse plant ages).

Farm forestry can encourage locally native plants to be established to assist further regional revegetation activities (e.g. seed collection in the years prior to timber harvest). Also, specific habitat requirements (e.g. seasonal food sources, nesting hollows) of native wildlife can be added to areas established for farm forestry, and so increase farm conservation values.

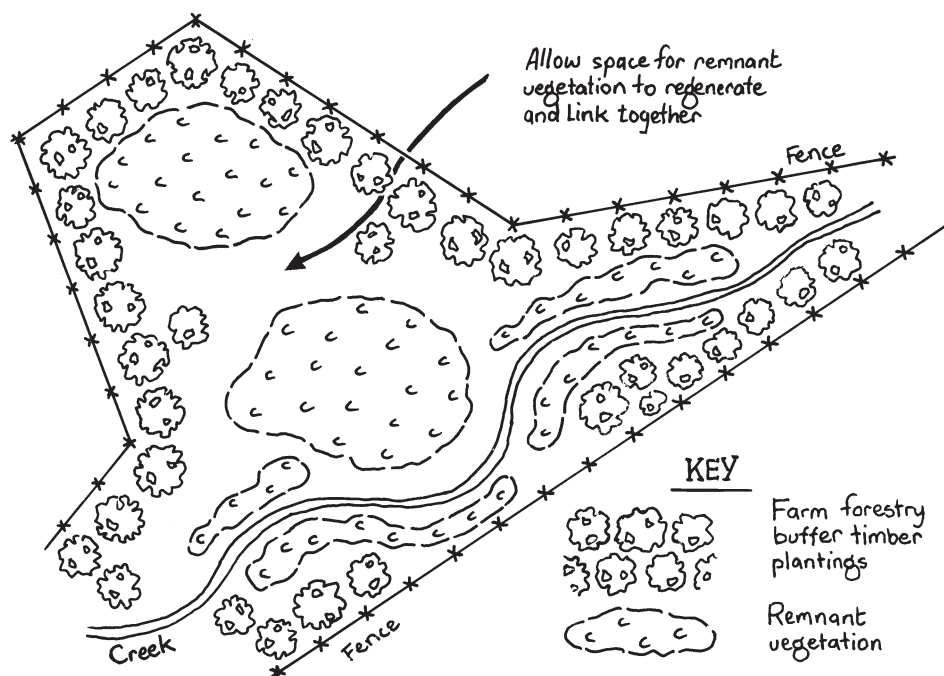


Figure 3. Farm forestry as an ecological buffer.

FURTHER INFORMATION:

Various information is available by subscribing to:

- *Agroforestry News*: Quarterly newsletter of regional agroforestry and farm forestry issues, events and practices. Contact: Private Forestry Section, Department of Natural Resources & Environment, Melbourne, tel. 03 9296 4400.
- *Australian Forest Grower*: Quarterly magazine of farm forestry and forest industry information, particularly of national relevance. Contact: Executive Officer, Canberra, tel. 02 6285 3833. There is also a regional group of the Australian Forest Growers who meet to discuss farm forestry opportunities (with the same contact as *Australian Forest Grower*).

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analogue forestry: a design

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INTRODUCTION

Commercial plantation forestry in Australia has been focused on producing timber products at minimal cost and in the shortest time possible. This has commonly led to 'industrial' plantations on a large scale, using a few highly productive species. Despite the widespread use of this 'industrial' approach and the popularity of farm forestry, other tree-based production systems ('permaculture' and 'analogue forestry') are being developed in Australia. Analogue forestry differs from farm forestry and industrial forestry practices as it includes an explicit focus on biological diversity. In addition, analogue forestry aims to identify key ecological functions and structures of the natural forest and to devise models to meet their needs. These models blend species that offer functional and/or commercial benefits to create an ecosystem framework that is analogous to the naturally evolved forest.

DESIGN FOR THE SOUTH WEST SLOPES

A design prepared in 1997 has been used to illustrate the concepts of analogue forestry. The property is located near Jindera on the southern margin of the NSW South West Slopes and is managed for lifestyle, grazing and timber production. Analogue forestry requires careful planning based primarily on the architecture of the natural forest ecosystem and the outcomes of the decision model (see Figure 1). Consequently, the design that was prepared is highly specific and cannot be used for other locations.

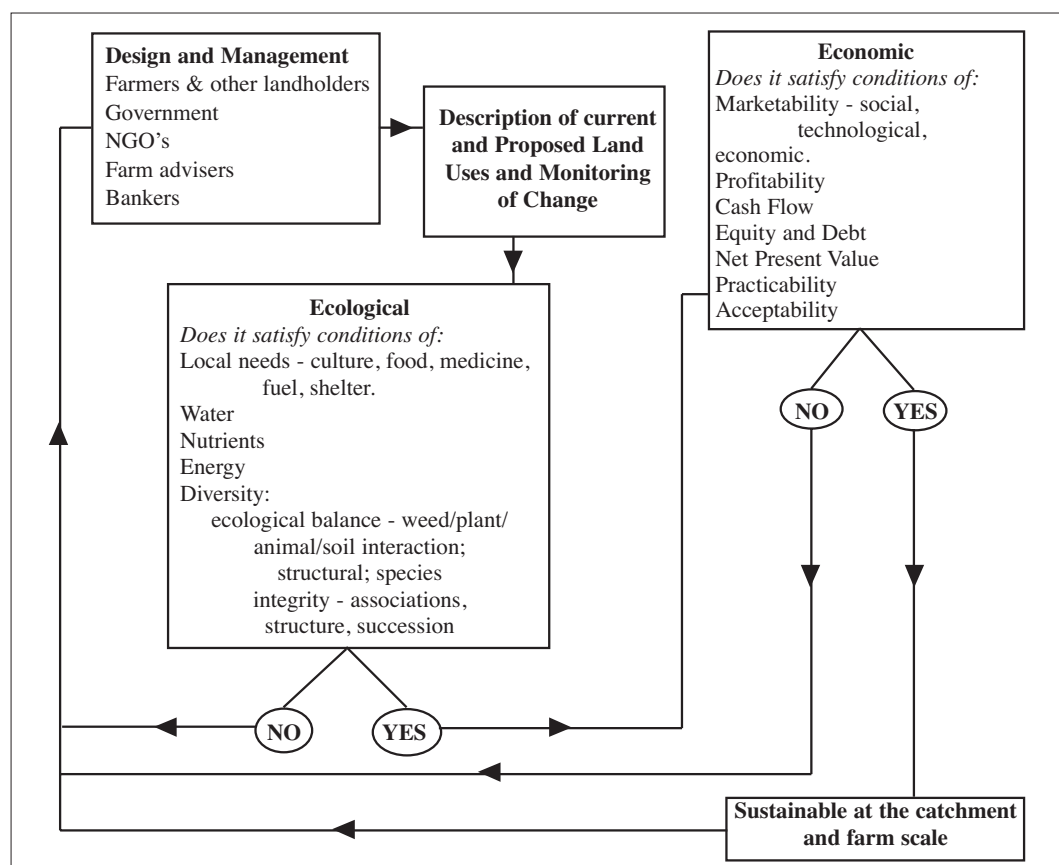


Figure 1. Analogue forestry decision model.

Adapted from Senanayake, R. and Jack, J. *Analogue Forestry: An Introduction*, Department of Geography and Environmental Science, Monash Publications in Geography: Number 49.

Monash University Press, Melbourne [in press].

The design site comprises about 4.5 ha and is located in the south-west corner of the property adjacent to a road reserve, that contains locally native trees and shrubs. Minimal salinity and erosion is evident on the site, although much of the native vegetation has been cleared for farming (simplified plant and animal community, low amounts of soil carbon, high soil compaction and high soil acidity). The soils are grey, duplex clayey-loam and are relatively acid (pH 5.0–5.5). The site has a north-western aspect of slight grade and has reasonable drainage. Average rainfall is

about 575 mm/year and light frost can occur between August and October. The initial aim of the land managers was to produce a sustainable farming system that was financially viable and included locally native seed and native fruit production.

A large number of commodities are planned for production in the analogue forest design (see Table 1) However, without ecosystem stability, no long-term productivity is expected and the value of such a design would be low. Thus, some species in the analogue

Table 1. Species Selected

Botanical Name	Common Name	Size	Product
<i>Acacia dealbata</i>	Silver Wattle	6–30m x 5–10m	F, Tc, P, E, S, N, H, SF, IS
<i>Acacia implexa</i>	Hickory Wattle/Lightwood	5–15m x 4–10m	H, Tf, E, N, S, IS
<i>Acacia mearnsii</i>	Black Wattle	8–25m x 6–10m	F, Tc, Tf, P, E, S, N, H, SF
<i>Acacia paradoxa</i>	Kangaroo Thorn	2–4m x 2–5m	H, N, E
<i>Acacia pycnantha</i>	Golden Wattle	3–10m x 2–6m	H, N, P, C
<i>Allocasuarina verticillata</i>	Drooping Sheoak	4–11m x 3–6m	Tc, H, F, SF, IS
<i>Allium sativum</i>	Garlic	1.8m tall	He, C
<i>Artemisia absinthium</i>	Wormwood	1.2m x 1m	He
<i>Backhousia citriodora</i>	Lemon-scented Myrtle	3–20m x 2–8m	C
<i>Brachychiton populneus</i>	Kurrajong	6–20m x 3–6m	H, F, IS
<i>Bursaria spinosa</i>	Sweet Bursaria	3–10m x 1–5m	P, H, IS
<i>Calendula officinalis</i>	English Marigold	0.6m x 0.3m	He
<i>Chamomilla recutita</i>	German Chamomile	0.6m x 0.3m	C, He
<i>Ceratonia siliqua</i>	Carob Tree	3–10m x 3–10m	C, SF, N
<i>Cynara scolymus</i>	Globe artichoke	2.0m x 1.5m	C, He
<i>Davidsonia pruriens</i>	Davidson's Plum	6–10m x 1–3.5m	C
<i>Echinacea angustifolia</i>	Echinacea	0.8m x 0.1m	He
<i>Eucalyptus albens</i>	White Box	15–25m x 12.5m	Tc, H, F, SF, S, IS
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	15–20m x 12.5m	Tc, H, F, S, IS
<i>Eucalyptus bridgesiana</i>	Apple Box	10–18m x 5–15m	H, F, S, IS
<i>Eucalyptus melliodora</i>	Yellow Box	10–30m x 8–25m	Tc, H, F, IS
<i>Eucalyptus microcarpa</i>	Grey Box	10–25m x 12.5m	Tc, F, IS
<i>Eucalyptus cladocalyx</i>	Sugar Gum	8–35m x 10–20m	Tc, F
<i>Eupomatia laurina</i>	Native Gauva	4–10m x 2–4m	C
<i>Juglans regia</i>	English Walnut	15m x 10m	C
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	1–4m x 1–4m	H
<i>Lomandra effusa</i>	Scented Mat-rush	0.2–0.5m tall	H
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	0.5–1m tall	H
<i>Rosmarinus officinalis</i>	Rosemary	1.5m x 1.2m	C, He
<i>Quillaja saponaria</i>	Soapbark Tree	16–21m x 8–16m	P
<i>Valeriana officinalis</i>	Valerian	0.6–1.5m x 0.3m	He

Commodity product codes: F — Fuel; Tc — Timber for construction; Tf — Timber for furniture; P — Pharmaceuticals; C — Culinary or condiment; IS — Locally native seed; SF — Stock feed; He — Herb.
Functional product codes: E — Erosion control or prevention; N — Nutrient enhancement; S — Shelter; H — Habitat.

forest offer no economic benefit but are included because they provide functions to support the overall farm ecosystem.

The analogue forest will create functional products (greater nutrient availability, high energy capture, stabilised environment and water control) as well as commercial products (pharmaceuticals, timber and culinary fruits, nuts, spices and herbs) that help to move the system towards sustainability. With time, the natural progression of any undisturbed forest community is to increase in diversity and stability, until a highly complex ecosystem or climax state is reached. Each level of complexity that develops during such community succession is known as a 'sere'. The analogue forest was designed to mimic the structure of the locally native open forest community at three levels of complexity (see Figure 2): late plant community successional stage (high biological and product diversity, and good stability); mid-late plant community successional stage (low biological diversity but high product diversity and stability); and early plant community successional stage (low biological and product diversity, and low stability).

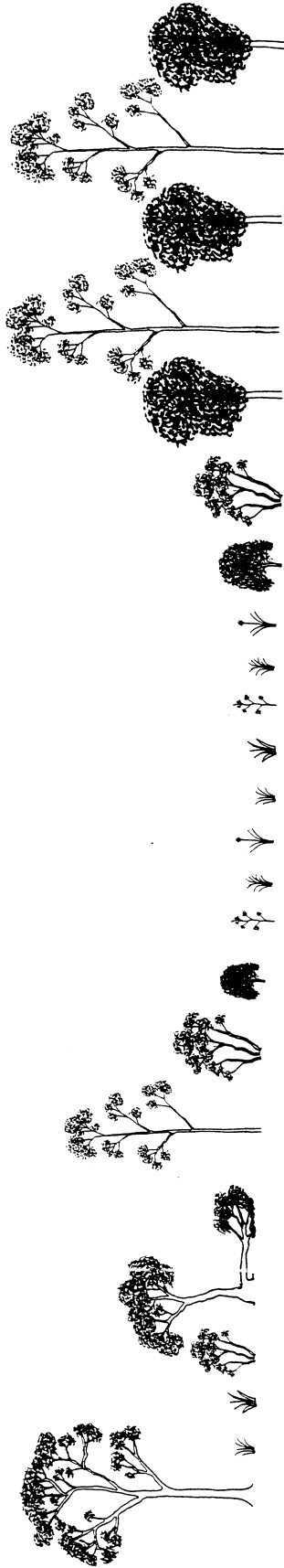
In this design, the late sere open forest consolidates remnant habitat on the road reserve (which provides a biolink to other habitat patches and the nearby State Forest) and products (e.g. spices, medicinal herbs) that bring in revenue. This vegetation community will undergo little disturbance during ongoing management of production. Subsequently, the microhabitats and 'forest furniture' created will support high numbers of animals, plants and microorganisms and help stabilise the entire system. Plants such as Sweet Bursaria (for butterflies and native parasitic wasps), Heath Tea-tree (for insects), Mat-rushes (for frogs) and Kangaroo Thorn (for birds and small animals) have been included to provide habitat, while other species occupy a dual role (e.g. Globe Artichoke and Hickory Wattle/Lightwood provide habitat and commodities). The early sere herbfield is primarily for the production of medicinal and culinary herbs and has little functional role, although it provides the opportunity to

eliminate some existing environmental weeds. In addition, the potential for good returns from the herbfield early in the forests development will assist the entire system to advance economically. The mid to late sere open forest provides firewood and native fruit as its principal commodities, although pharmaceuticals (tannin, adhesives), poles and posts, and locally native seed are additional commodities that could be harvested if market demand is high. The presence of a high proportion of Black Wattle (analogous species) enhances soil nutrient levels (by preventing erosion and 'fixing' atmospheric nitrogen) while providing valuable habitat due to several structural similarities (height, branch size and form, leaf form, flower form) to Silver Wattle (locally native species). Importantly, the three communities, or sere, are interactive and localized disturbance in the system (especially the herbfield) during cultivation and harvesting will not create any serious degradation in the ecosystem. Such disturbance would promote a higher level of biological diversity across the entire system due to the creation of niches not normally available in an advanced stable system (or near climax community).

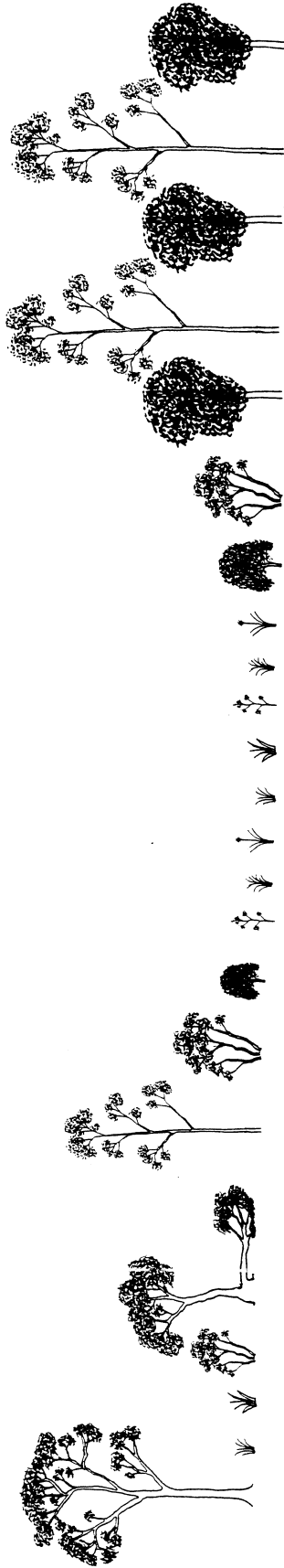
The diversity of products and their maturing times mean that the forest sustains production with many economic cycles, of various periods up to 50 years (Walnut and Yellow Box timber). Such economic bases are very stable and with a high degree of quality assurance (attainment of organic certification and use of world best standards) can offer greater returns and marketability. In addition, the commodities have been selected to reflect the culture and lifestyle of the land managers and thus the system has relevance and sustainability.



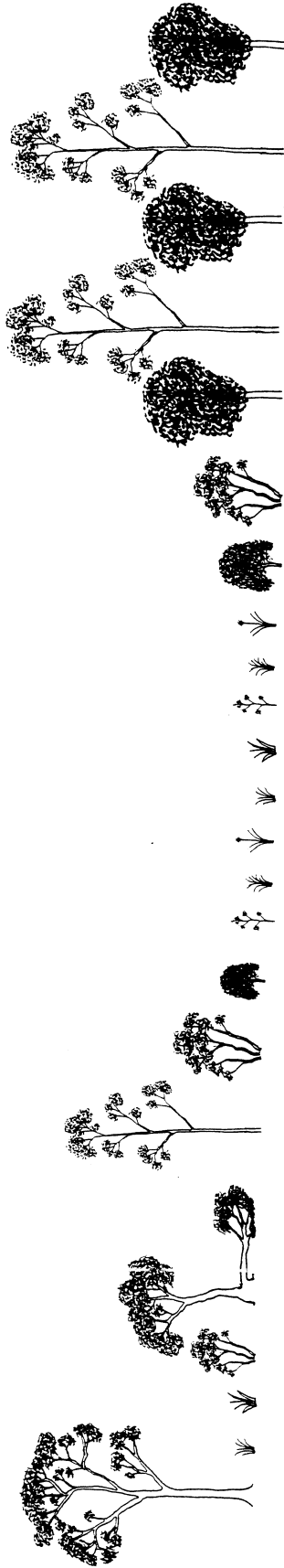
Open forest (late stage)



Herbfield (early stage)



Open forest (mid to late stage)



South West

North East

Commodity Species:	Commodity Species:	Commodity Species:
Golden Wattle (<i>Acacia pycnantha</i>)	Garlic (<i>Allium sativum</i>)	Black Wattle (<i>Acacia nearnsii</i>)
Lemon Scented Myrtle (<i>Backhousia citriodora</i>)	Wormwood (<i>Artemisia absinthium</i>)	Davidson's Plum (<i>Davidsonia pruriens</i>)
Carob Tree (<i>Ceratonia siliqua</i>)	English Marigold (<i>Calendula officinalis</i>)	Yellow Box (<i>Eucalyptus melliodora</i>)
Globe Artichoke (<i>Cynaria scolymus</i>)	German Camomile (<i>Chamomilla recutita</i>)	Sugar Gum (<i>E. cladocalyx</i>)
Blakely's Red Gum (<i>Eucalyptus blakelyi</i>)	Narrow-leaf Echinacea (<i>Echinacea angustifolia</i>)	Drooping Sheoak (<i>Allocasuarina verticillata</i>)
Native Guava (<i>Eupomatia laurina</i>)		Soapbark Tree (<i>Quillaja saponaria</i>)
English Walnut (<i>Juglans regia</i>)		
Rosemary (<i>Rosmarinus officinalis</i>)		
Valerian (<i>Valeriana officinalis</i>)		
Functional Species:	Functional Species:	Functional Species:
Hickory Wattle/Lightwood (<i>A. implexa</i>)	Scented Mat-rush (<i>Lomandra effusa</i>)	Kurrajong (<i>Brachycthon populneus</i>)
Kangaroo Thorn (<i>A. paradoxa</i>)		White Box (<i>E. albens</i>)
Silver Wattle (<i>A. dealbata</i>)		Blakely's Red Gum (<i>E. blakelyi</i>)
Sweet Bursaria (<i>Bursaria spinosa</i>)		Apple Box (<i>E. bridgesiana</i>)
Grey Box (<i>E. microcarpa</i>)		
Heath Tea-tree (<i>Leptospermum myrsinoides</i>)		
Spiny-headed Mat-rush (<i>Lomandra longifolia</i>)		

Figure 2. Profile of analogue forest.

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landscaping with locally native plants

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INTRODUCTION

The use of locally native vegetation in designed landscapes is becoming increasingly common with ‘nature-like’ landscapes, gardenesque and massed plantings of a single species being created in domestic and open space areas. This trend reflects a desire to provide the benefits that locally native plants can offer in landscapes where a more ‘pure’ revegetation approach is either impractical or inappropriate. Designing with locally native plants provides many opportunities to create distinctive landscapes that people can admire and enjoy. In addition, the use of locally native plants has ecological and economic benefits.

BENEFITS OF USING LOCALLY NATIVE PLANTS

Landscapes designed using locally native plants are able to provide many benefits. The creation of habitat for fauna and flora, the development of distinctive local character, low cost maintenance levels, and the relationship to local environment and seasonality are all significant benefits.

CREATING SUCCESSFUL LANDSCAPES

Reasons for using locally native plants range from a commitment to ‘green’ ideology, the desire for habitat creation and on through to practical considerations about minimising the resources required to maintain landscapes (see Figure 1). Whatever the motivation is to use locally native plants, to successfully create the desired landscape and fully maximise the inherent qualities of the plants, an approach which combines design, horticultural and ecological considerations is

required. Good design will ensure that the spatial relationship of landscape components creates the atmosphere required and that the functional requirements of the landscape are met. Ecological considerations encompass a range of issues including the habitat value, tolerance levels and the life cycles of species. Horticultural parameters relate to the quality and size of plant materials, weed control issues and long-term management of the landscape.



*Figure 1. Part of a cliff-top garden subjected to strong, salt-laden winds. The garden, never watered or fertilised, includes Tussock Grasses (*Poa species*), Spear Grasses (*Austrostipa species*), Kangaroo Grass (*Themeda triandra*) and White Sallee/Snow Gum (*Eucalyptus pauciflora*).*

DESIGN OF THE LANDSCAPE

The design phase of landscape development is important, whether domestic or open space is being considered. This phase brings together the practical requirements of the space and the aesthetic vision. Deciding on where pathways are to be created, and what materials are to be used, for example, is integral to the development of a balanced landscape which fulfills practical requirements. Traditionally Australian ‘bush’ landscapes have strongly imitated nature: field rocks, informal ponds, recycled railway sleepers and

sliced tree fern trunks used as stepping stones have all been popular. This style of landscape is not the only way in which locally native plants can be used. Landscapes which use a minimal number of locally native plants in a symbolic way create distinctive Australian scenes. Two excellent examples of this style of landscape are the Sculpture Garden at the Australian National Gallery in Canberra and the Grasstree Courtyard at Perth Airport. At the Sculpture Garden local species such as Brittle Gum (*Eucalyptus mannifera*) perform well in the harsh soil and climatic conditions. This white trunked species is planted in groves with a gravel surface providing a fluid paving for ease of movement and maintenance. At Perth Airport loose grouping of Grass Trees (*Xanthorrhoea* species) stand in gravel covered beds amongst strong architectural forms. The species chosen for these landscapes are strongly representative of the local area in an aesthetic sense and are ecologically suited to the sites. They require few resources in order to provide a high amenity value. Many opportunities exist to utilise species from locally native plant communities such as heathland, wetland, grassland and open woodland in ways which provide exciting landscapes.

ECOLOGY IN THE LANDSCAPE

Adoption of ecological principles in the design and management of landscapes enables the creation of lower cost plantings. Traditional horticultural practice manipulates the environment to suit the requirements of plants. This approach requires more resources than where plants are used that fit the site. By adopting an ecological approach to plant selection which matches plants, habitats and tolerance levels, a planting scheme that requires a low level of resources can be achieved. By observing the natural habitat of locally native plants, nature is allowed to play a part in teaching us what the most suitable plants are for the site in question. Whatever the existing conditions in respect to soil type, nutrient levels, climatic conditions and future maintenance, there will be plants that suit the site.

HORTICULTURAL CONSIDERATIONS

The ways in which a landscape is developed — from site preparation through planting to post-establishment maintenance — will often determine its success or failure. This is very important where locally native plants are used to create landscapes where minimal resources are available for future maintenance of the site. Critical issues relate to weed control, plant selection, establishment practices and long term maintenance.

WEED CONTROL

Pre-planting weed control is imperative for the rapid growth and successful establishment of vegetation. Weed species with rapid growth rates are highly effective users of resources such as water, nutrients and light. Control of above-ground weeds and the elimination of the weed seed bank before planting, combined with appropriate planting density and soil treatments, will greatly reduce post-planting weed management requirements. The majority of weeds present on site can generally be controlled, with the exception of some perennial weeds, with low toxicity herbicides such as the non-residual Glyphosate-based herbicide. Always adhere to instructions on the label when using herbicides. Elimination of perennial weeds prior to planting is essential, since the removal of stoloniferous or rhizomatous weeds after plantings are established is extremely difficult without severely disturbing the planting. The physical removal of all above and below ground perennial weed material present is very important. Where soils are heavily contaminated with weed seeds the removal of the soil surface to a depth of between 50 –100 mm will remove the majority of weed seeds. Other critical weed control measures include planting density and mulching. High density plantings will enable rapid canopy closure, limiting light levels to weeds.

MULCHING

Mulching is vital to the successful management of the plants on site. The mulches provide increased growth of preferred species while significantly reducing the germination of weed seed, either from the weed seed bank or from airborne sources. Mulching provides modification of soil temperatures and aids in the retention of soil moisture. Generally a plant debris surface would be used. However, this is not practical for pedestrian traffic. Gravel or sand allows greater all-weather use of landscapes, creates a fluid paving surface, and allows ease of movement of pedestrians. For effective weed suppression, mulches should be applied to a depth of at least 70 mm.

PLANT MATERIAL

All plant material should be growing actively at the time of planting. Ideally tube stock size is appropriate, since small plants will grow into the environment better than larger ones. Plants which are pot bound or have a low root–shoot ratio tend to struggle and produce poor growth in the long term.

TIMING OF PLANTING

Where irrigation is absent in the landscape, planting is ideally undertaken in autumn so that plants will be established before the dry summer period. Watering at planting is often sufficient to enable successful establishment.

POST-ESTABLISHMENT MAINTENANCE

In the past, native gardens were often thought to require no maintenance. Clearly, this is a fallacy. All landscapes require maintenance. While a well designed and established landscape will require only low levels of maintenance, some ongoing weed control, supplementary plantings, maintenance of mulch levels and canopy modification is inevitable. Landscapes are constantly undergoing changes, and

careful intervention will help to maintain a high quality landscape. Many native plants will benefit from pruning to maintain dynamic growth and continued display.

OPPORTUNITIES FOR LANDSCAPING WITH LOCALLY NATIVE PLANTS

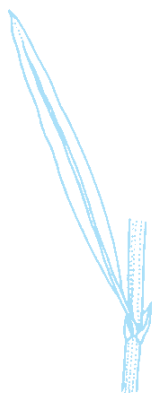
As previously mentioned, locally native plants can be used in many ways in the landscape. The range of species from grassland communities for example, is being used more often to create exciting plantings. Tussock grasses have strong architectural qualities in form and beautiful inflorescences which move about in light breezes, remaining attractive long after emerging. Tussock Grasses (*Poa* species), Spear Grasses (*Austrostipa* species), Wallaby Grasses (*Danthonia* species), and Windmill Grass (*Chloris truncata*) have very attractive inflorescences, which when combined with massed groupings of herbs and wildflowers, makes a stimulating planting. The bronze tones of Kangaroo Grass (*Themeda triandra*) and the silver foliage and yellow flowers of Common Everlasting (*Chrysocephalum apiculatum*) will add distinctive Australian qualities to any landscape. Flowering grasslands using a mosaic pattern of grasses and wildflowers is a delightful landscape treatment (see Figure 2).



Figure 2. A 5-month-old flowering grassland containing flowering species Hoary Sunray (*Leucochrysum albicans*), Common Everlasting (*Chrysocephalum apiculatum*) and Chocolate Lily (*Dichopogon strictus*).

Weeping Grass (*Microlaena stipoides*) is one of the few species which tolerates mowing and can be used for lawns. It provides a soft textured surface which will grow in shade or full sun. By planting Weeping Grass with robust herbs such as Chocolate Lily (*Dichopogon strictus*) and Bulbine Lily (*Bulbine bulbosa*) a colourful sward that tolerates recreational activity can be created. The sward can be readily maintained by one or two 'high' mowings per year, before herb emergence and after flowering and seed set. Most native grasses, however, have a tussock habit which makes them unsuitable for mowing and active recreation activities, although they still provide an attractive setting for passive recreation.

Flowering grasslands create habitat for a wide range of birds, reptiles, butterflies and other insects. Other plants worthy of inclusion in garden landscapes are Mat-rushes (*Lomandra* species), Flax-lilies (*Dianella* species), and sedges (*Carex* species), which have strong upright strap-like foliage, and are very hardy once established, particularly in the presence of children. Given thought, creativity and a little research, locally native plants can be incorporated into existing landscapes or used to create distinctive new ones.



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seed collection... the why, what, when, how and who of locally native plants

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Seed collecting is not hard. It simply requires you to be in the right place, at the right plant, at the right time.

REASONS FOR COLLECTING YOUR OWN LOCAL SEED

Collecting your own seed for revegetation projects from the local native plants in your area has a number of advantages over the use of seed from further afield. These advantages include the following:

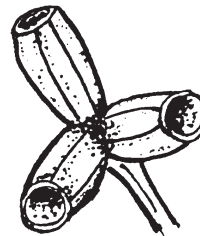
- you get the plant species you want in your revegetation site;
- the seed provenance (i.e. the 'address' of trees that the seed was collected from) is the most local to your site;
- the seed will produce plants that are most suited to the local conditions;
- the seed will have the best genetic capability of adapting to the conditions in your area; and
- collecting your own seed makes the project a lot cheaper, particularly for direct seeding sites.

WHAT YOU NEED TO LOOK FOR AND COLLECT

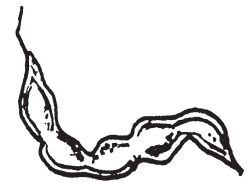
The key to learning what it actually is that you collect from a plant is learning to recognise mature fruit. The actual seed of plants is generally enclosed in either fleshy, hard or papery fruit (think of an apple or a macadamia nut). It is the fruit that you actually collect from a plant. From this fruit you will extract the seed.

The diagrams below are examples of different fruits of plants in the South West Slopes.

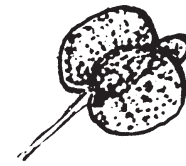
White Box
Eucalyptus albens



Gold-dust Wattle
Acacia acinacea

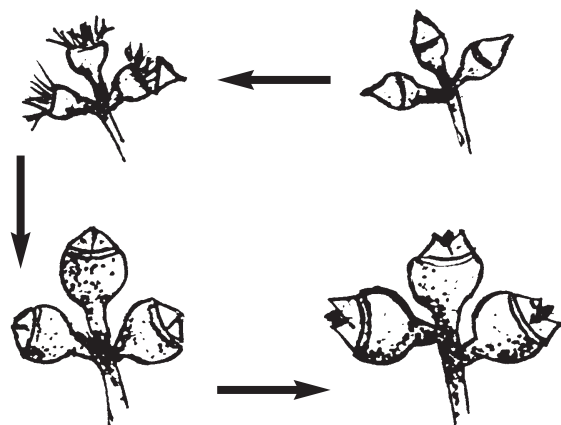


Hop-bush
Dodonaea species



Learning to identify when the fruit is mature and ready for collecting takes a little bit of practice. The best way to learn is to observe the plant regularly to detect changes to the fruit. If you suspect that the fruit looks close to being mature, then try the 'paper bag test'. Collect a small amount of fruit, place it in a paper bag and leave it in a warm spot for a couple of days. If the fruit is mature, the seed will readily fall out of the fruit, and you can now collect some more. You will quickly get an idea of how long it takes for fruit to mature after the plant has flowered so that the next harvest will be easier.

The following diagram is an example of the changes that the seed of River Red Gum (*Eucalyptus camaldulensis*) undergoes from flowering to fruit.



POINTS TO CONSIDER

When collecting seed keep in mind the following points:

- Take only 10 per cent of the fruit crop from one plant to maximise its regeneration potential;
- For shrubs and smaller plants, to encourage genetic diversity in the seed, try to collect from a large group of plants rather than individuals and from no fewer than 10 plants;
- For larger plants, like the eucalypts, avoid isolated individuals in a paddock (this can be hard) and try to collect from plants spaced widely apart to avoid inbreeding;
- Minimise damage to the plants you collect from (no chainsaws). Hand stripping is often the best method; and
- Avoid felling plants just for seed collection. Take advantage of storm damage to get those plants that are normally out of reach.

WHEN TO COLLECT SEED

Most plants of the South West Slopes flower from autumn, through the winter months and early spring (check Plant Descriptions in Part Three for individual flowering times). As a result most seed matures during the summer months. This is especially so for the wattles, peas, cassias and hop bushes.

It is most often the case with the wattles, peas, cassias and hop bushes that one day the seed will still look green and the next day it will nearly all be gone after a

day of hot weather or hot winds. This is one of nature's ways to disperse the seed away from the adult plants. The pods will spring open and, aided by wind the seeds will land away from the parent plant so that seedlings will grow with minimum competition.

As mentioned earlier, if you are unsure when a plant will have mature fruit, check the plant regularly. Several books give details about when different plant species have mature fruit. These still only offer a guide so it is best to learn for yourself.

BASIC EQUIPMENT FOR SEED COLLECTING

The basic equipment you need for collecting seed includes a bucket, wool packs or large garbage bags, long-handled or extendible secateurs, tarpaulin or ground sheet (for drying the seed on and laying under plants to collect fallen fruit) and finally paper and pens to write down details about the seed you've collected in the field.

METHODS OF SEED COLLECTING

Tall trees Use ladders and extendible secateurs or take advantage of fallen branches. A more expensive option is hiring a cherry picker.

Medium trees The use of extendible secateurs, ladders and the back of utes will often be the best option for these plants.

Shrubs Hand stripping of the fruit into buckets or fruit-picking pouches is the quickest method of collecting and also least damaging to plants.

Smaller shrubs, grasses, lilies, ground covers These plants take longer to collect seed from. The use of ground sheets, bags or stockings tied around branches to catch maturing fruit, laying trays under branches and picking individual fruit are all options to consider depending on the plant and type of fruit.

EXTRACTING THE SEED FROM THE FRUIT

To extract the seed from the fruit the basic equipment needed is a couple of sieves with different sized holes for different sized seed. Drying the fruit on sheets in a warm area away from seed-eating predators should only take a couple of weeks. The fruits will split open and seed can easily be removed by shaking, thrashing and sieving. Avoid leaving much of the fruit still attached to the seed as it can harbour insects which will eat your seed.

STORING THE SEED

To store the seed till you wish to use it, aim to keep it where the temperature remains most stable, cool and at minimum humidity. This could be the refrigerator or an insulated room. Airtight containers are best to keep out insects and keep seed dry (glass jars are suitable). Try to minimise the seeds' contact with light. This can be done by storing in the dark or using dark containers. The use of mothballs also helps to keep insects out of your precious seeds, but do not put those jars in the refrigerator with food. Remember to label your containers. Useful information would be the date the seed was collected, where the seed was collected from, who collected it, the number of plants seed was collected from and any other comments, for example, 'this year seed production was prolific'.

LOCAL ORGANISATIONS AND CONTACTS

Collection permits

If you wish to collect seed outside your own property it is important to seek permission from the appropriate authority e.g. local shire, National Parks and Wildlife Service, Department of Land and Water Conservation, State Forests, Rural Lands Protection Board or private landholders.

Helpful local organisations*

- Greening Australia — Wagga Wagga and Deniliquin offices;
- Society for Growing Australian Plants, Albury; and
- Albury Botanical Gardens.

* see Appendix 4. Contacts and further assistance, for further details.

GROW YOUR OWN SEED ORCHARD

Today great emphasis is being placed on using local native plants in revegetation works. Demand for seed will only increase in the future. With this in mind establishing a seed orchard of local natives could potentially be an alternative cash crop, or at least a reliable supply of seed for other planting projects in your area and on the farm. A seed orchard can be incorporated into wind breaks or other planting sites. If, however, it becomes a serious enterprise then it may be best to lay out an orchard to maximise seed production.

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propagating locally native plants

John Delpratt
Burnley College,
Richmond, Victoria.

INTRODUCTION

Revegetation using local species aims to produce diverse, robust plant communities that establish quickly, resist weed invasion and grow to resemble and function in a manner similar to natural vegetation. Revegetation can be achieved through sowing seed directly onto the site, by planting, or by a combination of both. If all or part of the vegetation is to be planted, the reliable propagation and production of a diverse range of plants will be an important phase of the project.

This chapter introduces contemporary plant propagation and production methods suitable for the reliable supply of the diverse range of plants needed for most revegetation projects.

GROWING PLANTS IN CONTAINERS

By using an appropriate combination of propagation technique, growing environment, growing medium and container design, most plants can be started in containers and transplanted into a prepared revegetation site.

Containers

The important functions of the container are to provide a stable root environment, adequate drainage and a design that avoids or delays root circling and pot binding. There is a bewildering array of container systems available for growing plants. Many are very good; none is perfect. You must consider the number and range of plants being grown, the environment under which the plants will be grown, the revegetation site conditions, whether the containers are to be reused

and, of course, their cost. If trees and shrubs are to be grown, it is critical that the internal surface of the container is designed to stop roots from circling. Vertical ribs, vertical slots and treating surfaces with paints containing copper compounds are among the modifications that can reduce root circling. Most commercial containers are made of semi-rigid plastic, either as single containers or as blocks of various numbers of containers.

Discarded household containers such as plastic tubs and waxed cardboard cartons can make low cost alternatives in some situations, provided adequate drainage holes are made in the base.

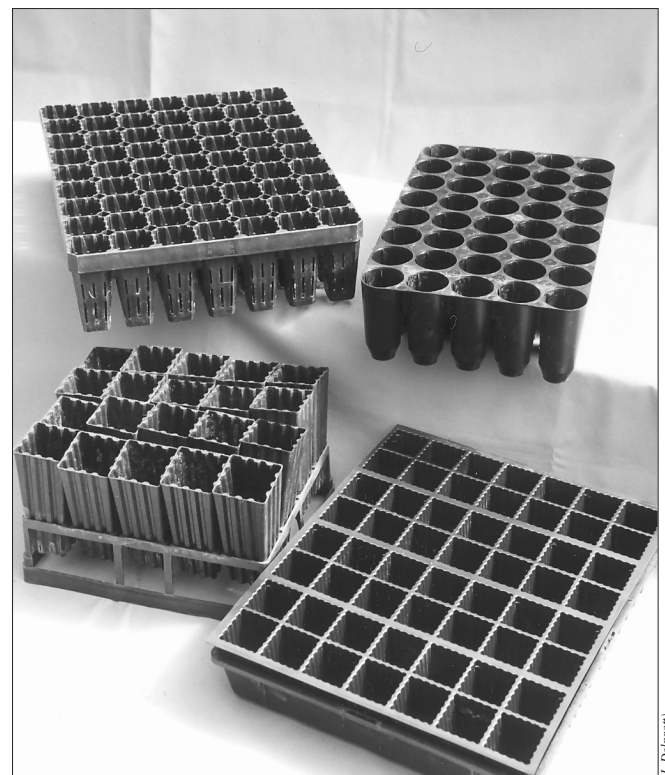


Figure 1. Various container systems.

Growing media

For rapid and healthy plant growth, soil does not make a good container medium. In a container, most soils quickly lose their structure and their capacity to drain freely. This leads to slow growth and an increased risk that root diseases, such as *Phytophthora*, will establish in the container and either kill the young plant or be transferred to the revegetation site. When soil is part of a growing medium, it is likely that weeds will be a problem during production and later, weeds and weed seeds will be transferred to the planting site. High quality mixes based on composted wood wastes, such as pine bark, are readily available in south-eastern Australia. Standards Australia have established standards for retail potting mixes. Qualifying products display the Standards Australia logo on the bag.

Nutrition

Major plant nutrients can be supplied easily and uniformly using one of the commonly available controlled release fertilisers. These products come in a range of nutrient formulations and release times. Choose a product with a release time that matches the time your plants will be in the container. Formulations are available for plants with a low tolerance of phosphorous such as some of the wattles, banksias and peas. Depending on your growing medium, you may need to add a range of micronutrients, also available in convenient commercial formulations.

Plant root associations with microorganisms

When growing in soil, the root systems of many plants form complex associations with other organisms. These associations may increase a plant's capacity to draw resources, such as nutrients, from its environment. Some examples of these beneficial associations include *Rhizobium* (with legumes such as wattles), *Frankia* (with casuarinas) and various mycorrhizal fungi (with a wide range of herbaceous and woody plants). While these microorganisms generally are not needed for the healthy growth of well fertilised container plants, there is increasing interest in establishing these associations during the container production phase. Some commercial inoculants are

available for incorporation into growing medium. Although inoculation can be suppressed by high nutrient levels, commercial products usually are compatible with recommended applications of controlled release fertilisers. Where local plants are being grown, it is likely that these associations will develop after planting on the site.

FIELD GROWING BARE-ROOTED SEEDLINGS

In other parts of the world, many plants are grown in soil in open field nurseries. They are transplanted as bare-rooted seedlings. These plants are light, easy to transport and, provided they do not dehydrate, quick and easy to transplant. Most Australian plants are evergreens that do not have a clearly defined dormant period, limiting the ease with which they can be transplanted as bare-rooted plants. However, some plants, particularly the eucalypts, have been grown successfully using field production techniques. The benefits include avoiding the costs associated with container growing and a product which is easier to transport and plant into sites where access is difficult. Specific skills must be developed to grow high quality bare-rooted stock and the range of plants is likely to be limited. Find out if anyone is growing bare-rooted seedlings in your area. Either learn from them or use their product to supplement your own growing.

PLANT PROPAGATION

Purpose

When propagating indigenous plants for revegetation, the aim is to produce the required number of healthy plants of the desired species, which are able to establish quickly when transplanted into the revegetation site.



Figure 2. Drooping Sheoak (*Allocasuarina verticillata*) seedlings ready to plant.

Technique selection

While seed is the most common propagation material, a number of other techniques can be considered if seed is not available or is difficult to use. The overriding consideration is that the chosen technique is used in a way that maintains most of the local genetic diversity of the species.

Propagation source material

A characteristic of many plant communities is that they contain diversity both in their range of species and within each species. The diversity within a species may include subtle adaptations to local environments. By collecting seeds or cuttings from remnants close to

your revegetation site you improve your chances of capturing and maintaining local adaptations. You should collect propagation material evenly from at least ten and up to fifty plants. Be sure you hold a current collecting permit and have permission to collect from the remnant.

Propagation techniques

SEED

The basic requirements for successful seed propagation are germinable seed, a clean, well drained growing medium, sufficient moisture and a suitable temperature and light environment. For most species, if your seed is germinable, the medium is moist and temperatures are within the range of 10°C to 25°C, you should have germination within one to eight weeks of sowing. Having a greenhouse or shadehouse available will increase your flexibility, but for local species it may be enough to sow in the plant's usual season for germination.

For annuals and perennial herbaceous plants, it is usual to broadcast seed evenly onto the surface of the growing medium and cover the seed lightly. The seedlings can be transplanted into fertilised growing medium, in individual containers, within a few days of germination. When growing seedlings of shrubs and trees, a different approach is recommended. The root systems of trees and shrubs can be distorted and damaged permanently if they are transplanted as young seedlings. This damage can lead to unstable plants and premature death on the revegetation site. A safer technique is to plant a small number of seeds into an individual tree tube (or similar container) filled with fertilised growing medium. When more than one seed germinates, remove excess seedlings by clipping them off below the first leaves. Do not pull out the seedlings as this can distort the root system of the remaining plant.

You may choose to broadcast sow and then transplant tree and shrub seedlings for reasons of convenience and limited propagation space. Experienced growers advise that root distortions can be limited by

shortening the root system to a manageable length. If you choose to transplant seedlings, it is a good idea to hold the seedling over the centre of the tube and fill the medium around the seedling, rather than transplant into a filled tube.

Sometimes seed will not germinate, even though the growing medium and environment should suit the species. It may be that the seed is dead, or the problem may be caused by some form of seed dormancy. It can be difficult to decide whether seed is healthy simply by inspection. Look at your seed under magnification for evidence of insect damage. Another test is to soak a sample of seed on a moist tissue for a few days. If the seed rots quickly, it is likely that the seed lot is either dead or in poor condition. Squash or cut a few seeds. If the internal structures are sound, it indicates the seed is healthy.

Seed dormancy can come in many forms; some are easily dealt with, others are poorly understood. One common form of dormancy is hardseededness. Many legumes, such as the various peas and the wattles, have hard seed coats. In nature, seeds with hard coats may not germinate for many years. Once the hard seed coat has been breached, germination usually follows quickly. One practical method for breaching the seed coat is to rub the seed against or between abrasive surfaces, for example, sandpaper. This method suits a range of hard seeded species, not just the legumes. A popular method, specifically for legumes, is to soak the seed in hot or boiling water. Both methods need some initial trialling on small samples of seeds to assess the intensity and duration of treatment for each species and seed lot.

Some species, particularly those from districts that experience cold winters, require a cool moist period before they will germinate. In the nursery, this can be achieved by placing the freshly sown and watered seed into a cold room or refrigerator at about 4°C for a period of from one to possibly as long as twelve weeks. Once the treatment is finished, the container is placed in a normal germination environment. The seed

of some species is dormant at harvest, but will lose dormancy when stored dry for periods of from one to many months.

A novel dormancy-breaking treatment using plant-derived smoke has been effective on many species from southern Africa and south-west Western Australia. Research on eastern Australian species has shown some responses, but so far, it is not clear whether this process is important for species from this region. If you are having difficulty germinating seed you know to be of good quality, it is worthwhile giving this technique a try.

Seeds are a convenient and efficient means of propagation for the majority of plants of this region. In most years, they can be collected and stored easily in large enough quantities to maintain adequate levels of genetic diversity in their progeny. For most revegetation programs, growing plants from seed will be the most frequently employed propagation technique for both herbaceous and woody plants.

CUTTINGS

Cutting propagation is most likely to be useful for perennial herbaceous plants and shrubs. Growing a plant from a cutting produces a clone of the parent plant. For revegetation, plants already growing successfully in an area can be replicated and planted into similar sites. In conventional nursery production, only one plant may be used for collecting cuttings. For revegetation the 'ten to fifty' rule of thumb should be applied; collect cuttings evenly from ten to fifty different plants to maintain diversity and local adaptations in the next generation.

Growing plants from cuttings is generally more demanding than seed propagation. The cuttings must be in the right stage of growth (usually semi-mature, current season's growth), they must not dehydrate at any stage and they will have to be kept in a highly modified environment until they form roots. The environment usually is modified by installing mist or fog systems into a greenhouse, or by covering

containers or beds of cuttings with thin plastic film. The growing medium usually is more freely drained than other media and can comprise materials such as clean sand, perlite, peat or composted wood wastes. High quality commercial products are readily available.

When propagating cuttings, it is common practice to apply root promoting plant growth regulators (auxins) to the base of the cutting stem. These products are available in a range of concentrations in commercial formulations that may be powders, liquids or gels. They may or may not help strike your species but, applied correctly, they are not likely to be harmful.

Cutting propagation is a very useful technique, particularly when seed propagation is not practical. It can be used to maintain successful local forms, but being a clonal technique, it is important that a suitable range of plants is used for stock plants.

DIVISION

Division is another clonal technique which can be very useful for propagating clump, mat and bulb forming plants such as grasses, reeds and lilies. The parent plant is divided by hand or with a sharp blade, retaining when present, stem, leaves and roots on each plantlet. Each plantlet is planted into an individual container filled with fertilised growing medium. Usually, no special growing environments are needed, although the season in which the division is done may be critical for some plants.

GROWING-ON

Whether propagating from seeds, cuttings or divisions, the growing of the plants and their preparation for field planting is a critical phase. For ease of transport and planting, the final container should be as small as possible, while allowing for enough growth and root volume for the plant to establish in less than ideal field conditions. Plants should be grown under conditions that prepare them for the field site. This could be in the full sun, in filtered shade under a tree canopy, or in a

light shade house which will afford protection from storms and drying winds. The plant's medium must not dry out. Once a wood waste growing medium dries, it can be very difficult to re-wet. Top growth should be controlled so that it grows relatively slowly. This can be done by growing in high light and by keeping nutritional levels and watering in balance with the plant's needs. At transplanting, the plant's root system should hold the medium together without being pot bound. A plant which has been held in the container for too long, generally will be slow to establish when transplanted. It will be very susceptible to drought through the failure of its root system to make new growth into the surrounding soil.

CONCLUSION

The propagation and growing of plants for revegetation is a fascinating and rewarding activity. The grower comes to know where and how to collect suitable propagation material, the best techniques for each species and how best to prepare well grown, diverse plants for transplanting into the revegetation site.

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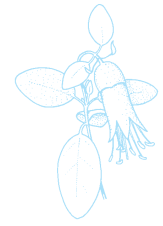
~ *practical information notes* ~
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~ practical information note ~

Understorey



INTRODUCTION

Understorey broadly consists of all the plant or vegetation layers under the overstorey or tree layer. When discussing understorey on farms we generally mean shrubs which can be grown and established relatively easily. However, the understorey also includes the ground layer, consisting of grasses, lilies, groundcovers, orchids and a myriad of other plants that make up the natural system. The ground layer is very difficult to recreate. If it has not been lost, we can retain it by fencing to manage grazing, removing invasive weeds or non-local plants, and minimising soil disturbance.

IMPORTANCE OF UNDERSTOREY

- understorey is the layer of greatest biodiversity;
- understorey is vital habitat for native wildlife, for feeding, sheltering, nesting and breeding;
- seeds and propagules lie within the understorey - the source of future vegetation;
- the stability of soils, catchments and natural systems depends on the health of the understorey;
- many understorey plants improve soil fertility by 'fixing' nitrogen (eg. wattles and native pea-flowers);
- water quality is determined at the understorey layer; and
- the condition of the understorey determines the regeneration of trees.

THREATS TO UNDERSTOREY

Most rare or endangered plants are part of the understorey. Understorey plants are particularly vulnerable because:

- they are low-growing, and accessible to grazing animals including livestock, rabbits and hares;
- many understorey plants are relatively short-lived, hence requiring continual replacement by soil-stored seed or from suckers. In grazed areas regenerating seedlings are generally eaten, so fail to establish;
- many understorey plants such as nitrogen-fixing wattles and native pea-flowers are nutritious and

highly palatable, and hence are selectively grazed;

- many understorey plants are vulnerable to being 'crowded out' by vigorous exotic plants such as Phalaris and Paspalum, which rob low-growing understorey of light, moisture and nutrients, hence suppressing growth and regeneration; and
- many understorey plants prefer low nutrient soils, and are hence disadvantaged by fertiliser and drainage changes.

UNDERSTOREY ON FARMS TODAY

Today, much of the shrub understorey has disappeared, due to the above factors. Often the only understorey remaining are prickly plants such as Kangaroo Thorn (*Acacia paradoxa*) and Bursaria (*Bursaria* species). In areas with only older trees remaining, these shrubs are vital havens for small birds in particular that seek refuge from cats, foxes and larger more aggressive birds.

BRINGING BACK THE UNDERSTOREY

Suggestions for bringing back the understorey will vary with your site. Refer to the Local Native Vegetation Profile in this Guide when choosing species for your area.

Relatively 'natural' areas (few weeds)

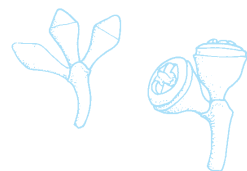
Fence the area to manage grazing and remove invasive non-local or exotic plants. If the understorey does not reappear within a few years from soil-stored seed, replant it from stock grown from seed as close as possible to the site.

Windbreaks and corridors

Plant at least 50 per cent understorey with your trees. Planting 80 per cent understorey will have additional benefits, including providing a 'nurse crop' for slower growing trees, encouraging the return of native wildlife, and improving soil fertility. In sites dominated by exotic or weedy pastures, conditions will probably be unsuitable to re-establish low growing plants under 1 m high — the more robust wattles may be your only option until the weed layer is reduced.

~ practical information note ~

Natural Pest Control



INTRODUCTION

There is enormous potential for natural pest control in farm pastures and remnant native vegetation from native predators and parasites. Nearly all native farmland birds and bats feed on insects, including pasture root-feeding scarab grubs, caterpillars, bugs, beetles, lerps, aphids, flies, moths, christmas beetles and thrips. Bats have relatively high metabolic rates, hence they can consume between one third and half of their body weight daily. There are thousands of native parasitic wasps and other insects, and spiders that play a useful role in controlling farm pests. By providing habitat, natural pest control can be encouraged. Key requirements are nectar throughout the year (from a diverse range of locally native understorey and trees that flower at different times), hollow trees for nesting and sheltering, and branches, logs and natural litter on the ground.

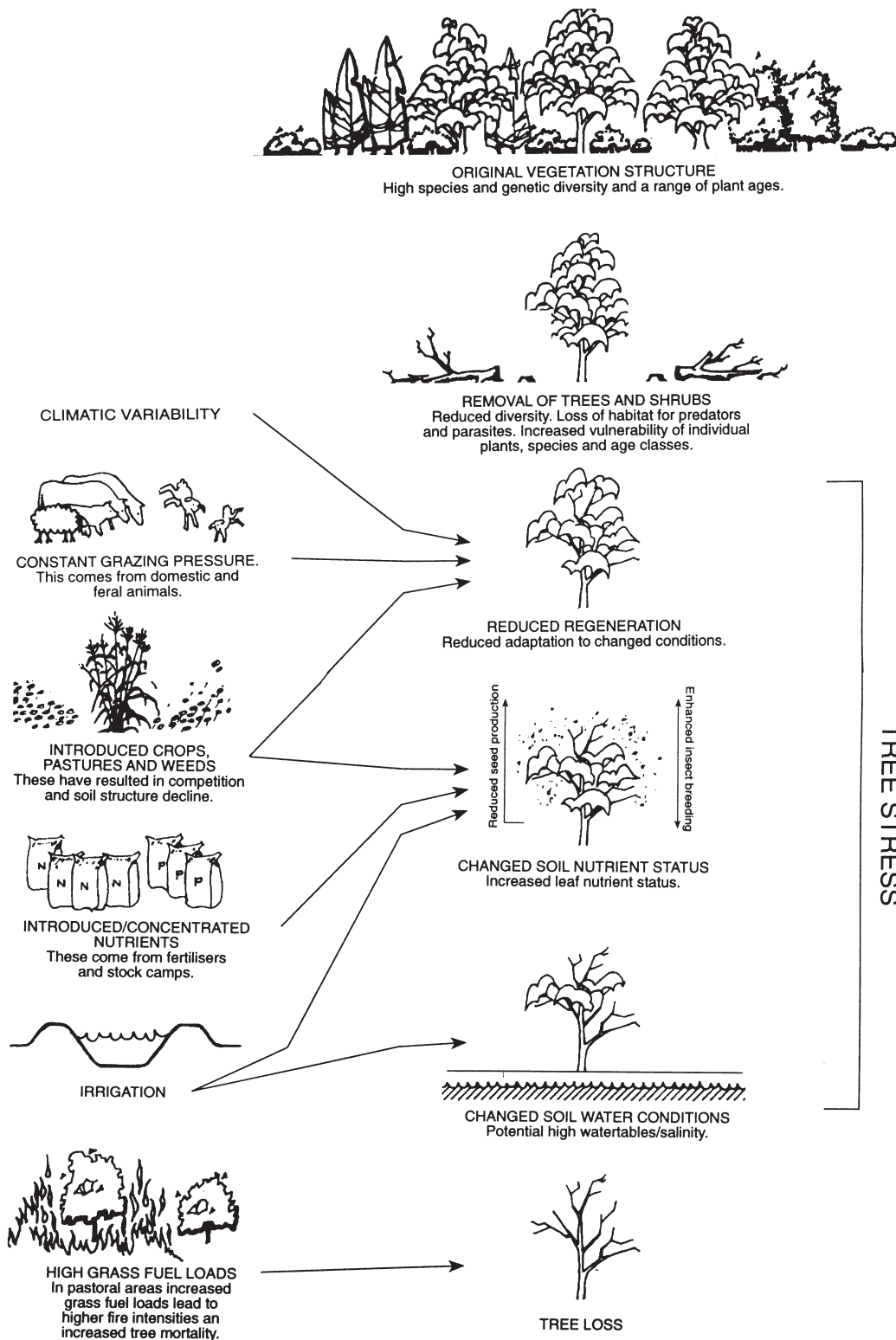
NATURAL PEST CONTROL EXAMPLES

Predator/parasite	Diet	Habitat of predator/parasite
Ringtail & Brushtail Possums	Mistletoe foliage & other foliage and fruit	Hollow trees for nesting & sheltering
Sugar Gliders & Squirrel Gliders	Scarab beetles, caterpillars, weevils, moths, gall-forming grubs and lerps	Hollow trees for nesting & roosting, nectar, gum, plant sap from wattles eg. Silver Wattle, Golden Wattle, Hickory Wattle/Lightwood and linking vegetation between remnants
small insectivorous bats	Mostly winged insects eg. Rutherglen Bug	Hollow trees for sheltering and roosting & dead standing trees
Magpie	Scarab larvae (and other grubs feeding on pasture or grass roots)	Clumps of eucalypts for nesting
Ibis	Grasshoppers, crickets, scarabs, caterpillars, and weevils in pastures	Dead trees near water for roosting
Ravens	Insects including Christmas Beetles and grasshoppers	Large trees for nesting
Yellow rumped Thornbills	Small pasture insects	Clumps of low thorny shrubs for nesting eg. Bursaria/Native Blackthorn
Black faced Cuckoo Shrike	Large caterpillars and beetles	Woodlots wider than 40 m with shrubs
Crested Shrike-tit	Boring grubs and caterpillars	As above
Honeyeaters	Tree and shrub foliage-feeding insects	Shrubs amongst eucalypts for resting, nesting and feeding
Pardalotes	pyslids (lerps) and other foliage-feeding insects	Small tree hollows for nesting and shrubs to escape aggressive larger birds eg. Noisy Miners
Curlew	All large pasture insects	Day roost; fox control; log and stick litter, and short or sparse tall grass
Imperial White Butterfly caterpillars	Mistletoe foliage (exclusively)	Flowering understorey plants providing nectar for adult butterfly
Beeflies	Wingless grasshoppers	Rotting knotholes in dead trees for egg-laying sites
Tachinid flies	grass grubs	Native shrubs for shelter and alternative food source
Parasitic wasps	Pasture grubs and eucalypt foliage-feeding insects eg. leafhoppers	Flowering shrubs and understorey plants for adult wasps
Ground beetles	Scarabs & grasshopper eggs & larvae	Grassy understorey with good litter layer
Spiders	All insects	Diverse vegetation structure

~ practical information note ~

Rural Dieback

Note that all these processes are interactive and do not necessarily take place in this order.



Reproduced with permission from M. Driver & M. Porteners, 1993, *The Use of Locally-Native Trees & Shrubs in the Southern Riverina*, Royal Botanic Gardens, Sydney.

~ practical information note ~

Insects and Tree Decline

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INTRODUCTION

Tree decline, dieback, or the premature death of trees, is a serious and growing problem in rural Australia. It is caused primarily by clearing and consequent ecosystem dysfunction, where the natural checks and balances operating in a healthy diverse ecosystem have broken down. Much of the dieback in rural south-eastern Australia is exacerbated by insect predation. Some insect activity in native vegetation is natural and indeed necessary for sustaining insect-eating birds and other native animals. However, when natural systems are out of kilter, insect activity may be so great as to cause serious tree decline.

PRESSURES FROM INSECTS

Insect predation often involves repeated loss of leaves in eucalypts by a variety of insects. The main insects involved include psyllids (lerps), scarab beetles, leaf beetles, leaf hoppers, sawfly larvae, scale, gall-forming insects and various caterpillars. Many insects have benefited from farming practices such as applying fertilisers. With larger areas under pasture there has been a loss of natural predators. Increased pasture results in more beetle larval habitat, whose adult stage often feed on eucalypt leaves, e.g. Christmas beetles. As there are fewer paddock trees, those remaining are under increased pressure from insect feeding. Increased soil fertility (from fertilising or stock camps) results in more nutritious eucalypt foliage, preferred by both insect larvae and livestock. Increased soil fertility may increase the number of young insects, their survival and growth rates.

In many cases, while there is abundant food (insects) available, natural bird predators may be missing because the habitat is either too small, too isolated, lacking sufficient cover (understorey) or dominated by aggressive larger birds which drive smaller birds away. Compare a healthy 10 hectare patch of woodland where there are at least 30 species of native birds, to a typical 10 hectare patch of woodland in farmland, where there are often fewer than 10 species.

Such patches lack shrubs, regenerating trees and sticks and logs which have been ‘tidied up’ — burnt or cleared away. As native birds are believed to control 50–70 per cent of insects in healthy eucalypt woodland, their absence is a major contributing factor in rural tree decline.

Colonies of native Noisy Miners further reduce the presence of smaller predatory birds, which the Noisy Miners drive off to defend their territories. Noisy Miners tend to harvest lerps, the protective covering concealing the leaf-sucking psyllids. However, they do not control psyllid populations, unlike the smaller insect-eating birds such as Pardalotes, which eat the psyllids.

Mammals such as Sugar Gliders, and native parasitic wasps and flies, also play key roles in controlling beetles and other insects. Due to the fragmented nature of many rural habitats, however, and the lack of shrubs in farmland, these species are often unable to access isolated patches of native vegetation, or are present in such low numbers as to be ineffectual.

REVERSING RURAL DIEBACK

Two points are worth considering. Firstly, insect-induced dieback generally occurs at a landscape scale rather than a farm scale. Working with neighbours and in groups is therefore essential to reverse tree decline. Secondly, eucalypts are only part of a healthy ecosystem. Their sustenance therefore depends on the overall health of the rural ecosystem and the natural processes within it. Key actions include: developing a district vision — what you’d like your area to look like in 50 years; identifying and fencing all remnant vegetation you wish to preserve, and managing it to enhance diversity. See Chapter 8. Strategic planning for whole farm revegetation; Chapter 9. Re-establishing native vegetation; and Practical Information Note. Vegetation Management — the Catchment Approach for Landcare Groups, for further information.

~ practical information note ~

Mistletoe



INTRODUCTION

Mistletoe is an important natural component of the Australian environment, providing habitat for many native birds, mammals and insects. Changes in our rural landscapes from clearing, grazing and altered fire patterns have brought about increases in mistletoe numbers, indicating environmental imbalances. While excessive mistletoe numbers may harm host plants, some mistletoe is desirable due to its role in the natural environment.

MISTLETOE AS HABITAT

Mistletoe is particularly valuable habitat. Mistletoe is a rich nectar source, often at times when other nectar is scarce, during summer. Mistletoe nectar is valuable food for many native birds such as honeyeaters, and insects, possums and gliders. Mistletoe fruit is a vital part of the diet of the Mistletoebird and various honeyeaters. Its foliage is good cover for native birds for perching and nesting. Possums, and many butterfly species feed on the foliage.

EFFECTS OF MISTLETOE ON HOSTS

Mistletoe should only be considered problematic if in excessive numbers, such as over half the canopy of its host plant. Otherwise, consider it a valuable part of the local natural environment. If in excessive numbers, mistletoe may harm hosts by using water freely (contributing to drought stress); by using host mineral nutrients, and by reducing the hosts foliage, hence slowing its growth rate.



MISTLETOE MANAGEMENT

Mistletoe can be viewed as an ‘indicator plant’ for environmental health. If present in excessive numbers, it indicates an imbalanced environment in need of remedial action. Short term actions such as removing mistletoe are not productive unless combined with long term measures to improve the local environment.

LONG-TERM ACTIONS:

1. Fence livestock out from clumps of host trees to encourage *regeneration*, and reduce other pressures such as soil compaction and raised soil fertility from stock camps.
2. Plant locally native *understorey* plants if they do not regenerate naturally. Understorey plants are essential habitat for mistletoe predators, including butterflies.

SHORT-TERM ACTIONS:

3. Remove mistletoe by:
 - ⇒ Cutting it off (remove entire plants to avoid re-sprouting);
 - ⇒ Burning it (mistletoe is fire sensitive, while eucalypt hosts regenerate from fire);
 - ⇒ Pollarding host trees (‘be-head’ trees);
 - ⇒ Spraying it (mistletoe is herbicide sensitive).

CONCLUSION

Mistletoe should be viewed as an indicator plant when in excessive numbers, signaling a need to restore the local environment. Fencing remnants and restoring the understorey are vital steps in bringing mistletoe back into balance, and keeping our remaining native vegetation healthy.

~ practical information note ~

Vegetation Management: The Catchment Approach for Landcare Groups

The following steps are suggested for Landcare groups in managing remnant vegetation and for strategic revegetation on a catchment scale.

1 VEGETATION SURVEY

Use an aerial photograph of the catchment to identify what native tree cover remains, including roadside and creekline strips, blocks on stony hilltops and public land.*

2 DEVELOP A COMMUNITY VISION

What would you like your catchment to look like in the future? For example, your goal may be that all streambanks are fenced and restored with locally native vegetation.

3 ASSESS REMNANT VEGETATION QUALITY

(and its conservation status)

Identify who owns or manages the land where the remnant vegetation is. Approach them and encourage them to become involved in assessing the remnant vegetation quality. Seek assistance from someone well-versed in local vegetation (e.g. at Greening Australia, Department of Land & Water Conservation). Obtain copies of existing information such as Roadside Management Plans and Rural Lands Protection Board Reserve Management Plans, or if these do not exist, visit each site and assess its quality (see Chapter 8. Strategic planning for whole farm revegetation, for an assessment method). Key questions to ask include the following: Is there any understorey? Are the trees/shrubs/grasses regenerating? Is the remnant fenced to manage grazing? If the answer to these questions is generally 'no', the remnants are likely to be in urgent need of protective action to prevent further decline.

4 PREPARE MANAGEMENT PLANS FOR EACH REMNANT

Include recommendations for: fencing; weed and vermin control; grazing management; fire management; natural regeneration; replanting understorey; and creating links to other remnants.

5 SET PRIORITIES FOR REMNANT PROJECT SITES

Rate sites in order of priority for protection and enhancement. Protect (by fencing) the best quality sites (with the highest conservation value) *first*, as these are most likely to be self-sustaining. The most altered and degraded remnants are a lower priority as they will need far greater inputs to improve.

6 IDENTIFY STRATEGIC REVEGETATION SITES

Identify sites requiring revegetation to reverse remnant vegetation decline and other land degradation issues, such as controlling erosion and recharge. Where possible build on remnant vegetation to make it larger in area and better linked to other remnants through corridors and 'stepping stones'.

7 PREPARE ACTION PLANS FOR REVEGETATION SITES

Prepare an action plan for each revegetation site well in advance of planting or direct seeding to allow time for collecting/obtaining seeds, ordering/growing seedlings and preparing the site.

8 MONITOR ACTIVITIES

Keep track of your progress by taking photographs annually and by keeping other records of activities and progress.

**In our region tree cover is often a good way of identifying native ground flora. On the grassland plains of the Riverina this approach is less useful.*

~ practical information note ~

Getting to Know your Local Plants

Nicky Meeson
Bellbridge, Vic.

If you are able to identify plants on your property and in your local area, it will help you to distinguish between native and introduced species; recognise what plants grow best where; ensure that appropriate species are selected for revegetation; use this guide more effectively in planning for revegetation; and be able to monitor regeneration.

1 KEEPING A HERBARIUM (pressed plant collection) FOR EASY REFERENCE

Collecting specimens

- Using secateurs, take specimens that will fit onto an A4 sheet. Include a good representative sample of leaves (look for variation in shape and size), flowers, buds and fruits if present.
- In a note book record: any name that you know the plant by (e.g. Hickory Wattle/Lightwood, *Acacia*); flower colour; details of the bark (e.g. smooth, stringy); where it grows (e.g. along creek, on rocky hill); location; and date. These details will all help to identify the plant.
- Label specimens with a tag (jewelers' tags are available very cheaply at stationers and newsagents), giving them a number that is cross-referenced in your notes.
- Specimens that you are unable to press immediately can be kept fresh in a plastic bag for several hours – but press them as soon as possible.

Pressing specimens

- Spread out and lay between sheets of newspaper with each specimen separated by a thick wad of paper and/or cardboard. Ensure wads are thicker between more succulent plants, water plants or plant parts that contain a lot of moisture (e.g. flowers and fruits).
- Place a heavy weight on top (e.g. books, bricks). Alternatively make up a simple plant press composed of two wooden frames (the size of a sheet of newspaper), with spaced cross-slats to support the specimens. Place the specimens in the newspaper between the frames and hold together with rope or belts. Apply as much pressure as possible.

- Keep the press well-aerated in a warm, dry location. (A wooden press allows air to circulate around the specimens.)
- Change the paper every few days (more often for succulents and water plants) to allow quick drying. Keep pressed for at least 2 weeks or until the plants are completely dry.
- Don't press bulky dry fruits (e.g. large eucalypt capsules) – rather, label and store separately.

Mounting and storing specimens

- Mount specimens on A4 sheets of card, using sticky tape or glue. Label the sheets with the botanical and common name when identified, and store in plastic ring binder envelopes in a file.

2 ALTERNATIVE FORMS OF PLANT COLLECTIONS

- Mount smaller pressed specimens on index cards kept in plastic envelopes or covered with a clear, plastic, self-adhesive film. These are more robust for taking out into the field.
- Pressed specimens can be photocopied. Much of the detail is lost in the process but it does provide a general outline of the plant. Again this type of collection is easier to handle in the field.
- Colour prints of specimens 'scanned' into a computer show excellent detail with good 3D effect. Unfortunately this is only economically feasible if you have your own computer and scanner.
- A photographic record of plants. Close-up photos of flowers, leaves, buds and fruits, with a photo of the whole plant would be ideal.

3 IDENTIFYING SPECIMENS

- This guide provides descriptions and drawing of many local plants.
- Other useful field guides and contacts to help you identify plants are listed in Appendix 4. Further assistance & contacts, and Appendix 5. Native plant field guides.
- Make use of other people's knowledge at field days, wildflower walks and field naturalists clubs.

~ practical information note ~

Direct Seeding



INTRODUCTION

Direct seeding can be a cost effective method of revegetation, if attention is paid to site preparation, weed control, species selection and timing. The same principles apply to sowing a crop or pasture, and success depends on suitable growing conditions. Enquire around your district and learn from *local experience* when planning your project.

SITE PREPARATION

Tailor site preparation to suit your topography, site history and soil type. Assess your site to determine whether deep ripping would be beneficial. Avoid ripping soils particularly prone to erosion, and do not rip sandy or cracking soils. On compacted sites, deep ripping in autumn is suggested. Rip along the contour on sloping sites, in double lines 50-80 cm apart every 3-4 m, and sow *between* the riplines. If you are unsure of the contour location, leave gaps every 5-10 metres to prevent erosive water flow (when deep-ripping or scalping).

WEED CONTROL

Effective weed control is *vital*. Tailor your techniques and timing to the weeds on your site. A suggested weed control programme for sowing in late winter-spring (August-September) is:

1. Mechanical/chemical control of perennial weeds the preceding autumn;
2. Heavily graze site June;
3. Remove livestock and apply knockdown herbicide along sowing lines;
4. Apply knockdown herbicide 4-6 weeks later, just before sowing. This controls difficult perennial weeds and newly germinated weed seedlings.

For longer term weed control on well-drained sites, residual herbicide is sometimes applied a few weeks before sowing. This necessitates ‘scalping’ the sowing lines (ie. removing the top 2-3 cm of soil) before sowing to avoid suppression of sown seed. Alternatively, a residual herbicide could be applied at the autumn break, followed by applying a knockdown herbicide in spring, just before sowing. The residual should have lost its effect by sowing time. Generally, however, residual herbicides are not recommended due to the potential to reduce success rates.

SOWING METHODS

1. Use a mechanical direct seeder (available for hire from Greening Australia; some local Councils & Landcare Groups). The seeder will scalp a sowing strip, drop and cover the seed in one pass.
2. Hand broadcast seed and rake over.
3. Mouldboard plough and broadcast seed by hand. This is a useful method where herbicides are not preferred.

SPECIES SELECTION, SOWING MIXES AND RATES

Use species locally native to your site — refer to the Local Native Vegetation Profiles in this Guide. Seed is best collected locally, and may be available to purchase (refer to Appendix 4. Further assistance & contacts). Treat hard-seeded species such as wattles before sowing. Include a combination of suitable trees and shrubs (and groundcovers if available) in your seed mix. 200-400 gm/km generally produces about 1 plant/metre. Mix an equal volume of bran or turkey pellets as a bulking agent. Sowing rates depend on plant spacing requirements, seed viability and the environment for germination. If uncertain, over-estimate seed required. It is easier to thin plants than to plant in the gaps later.

TIMING

Good results are likely when seed is sown around August-September roughly east of the Olympic Highway, as autumn sowings may suffer from frost and wet winters. Sowing around May-July is suggested for lower rainfall areas, roughly west of the Olympic Highway, as vital follow-up rain is more likely over winter than during spring. The best guide to sowing time, however, is likely to be specific *local experience*, so enquire in your district.

MAINTENANCE

Maintain weed control for at least 12 months after sowing. Seeds can germinate up to 4 years after sowing if competition from weeds is marginal. Selectively apply a knockdown herbicide, or overspray with a selective herbicide if your only weeds are grasses. Prevent damage from grazing from livestock, rabbits, hares, ants, Red-legged Earth mite, and slugs and snails (particularly with autumn sowings). For further information, refer to *Direct Seeding of Trees and Shrubs. A manual for Australian conditions*, G. Dalton, 1993.

~ practical information note ~
Revegetation Activity Calendar

ACTIVITY:	MONTH:	N	D	J	F	M	A	M	J	J	A	S	O
ACTIVITY: ● Main activity ◇ Minor activity													
Planting (eg. revegetation purpose, site position, materials needed, species selection, ratio of trees to understory, to buy seedlings/grow your own, to plant or direct seed etc.).		●	●	◇	◇	◇	◇	◇	◇	◇	◇	●	●
Order plants from nursery (ask for locally native plants grown from local seed).		●	●	●	◇								
Collect seed													
• Eucalypts & Bottlebrushes (throughout the year but mainly summer/autumn).		●	●	●	●	●	●	●	◇	◇	◇	◇	◇
• Hard-seeded plants eg. wattles (<i>Acacia</i>) & bush-peas (<i>Daviesia</i> ; <i>Dillwynia</i> etc.).		◇	●	●	◇								
• Sheoaks & Bullocks (<i>Allocasuarina</i>), Tea-trees (<i>Leptospermum</i>), Hakeas (<i>Hakea</i>) etc.		●	●	●	●	●	●	●	●	●	●	●	●
• Bursaria (<i>Bursaria</i>).				◇	◇								
Propagate plants		●	●	◇	◇								
• For autumn planting (eg. sites prone to drying out rapidly in spring).			◇	●	●	◇							
• For spring planting (eg. sites prone to waterlogging and heavy frost).			◇	●	●	◇							
Tend seedlings (watering; pest & disease control; hardening off etc.)		◇	●	●	●	●	●	●	●	●	●	●	◇
Prepare site				◇	◇								
• Fence site (fence design based on livestock to be excluded).				◇	◇								
• Deep rip/cultivate (only compacted sites). Rip after autumn break when soil is dry for shattering, but moist enough to rip on the contour. For small-scale plantings dig individual planting holes by hand, rather than ripping.						●	●	●	◇				
• Control weeds (using knockdown and/or residual herbicide 4 weeks prior planting or mulch seedlings in spring (after soil is warmed)).						●	●	●	●	●	●	◇	◇
Plant Site (ensure seedlings are good quality, and water thoroughly before planting).													
• Hill sites or sites prone to drying out rapidly in spring.					◇		◇	●	●	●	◇		
• Low sites or sites prone to waterlogging and heavy frost.											◇	●	●
Direct Seed Site (see Practical Information Note — Direct Seeding).							◇	●	●	●	●	●	◇
Maintain Site (control weeds/grasses for 1m ² around seedlings for year 1; check fences/tree guards; water seedlings if drought-stressed; and check for grasshopper damage).		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇

~ practical information note ~

The Red Gum Story

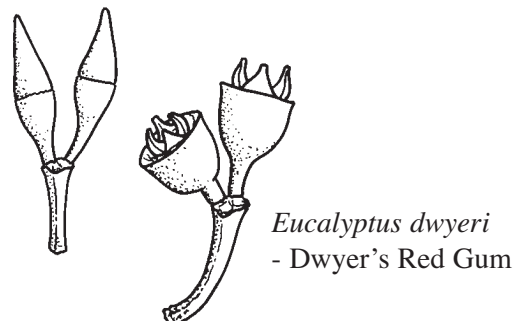
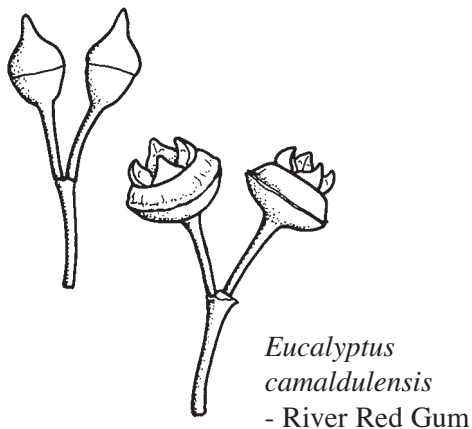
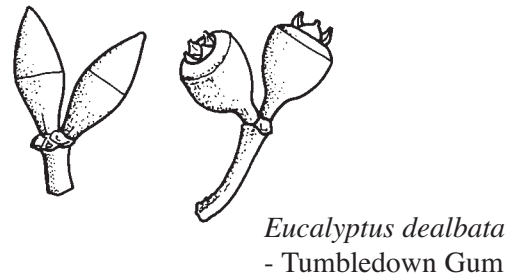
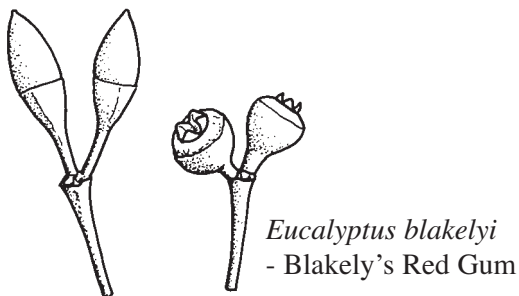
There are four species of Red Gum in the area covered by the Guide:

<i>Eucalyptus dwyeri</i>	Dwyer's Red Gum
<i>Eucalyptus dealbata</i>	Tumbledown Gum
<i>Eucalyptus camaldulensis</i>	River Red Gum
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum

Where these four species are clearly distinct and recognisable elsewhere, in the area covered by the Guide they interbreed quite freely, as the reproductive barriers in the Red Gums have broken down. The resulting stands of Red Gums can show any combination of features of any of these four species. To aid identification, one can observe the landscape. Red Gums tend to grow in different parts of the landscape, as follows:

Dwyer's Red Gum	siliceous stony ridges;
Tumbledown Gum	less siliceous stony ridges;
River Red Gum	lower sites and near creeks/rivers; and
Blakely's Red Gum	in between the above extremes.

The fact that all the Red Gums interbreed so freely makes identification difficult. If you are aiming to enhance biodiversity, this highlights the importance of replanting with locally native stock - from seed collected as close as possible to your site.

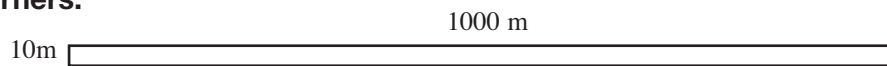


~ practical information note ~

Stretching the Fencing

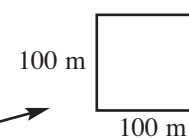
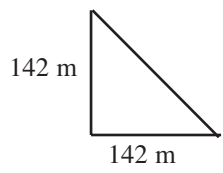
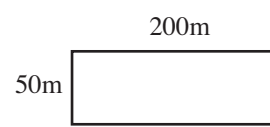
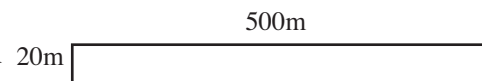
Fencing to exclude stock is generally the major cost of revegetating. Compare the following fencing involved in different-shaped plantings, from long narrow windbreaks, to block or circular designs. Different designs not only differ in fence length and cost, they also benefit properties in different ways, from providing shelter to producing timber and habitat.

Paddock corners:



Better for:

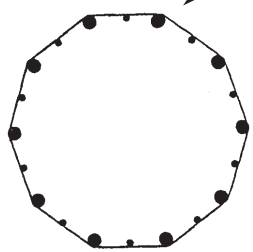
- sheltering crops, pastures and stock;
- long-term grazing;
- providing shelter over a large area; and
- integrating trees and shrubs with laneways and along fences.



Better for:

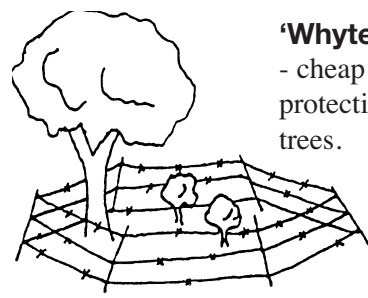
- tree form for timber;
- wildlife habitat;
- tree and shrub health;
- livestock havens (for short periods in harsh weather; and
- controlling excessive ground water.

Circular designs:



Decagon

- economical
- ...no strainer posts or struts.

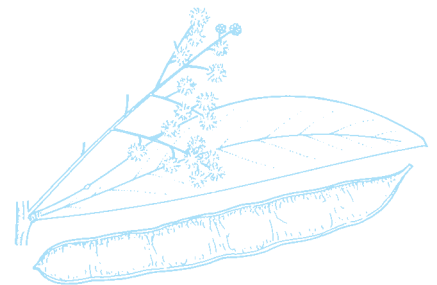


'Whytes leaning fence'

- cheap and effective for protecting clumps of paddock trees.

Part Two

Locality Maps & General Native Vegetation Profiles



locality maps & general native vegetation profiles

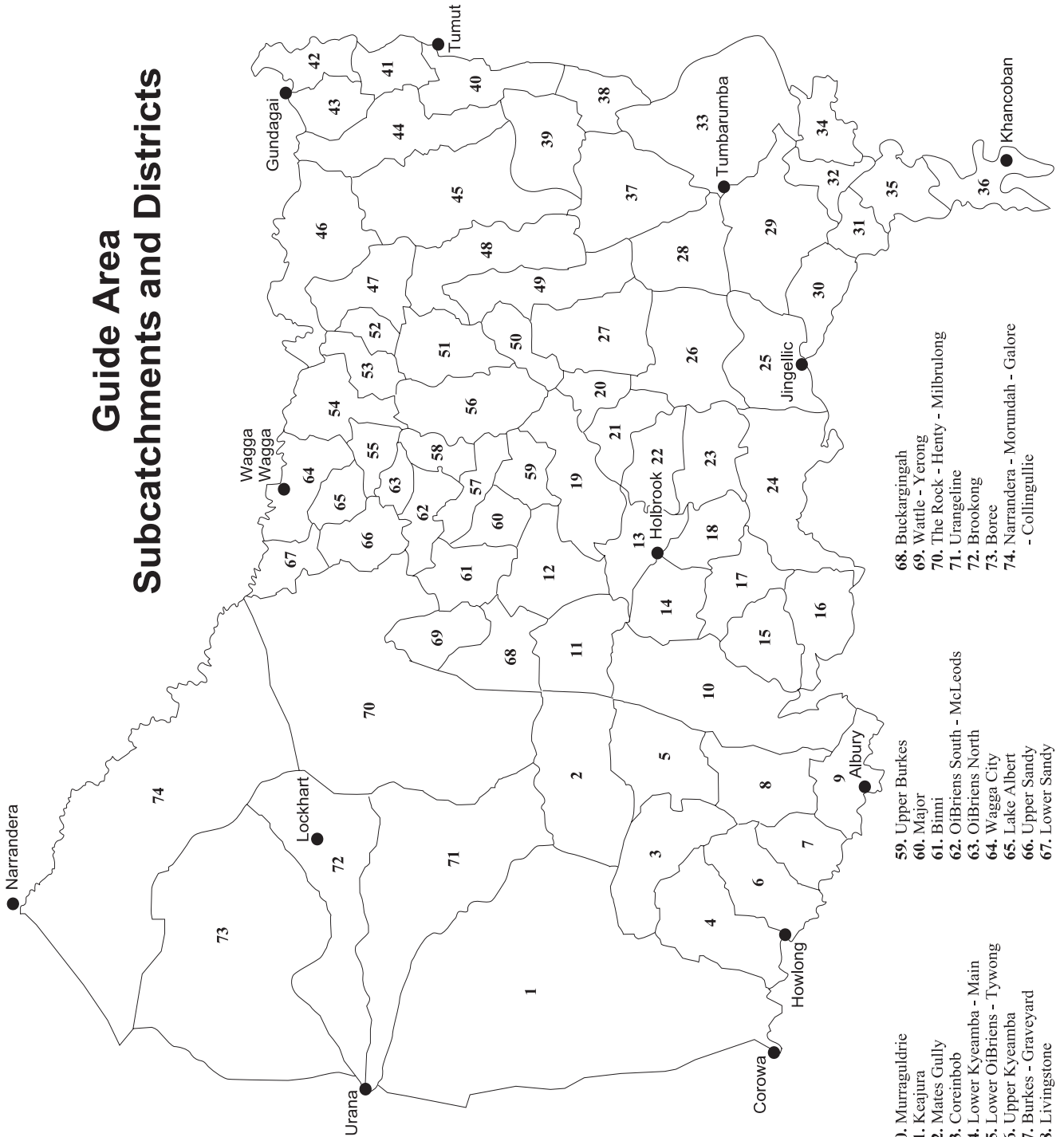
This section contains maps of districts, subcatchments or groups of subcatchments, and corresponding General Native Vegetation Profiles. There is also a map of the entire area covered by the Guide, illustrating 74 subcatchments or districts (see following page). Page 99 contains a Contents List of Locality Maps for easy reference. Locate your area in the Contents and turn to the appropriate map. You should be able to pinpoint where your property or site is. Each map has a corresponding page number in brackets. This refers to the associated General Native Vegetation Profile, which you can then readily locate.

There is also a Contents page for the vegetation profiles – see page 113 for The Murray Catchment and page 152 for the Murrumbidgee Catchment.

The vegetation profiles are *general* pictures of the landscape, and show where each locally native plant species occurs, from the hilltops to the lower country. They have been compiled from existing literature and from extensive surveys of each area. If you find a species in your area not mentioned in the vegetation profile, please contact your local Vegetation Management Officer at the Department of Land & Water Conservation.



Guide Area Subcatchments and Districts



KEY

- 1. Urana - Rand - Corowa
- 2. Simmons Creek - Culcairn West
- 3. Burrumbuttock - West Hume
- 4. Long Plain - West Hume
- 5. Walla Walla
- 6. Majors - West Hume
- 7. Deadmans - Bungawannah - Long Flat
- 8. Bowna - Jindera
- 9. Albury
- 10. Yambla
- 11. Thugga - Culcairn East
- 12. Upper Jerra Jerra - Upper Back
- 13. Holbrook
- 14. Mountain Creek - Native Dog - Sandy Creek
- 15. Mullengandra
- 16. Fowlers Swamp - Wagra
- 17. Mountain Tunnel
- 18. Ten Mile
- 19. Sawyers - Forest - Four Post - Little Billabong
- 20. Lunts Sugarloaf
- 21. Four Mile
- 22. Yarra Yarra
- 23. Scent Bottle - Serpentine - Upper Yarra Yarra (Wantagong)
- 24. Talmalmo Murray
- 25. Jingellic
- 26. Coppabella
- 27. Carabost
- 28. Rosewood Plateau
- 29. Munderoo
- 30. Ourmie
- 31. Ardenside - Welaregang
- 32. Tooma
- 33. Paddys River - Burra Valley
- 34. Maragle
- 35. Lower Tooma - Greg Greg
- 36. Bringenbrong - Khancoban
- 37. Green Hills - Upper Tarcutta
- 38. Upper Gilmore
- 39. Upper Yaven - Upper Adelong
- 40. Lower Gilmore - Sandy
- 41. Gocup
- 42. Brungle Bridge - Gundagai
- 43. Snowball - Stony
- 44. Lower Adelong
- 45. Yaven Creek
- 46. Eringwarrah - Deltroit - Hillas - Jellingro - Oaky
- 47. Lower Tarcutta
- 48. Oberne - Tarcutta
- 49. Umbango
- 50. Murrugldrie
- 51. Keajura
- 52. Mates Gully
- 53. Coreinbob
- 54. Lower Kyeamba - Main
- 55. Lower Oibriens - Tywong
- 56. Upper Kyeamba
- 57. Burkes - Graveyard
- 58. Livingstone
- 59. Upper Burkes
- 60. Major
- 61. Binni
- 62. Oibriens South - McLeods
- 63. Oibriens North
- 64. Wagga City
- 65. Lake Albert
- 66. Upper Sandy
- 67. Lower Sandy
- 68. Buckaringah
- 69. Wattle - Yerong
- 70. The Rock - Henty - Milbrulong
- 71. Urangeline
- 72. Brookong
- 73. Boree
- 74. Narrandera - Morundah - Galore - Collingullie

~ contents ~

Locality Maps

MURRAY CATCHMENT — HOLBROOK, HUME AND URANA REGION

Map:	Page no.
• Catchments: Boree; Brookong & Urangeline	100
• Urana — Rand — Corowa Region	101
• Catchments and Districts: Simmons Creek — North-west Culcairn; Walla Walla; Burrumbuttock; Long Plain; Majors Creek; Deadmans — Bungowannah — Long Flat; Bowna — Jindera; and Albury	102
• Districts: Walla Walla; Bowna — Jindera; Albury; and Yambla	103
• Districts & catchments: Thugga & Culcairn East; Holbrook; Upper Jerra Jerra & Upper Back; Sawyers, Forest, Four Post & Little Billabong; Lunts Sugarloaf and Four Mile	104
• Catchments: Mountain Creek, Native Dog & Sandy Creek; Yarra Yarra; Scent Bottle, Serpentine & Upper Yarra Yarra (Wantagong); Ten Mile; Mountain Tunnel; Mullengandra; Fowlers Swamp & Wagra; and Talmalmo — Murray	105

MURRAY CATCHMENT — RIVERINA HIGHLANDS

Map:	Page no.
• Districts & catchments: Jingellic; Munderoo; Tooma; Maragle; Lower Tooma — Greg Greg; Ardenside — Welaregang; Ournie; and Bringenbrong — Khancoban	106
• Districts & catchments: Coppabella; Rosewood Plateau & Paddy's River — Burra Valley ..	107

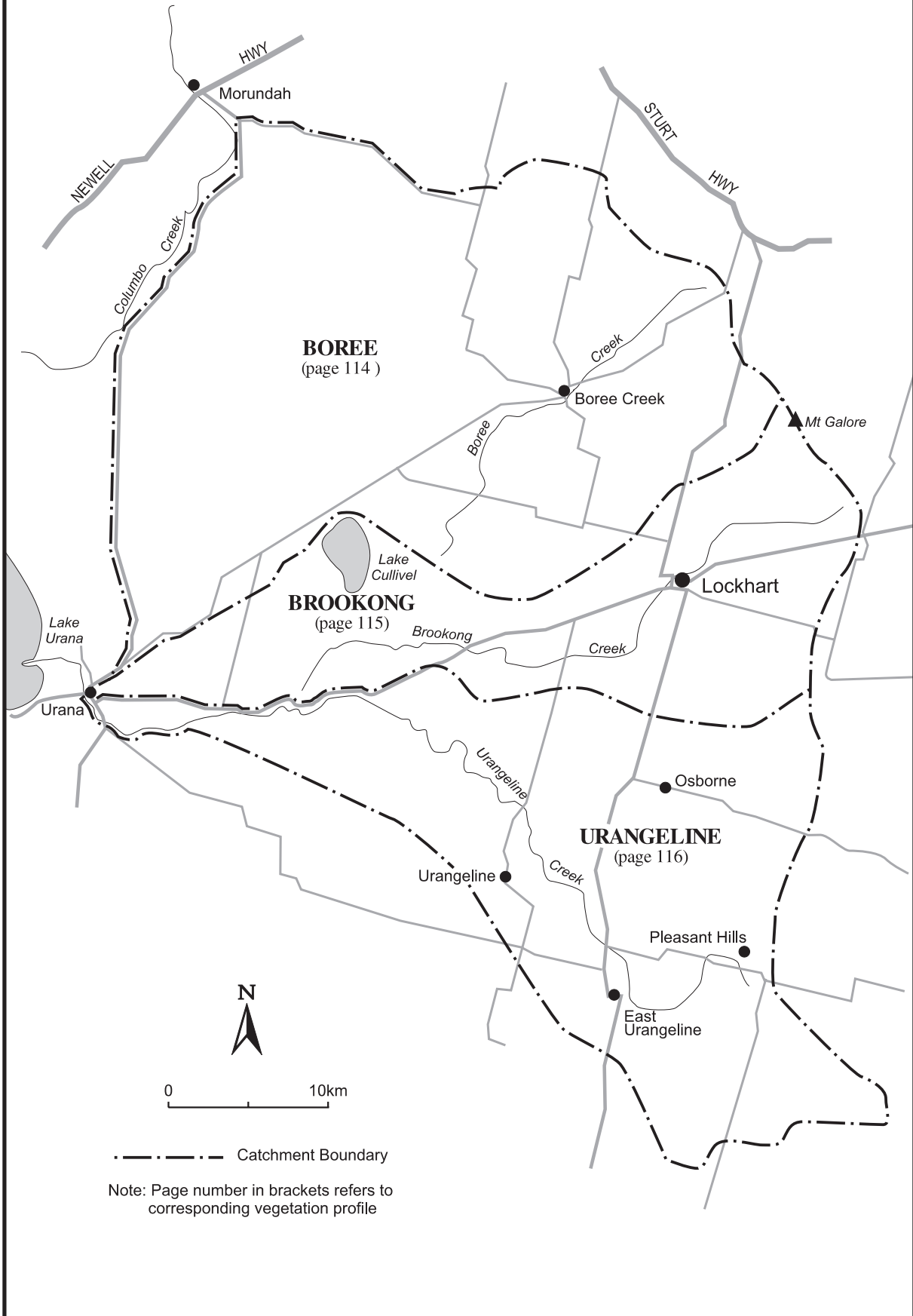
MURRUMBIDGEE CATCHMENT — WAGGA WAGGA & SURROUNDING DISTRICTS

Map:	Page no.
• Districts: Narrandera — Morundah — Galore — Collingullie	108
• Catchments & Districts: The Rock — Henty — Milbrulong; Buckaringah; Yerong Creek & Wattle; Binni; Upper Sandy and Lower Sandy	109
• Districts & Catchments: Wagga City; Lake Albert; Lower O'Briens & Tywong; O'Briens North; O'Briens South & McLeods; Burkes & Graveyard; Major; Upper Burkes; Upper Kyeamba; Livingstone; Lower Kyeamba & Main; Coreinbob; Mates Gully; Keajura; Lower Tarcutta, & Eringowarra, Deltroit, Hillas, Jellingro & Oaky	110

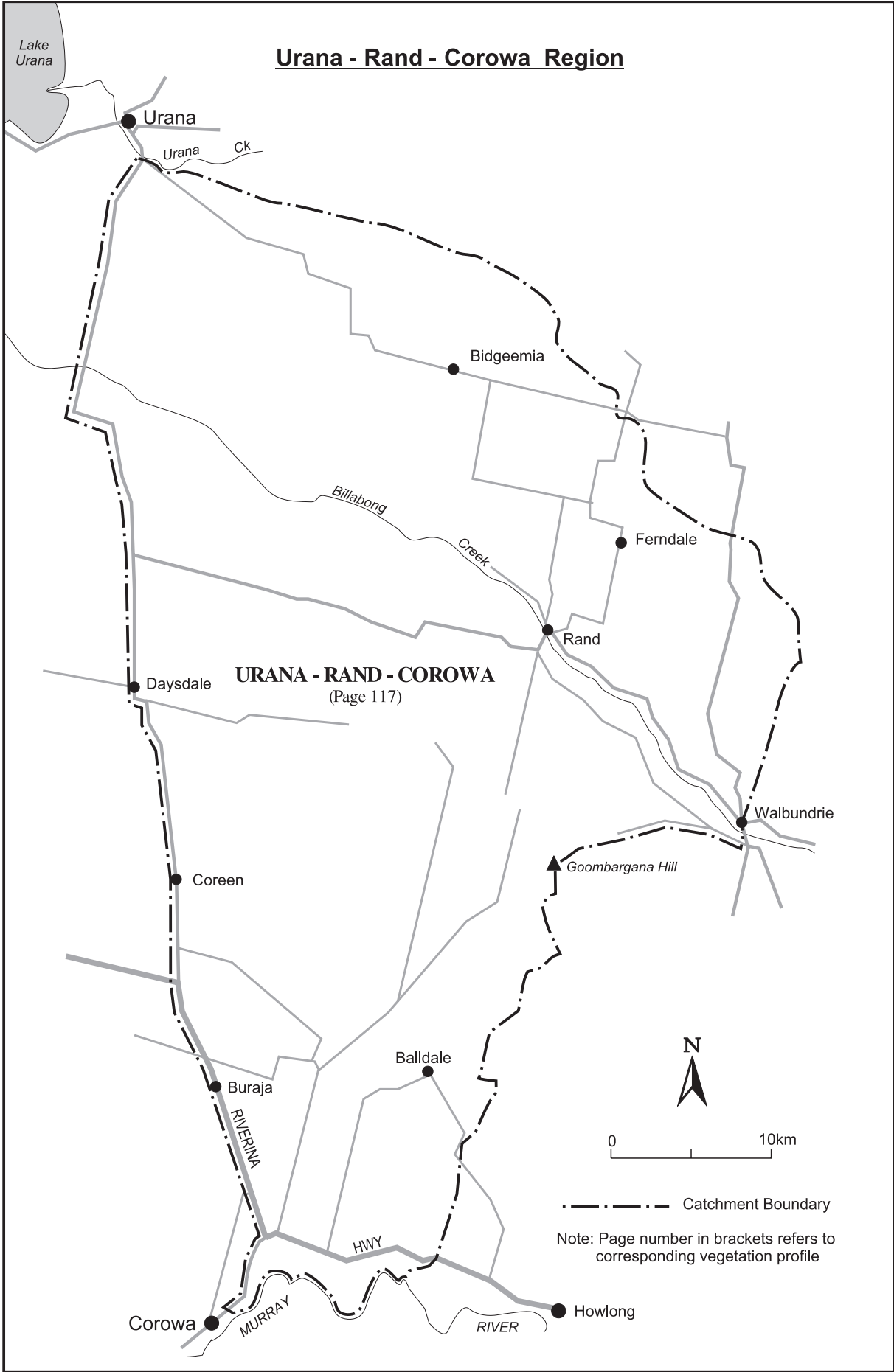
MURRUMBIDGEE CATCHMENT — RIVERINA HIGHLANDS

Map:	Page no.
• Catchments & Districts: Lower Adelong; Upper Adelong & Upper Yaven; Upper Gilmore; Lower Gilmore & Sandy; Gocup; Snowball — Stony; and Brungle Bridge & Gundagai	111
• Catchments: Murraguldrie; Carabost; Umbango; Oberne — Tarcutta; Yaven (Nacki Nacki & Lower Yaven Yaven); and Greenhills — Upper Tarcutta	112

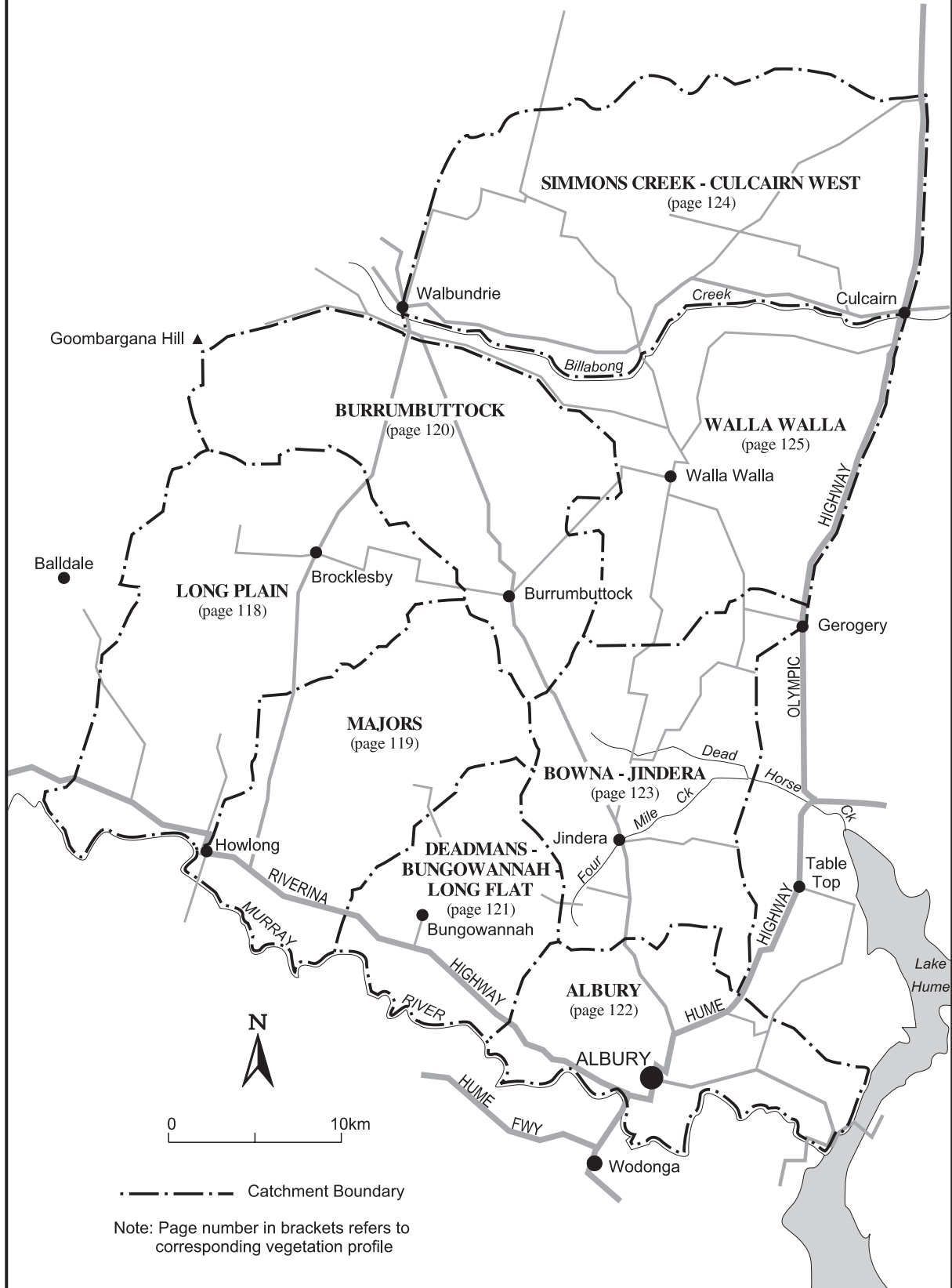
Catchments: Boree, Brookong and Urangeline



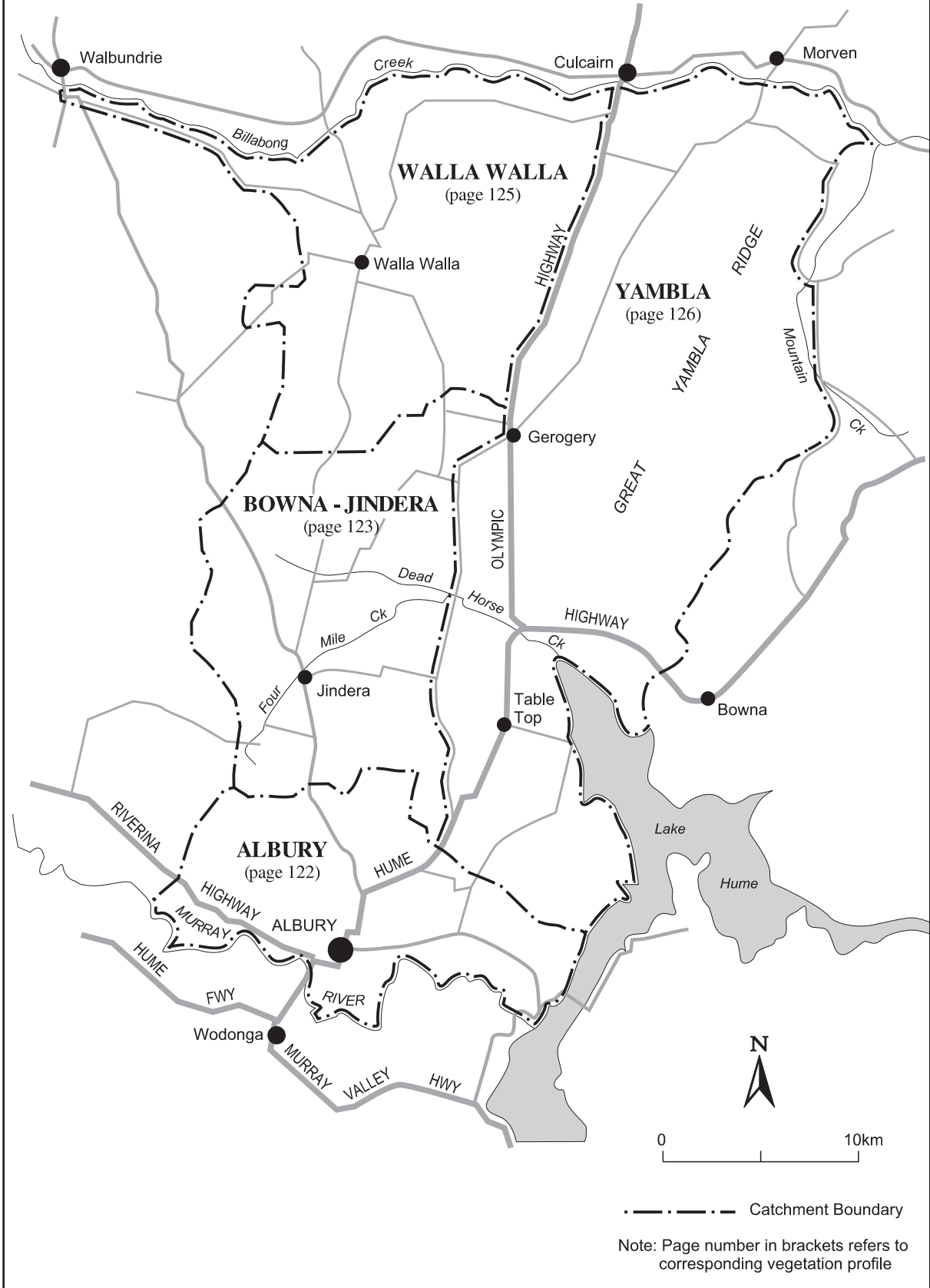
Note: Page number in brackets refers to corresponding vegetation profile



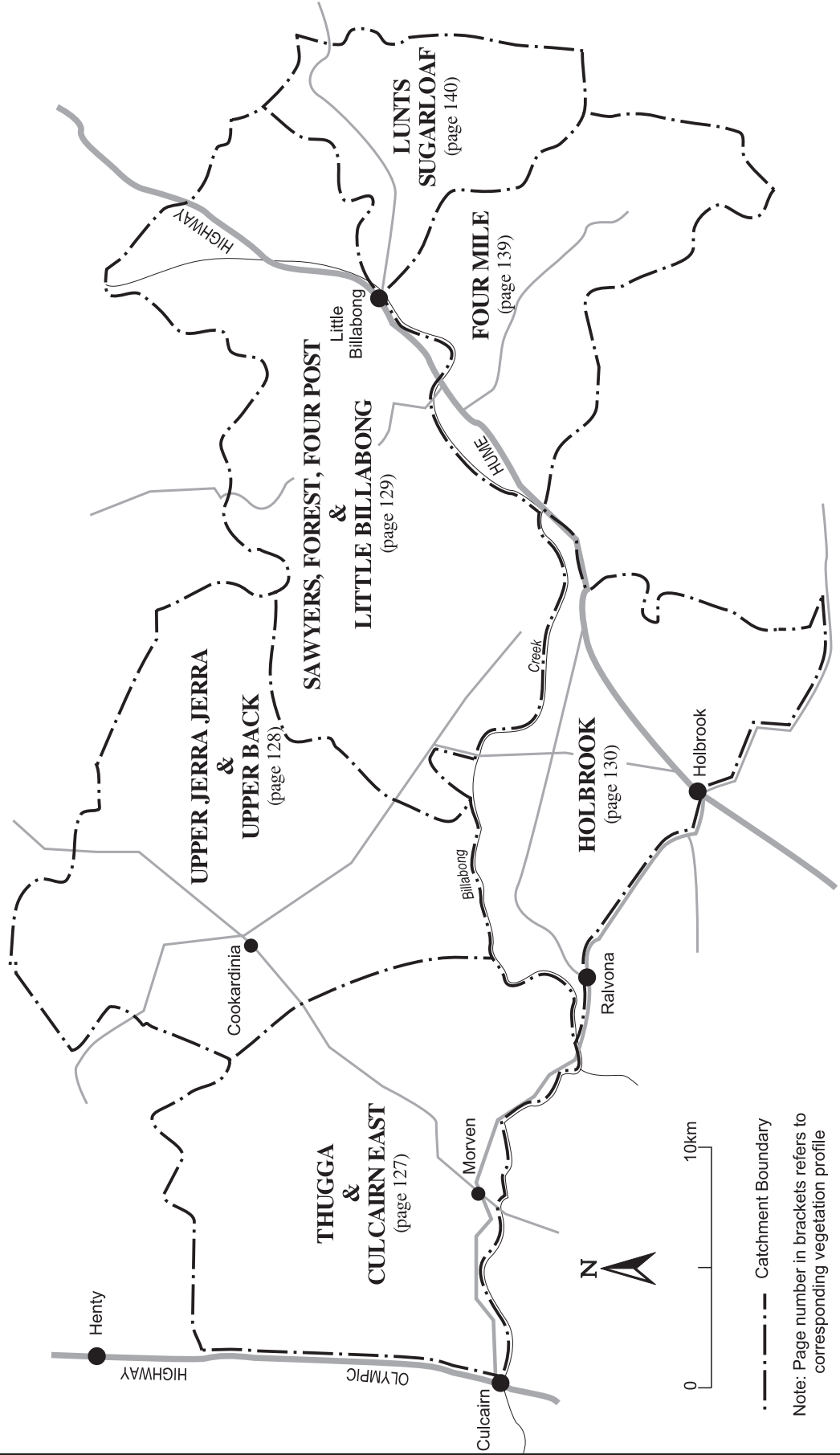
Catchments & Districts: Simmons Creek - Culcairn West; Walla Walla; Burrumbuttock; Long Plain; Majors; Deadmans - Bungowannah - Long Flat; Bowna - Jindera & Albury



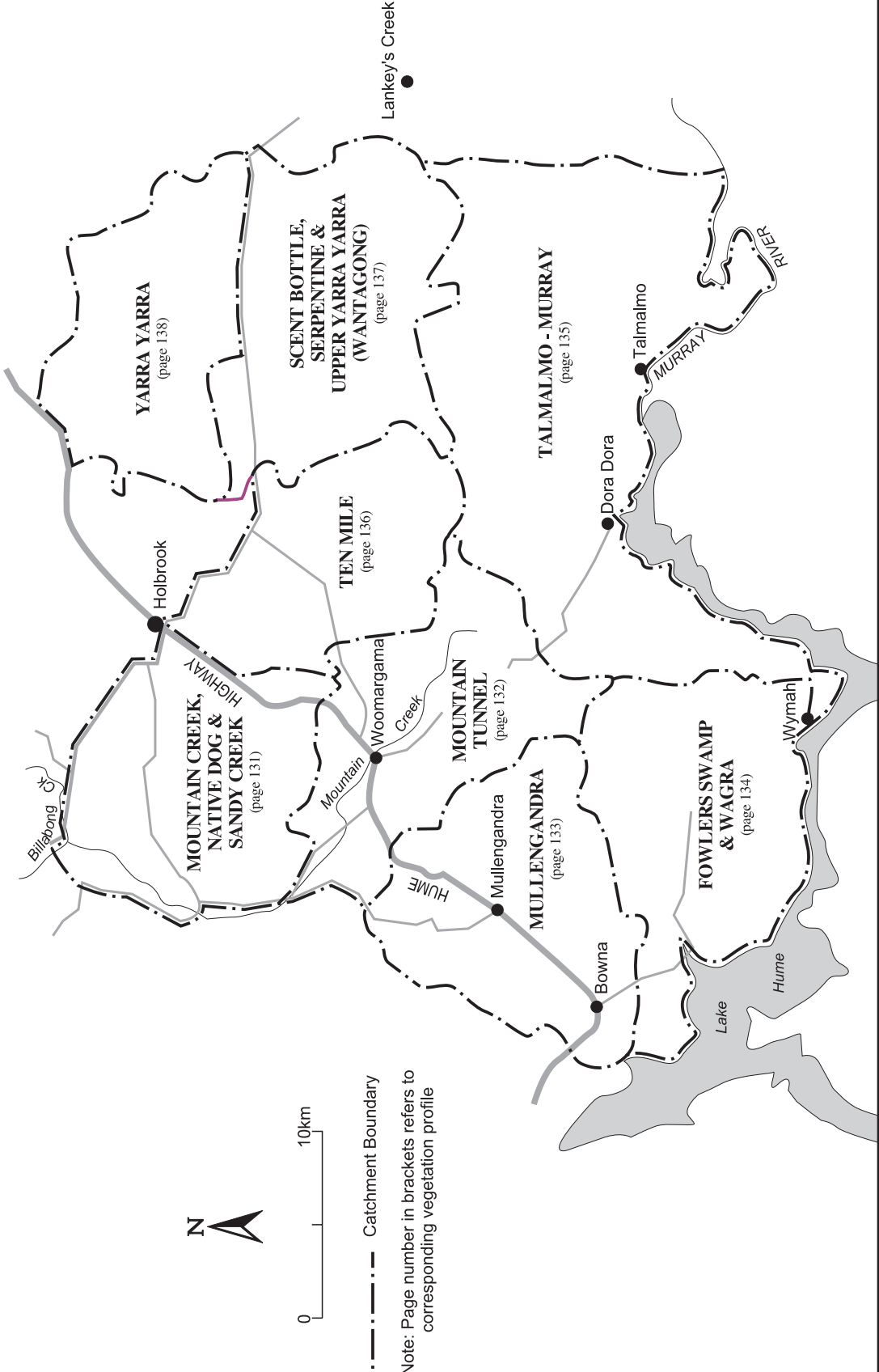
Districts: Walla Walla; Bowna - Jindera; Albury & Yambla



Districts: Thugga & Culcairn East; Holbrook
Catchments: Upper Jerra & Upper Back; Sawyers, Forest, Four Post & Little Billabong; Lunts Sugarloaf & Four Mile

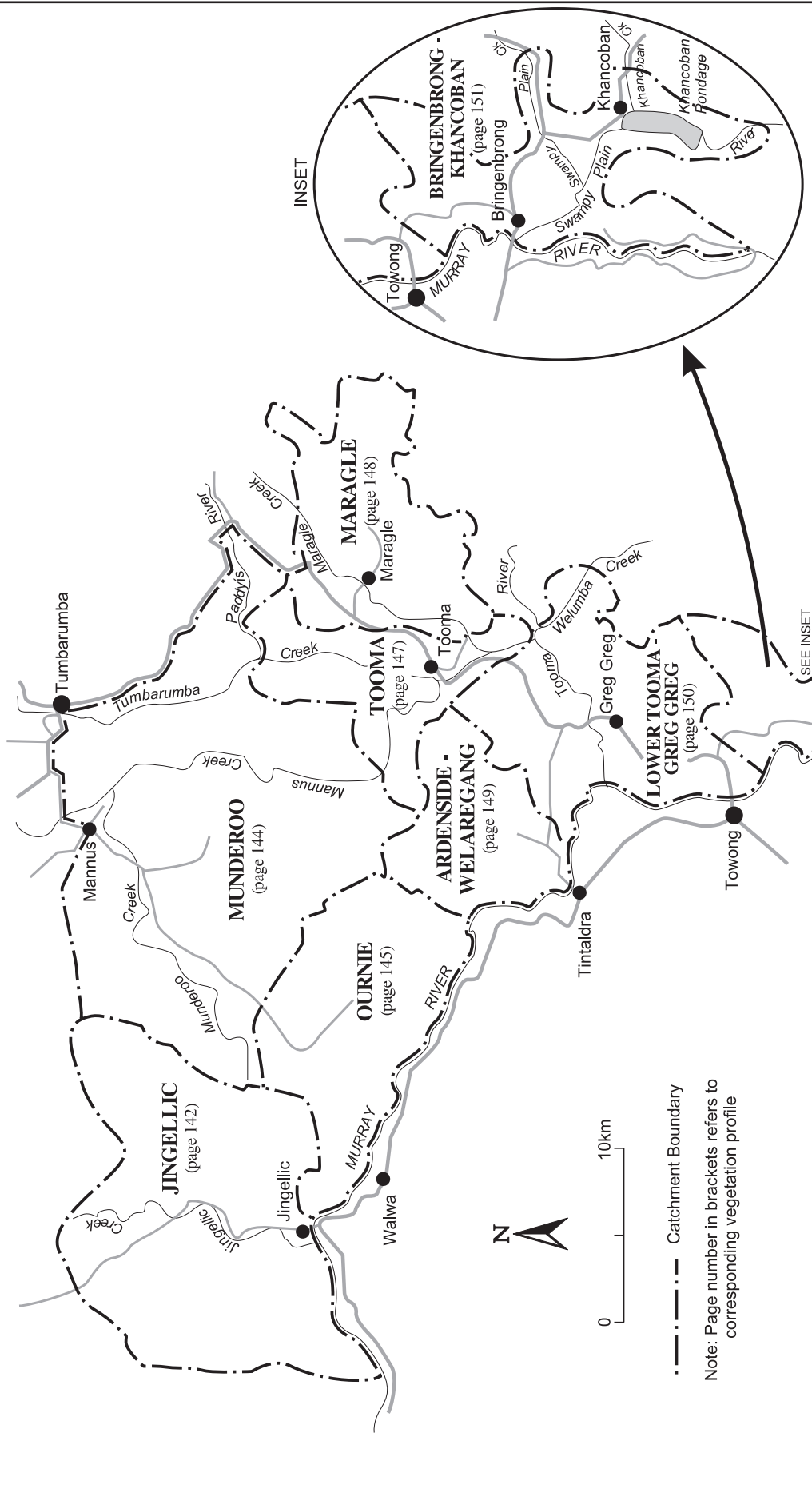


Catchments: Mountain Creek, Native Dog & Sandy Creek; Yarra Yarra: Scent Bottle, Serpentine & Upper Yarra Yarra (Wantagong); Ten Mile; Mullengandra; Fowlers Swamp & Wagra; Talmalmo - Murray

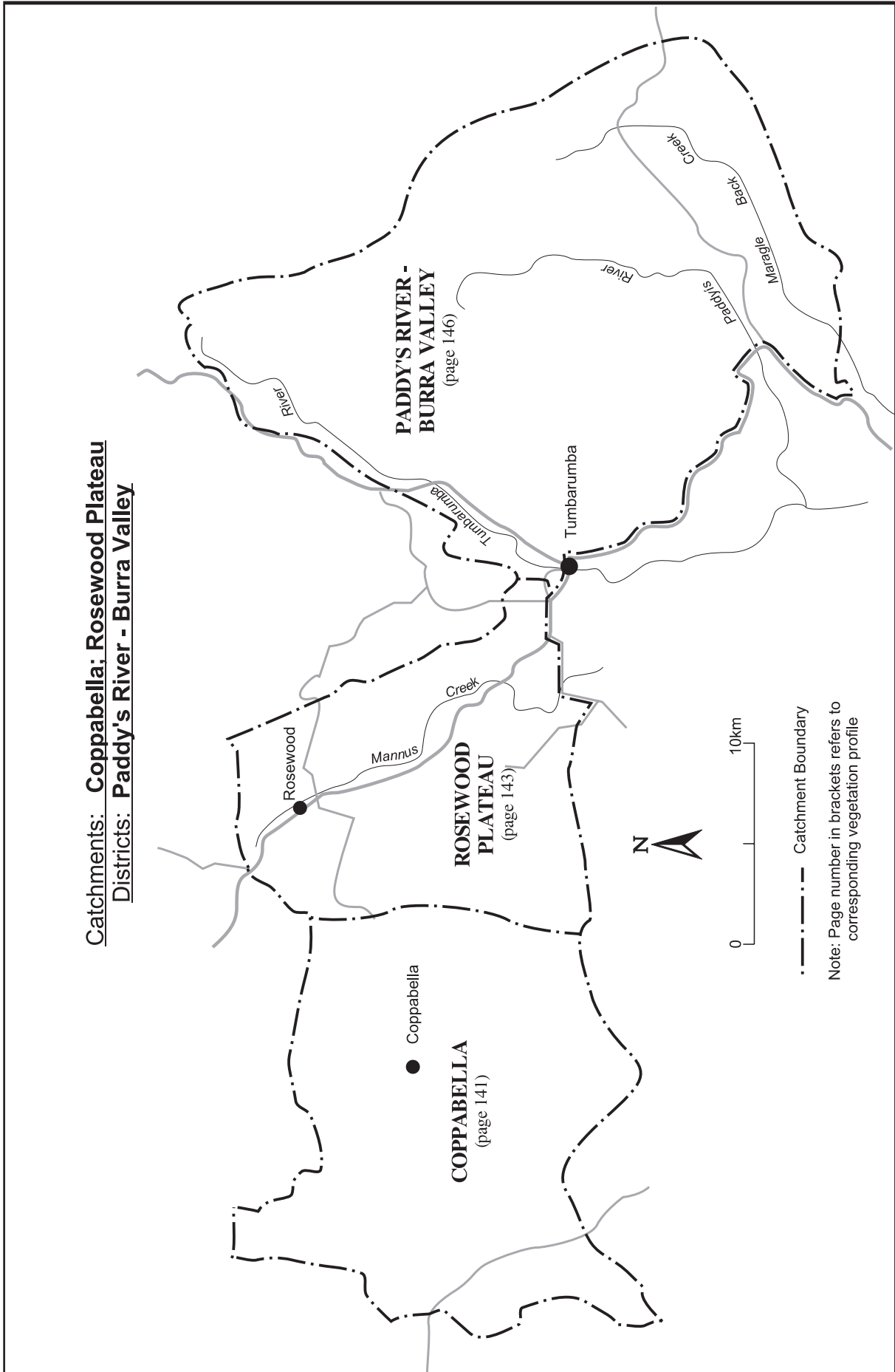


--- Catchment Boundary
 Note: Page number in brackets refers to corresponding vegetation profile

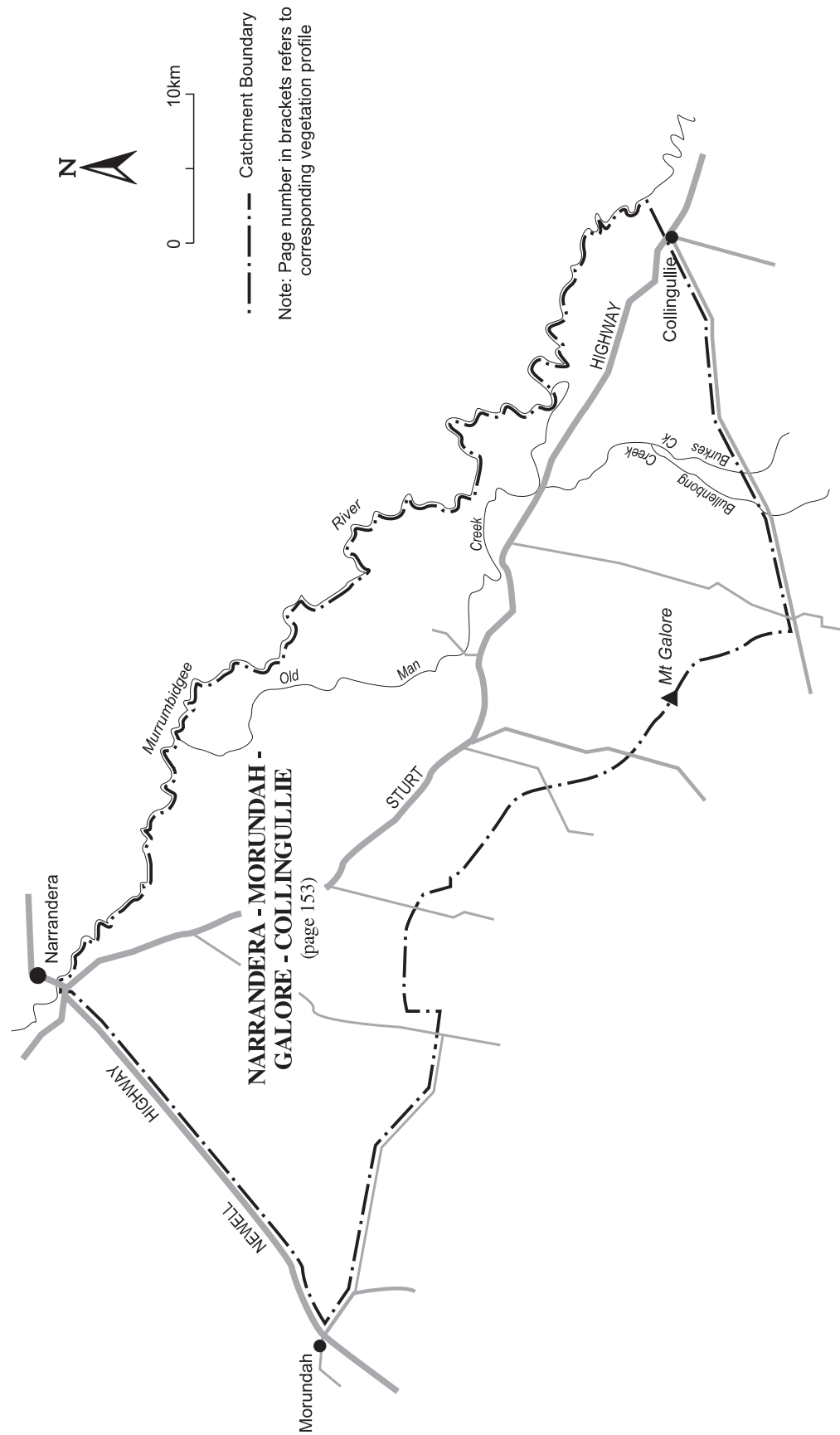
Districts: Jingellic; Munderoo & Bringenbrong - Khancoban
Catchments: Ournie; Ardenside - Welaregang; Tooma; Maragle & Lower Tooma - Greg Greg



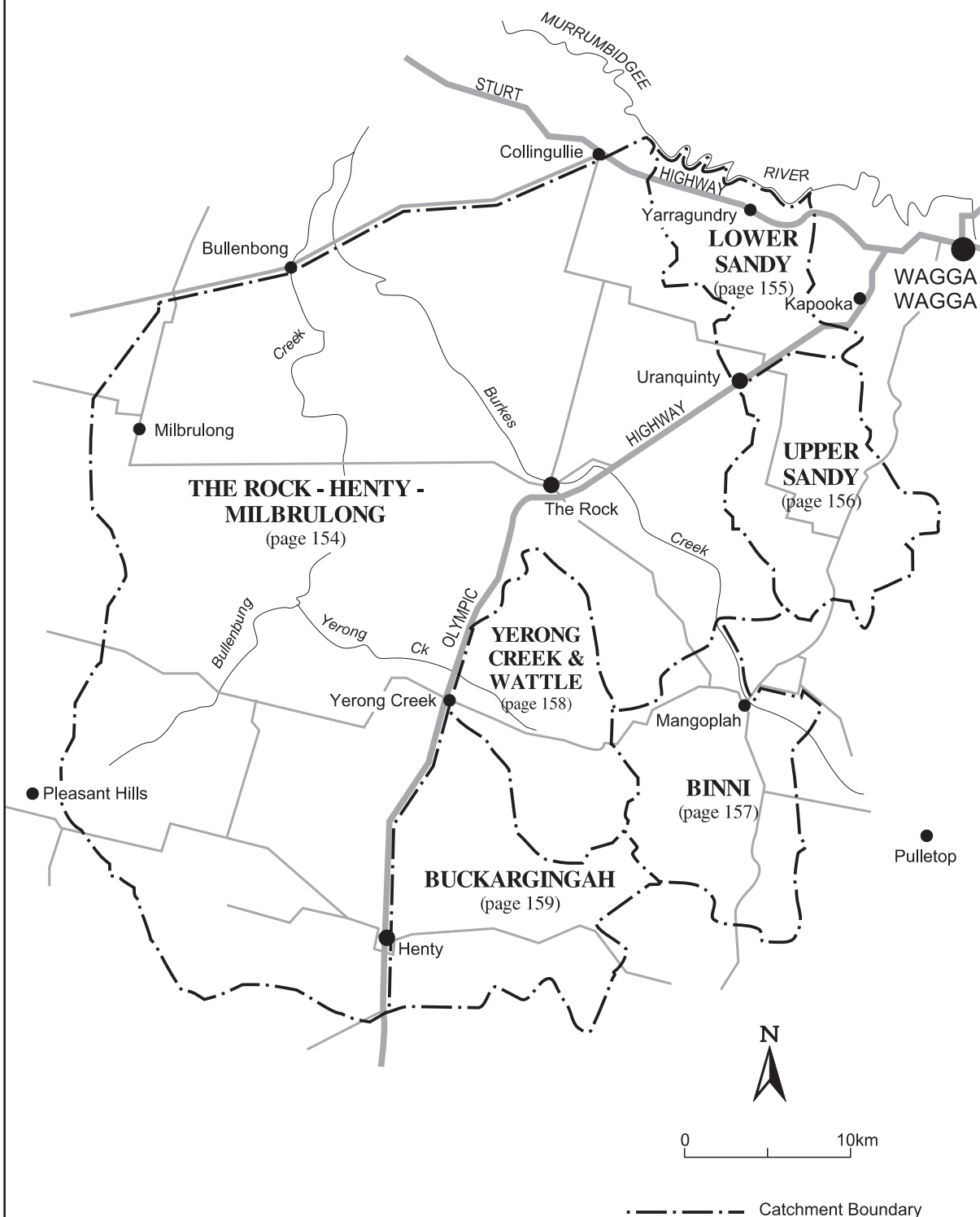
Catchments: Coppabella, Rosewood Plateau
Districts: Paddy's River - Burra Valley



Districts: Narrandera - Morundah - Galore - Collingullie

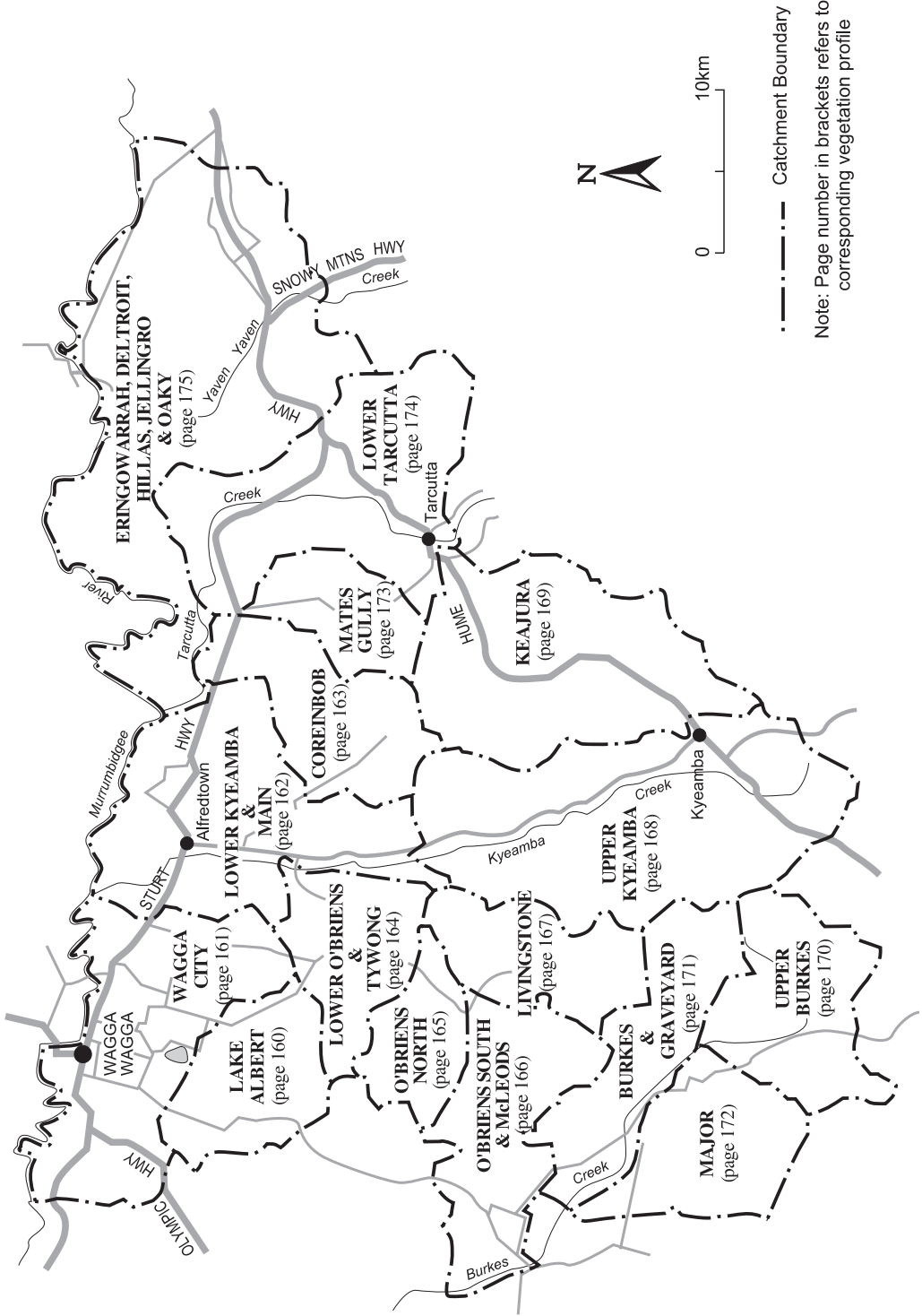


Catchments & Districts: The Rock - Henty - Milbrulong; Buckaringah; Yerong Creek & Wattle; Binni; Upper Sandy & Lower Sandy

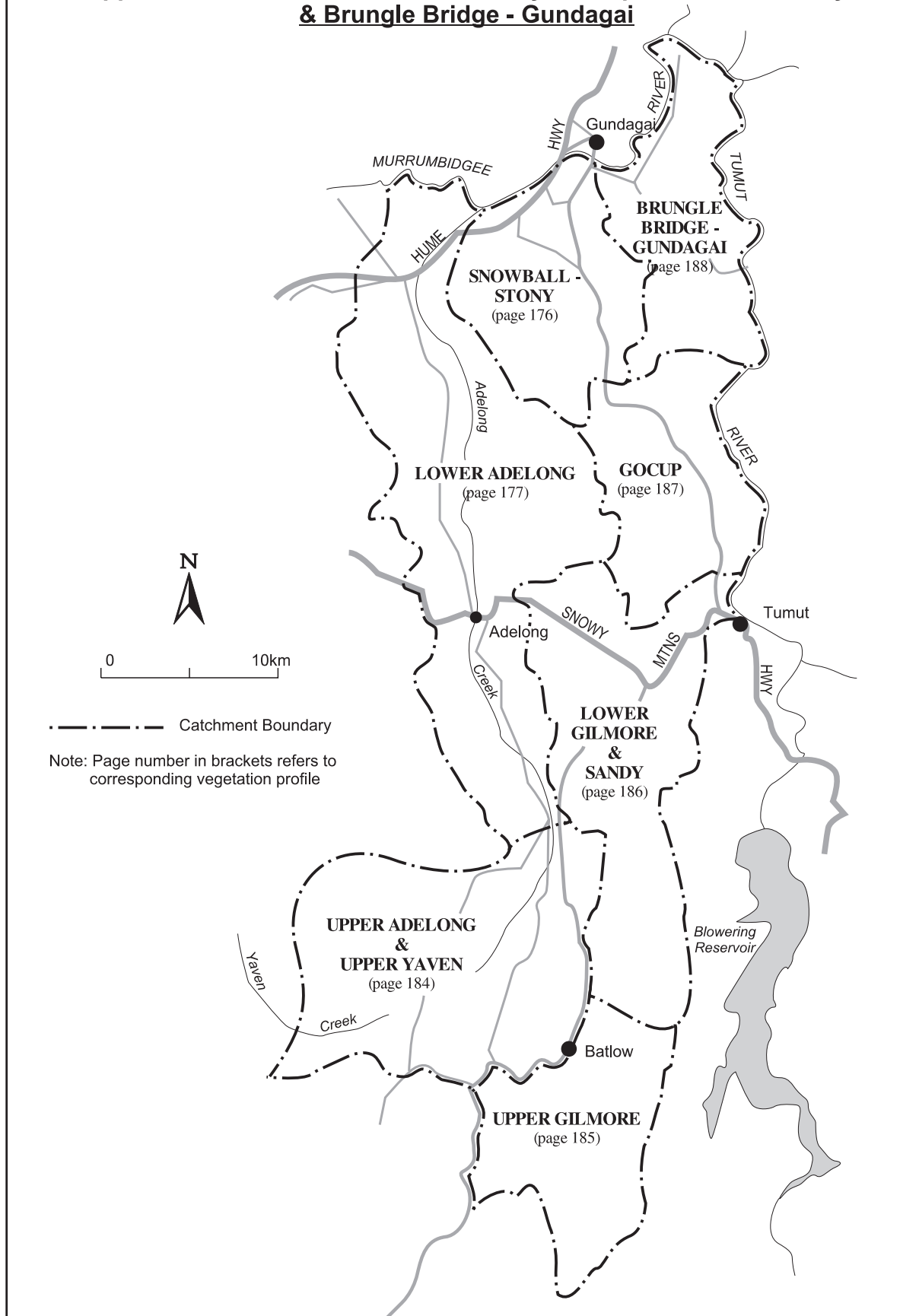


--- Catchment Boundary
 Note: Page number in brackets refers to corresponding vegetation profile

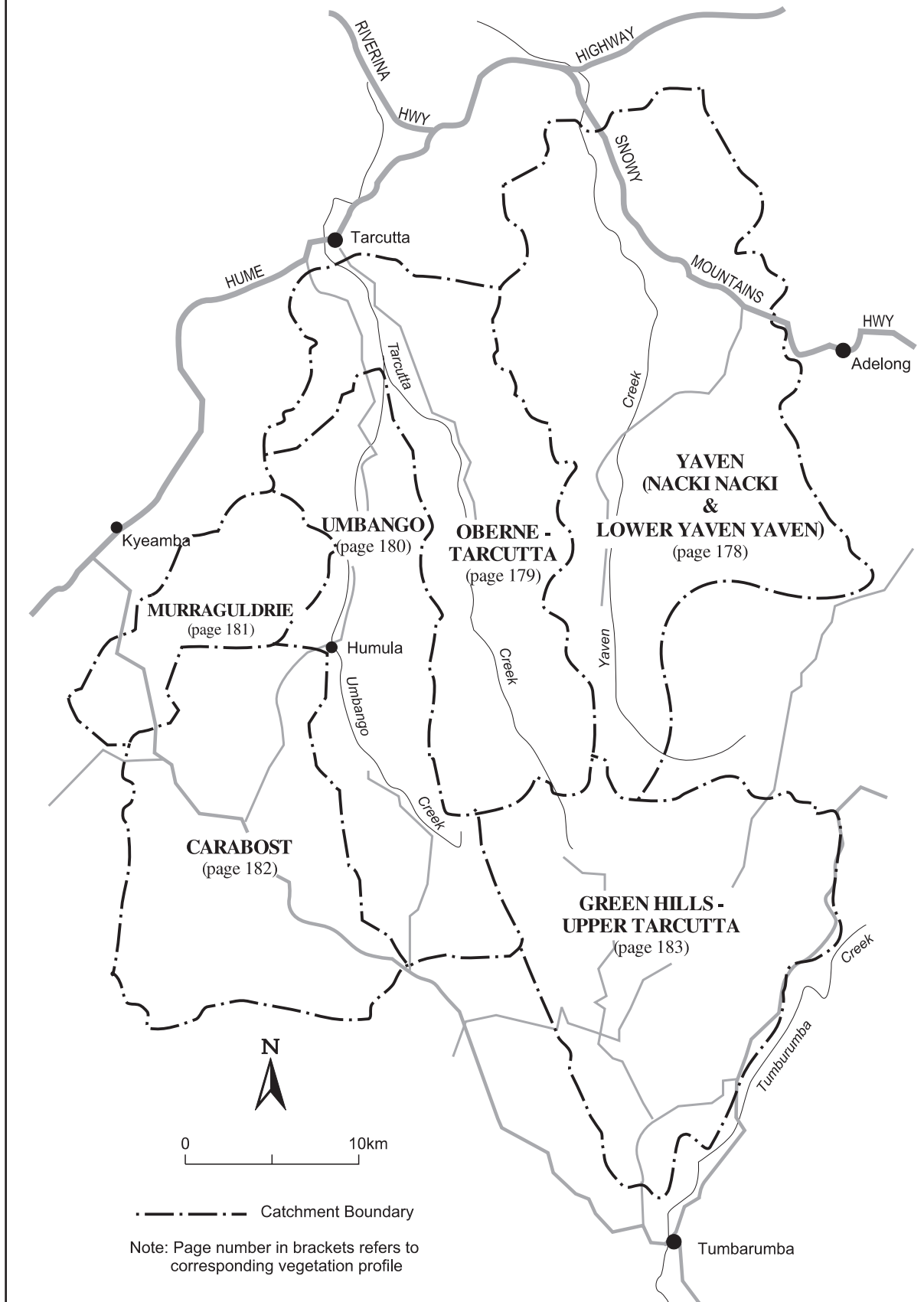
Districts & Catchments: Wagga City; Lake Albert; Lower O'Briens & Tywong; Upper O'Briens North; O'Briens South & McLeods; Burkes & Graveyard; Major; Upper Burkes; Upper Kyeamba; Livingstone; Lower Kyeamba & Main; Coreinbob; Mates Gully; Keajura; Lower Tarcutta; Eringowarrah; Deltroit; Hillas; Jellingro & Oaky



**Catchments & Districts: Lower Adelong; Upper Adelong & Upper Yaven;
Upper Gilmore; Lower Gilmore & Sandy; Gocup; Snowball - Stony
& Brungle Bridge - Gundagai**



**Catchments: Murraguldrrie; Carabost; Umbango;
Oberne - Tarcutta; Yaven; Green Hills - Upper Tarcutta**



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General Native Vegetation Profiles

MURRAY CATCHMENT — HOLBROOK, HUME AND URANA REGION

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Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile:

Boree



LANDFORM	Creepline & plains		Low rises	
VEGETATION TYPE	Grey Box woodland			
GEOLOGY & SOILS	Residual & colluvial deposits derived from underlying Tertiary. Red earths & red-brown earths.			
LOCATION EXAMPLE	Boree Creek area		Birrego area	
TREES > 8 m	<i>Acacia pendula</i> <i>Allocasuarina luehmamii</i> <i>Callitris glaucophylla</i> + <i>Eucalyptus camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>Hakea tephrosperma</i> <i>Pittosporum angustifolium</i> + creeklines	Boree/Myall Bulloak White Cypress Pine River Red Gum Yellow Box Grey Box Hooked Needlewood Butterbush	Bulloak Kurralong White Cypress Pine Yellow Box Grey Box Hooked Needlewood	<i>Allocasuarina luehmamii</i> # <i>Banksia marginata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus dealbata</i> <i>E. microcarpa</i> # originally found on sand hills towards Narrandera
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> <i>A. hakeoides</i> <i>A. linearifolia</i> <i>A. lineata</i> <i>A. oswaldii</i> <i>A. pyrenantha</i> <i>Bursaria spinosa</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> <i>Eremophila longifolia</i> <i>Eutaxia microphylla</i> <i>Senna artemisioides</i>	Western Silver Wattle Western Black Wattle Stringybark Wattle Streaked Wattle Miljee Golden Wattle Sweet Bursaria Wedge-leaf Hop-bush Berrigan Mallee Bush-pea Silver Cassia	Grey Wattle Deane's Wattle Western Silver Wattle Western Black Wattle Golden Wattle Sweet Bursaria Wedge-leaf Hop-bush Long-leaf Emu-bush Mallee Bush-pea Eastern Cottonbush Quandong Silver Cassia	<i>Acacia decora</i> <i>A. montana</i> <i>A. verniciflua</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>D. viscosa</i> subsp. <i>cuneata</i> <i>Senna artemisioides</i> subsp. <i>zygophylla</i> Western Silver Wattle Mallee Wattle Varnish Wattle Narrow-leaf Hop-bush Wedge-leaf Hop-bush Silver Cassia
GROUND COVERS	<i>Austrostipa</i> spp. <i>Chloris truncata</i> <i>Craspedia</i> spp. <i>Maireana microphylla</i>	Spear Grass Windmill Grass Billy Buttons/Drumsticks Eastern Cottonbush	Smooth Flax-lily Climbing Saltbush Mat Rush Gargaloo	<i>Austrostipa</i> spp. <i>Cheilanthes sieberi</i> <i>Chloris truncata</i> <i>Danthonia</i> spp. <i>Eimodia nutans</i> <i>Lomandra filiformis</i> <i>Pimelea curviflora</i> subsp. <i>gracilis</i> <i>Stackhousia monogyne</i> Spear Grass Rock Fern Windmill Grass Wallaby Grass Climbing Saltbush Wattle Mat-rush Curved Rice-flower Creamy Candles

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Brookong



LANDFORM	Plains	Low rises	Higher rocky outcrop
VEGETATION TYPE	Grey box woodland	Grey box woodland	Blakely's Red Gum/Yellow & Grey box woodland
GEOLOGY & SOILS	Unconsolidated riverine deposits of clay, sand, silt & gravel. Grey & brown clays & red-brown earths.	Residual & colluvial deposits derived from underlying meta-sediments. Grey and brown clays & red-brown earths.	Conglomerate, sandstone, quartzite, reddish shale & siltstone. Red & yellow podzolic (duplex) & lithosols (earthy loams).
LOCATION EXAMPLE	Urana Road	Brookong State Forest & Lockhart	Galore Hill
TREES > 8 m	<i>Acacia pendula</i> - Boree/Myall <i>Allocasuarina luehmanni</i> - Bulloak <i>Brachychiton populneus</i> - Kurradjong <i>Callitris glaucophylla</i> + White Cypress Pine <i>Callitris glaucophylla</i> - White Cypress Pine - River Red Gum + creedlines <i>E. melioidora</i> - Yellow Box <i>E. microcarpa</i> - Grey box	<i>Acacia implexa</i> - Hickory Wattle <i>Acacia pendula</i> - Myall/Boree <i>Allocasuarina luehmanni</i> - Bulloak <i>Brachychiton populneus</i> - Kurradjong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Encalyptus blakeyi</i> - Blakely's Red Gum <i>E. melioidora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box	<i>Acacia doratoxylon</i> - Currawang <i>Allocasuarina luehmanni</i> - Bulloak <i>A. verticillata</i> - Drooping Sheoak <i>Brachychiton populneus</i> - Kurradjong <i>Callitris endlicheri</i> - Black Cypress Pine <i>C. glaucophylla</i> - White Cypress Pine <i>Encalyptus blakeyi</i> - Blakely's Red Gum <i>E. melioidora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box <i>Exocarpos cupressiformis</i> - Native Cherry <i>Geijera parvifolia</i> - Wilga <i>Pittosporum angustifolium</i> - Butterbush
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> - Western Silver Wattle <i>A. hakeoides</i> - Hakea Wattle <i>A. montana</i> - Mallee Wattle <i>A. oswaldii</i> - Miljee <i>Bursaria spinosa</i> - Sweet Bursaria <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eremophila longifolia</i> - Long-leaf E-mu-bush <i>Sclerolaena muricata</i> var. <i>semiglabra</i> - Black Roly-poly <i>Senna artemisioides</i> - Silver Cassia	<i>Cassia aculeata</i> - Common Cassinia <i>C. arcuata</i> - Chinese Shrub <i>C. longifolia</i> - Shiny Cassinia <i>Daviesia latifolia</i> - Hop Bitter-pea <i>D. ulicifolia</i> - Gorse Bitter-pea <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eutaxia microphylla</i> - Mallee Bush-pea <i>Senna artemisioides</i> subsp. <i>zygophylla</i> - Silver Cassia	<i>Acacia decora</i> subsp. <i>paucijuga</i> - Deane's Wattle <i>Acacia decora</i> - Western Silver Wattle <i>A. montana</i> - Mallee Wattle <i>A. pycnantha</i> - Golden Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eriostemon myoporoides</i> - Long-leaf Wax-flower <i>Grevillea floribunda</i> - Seven Dwarfs Grevillea <i>Hakea leucopetra</i> - Silver Needlewood <i>Indigofera adesmiifolia</i> - Tick/Leafless Indigo
GROUND COVERS	<i>Atriplex semibaccata</i> - Creeping Saltbush <i>Austrostipa</i> spp. - Spear Grass <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily + <i>Juncus</i> spp. - Rush + damp areas <i>Maireana microphylla</i> - Eastern Cottonbush <i>Themeda triandra</i> - Kangaroo Grass	<i>Eimadia nutans</i> - Climbing Saltbush <i>Glycine tabacina</i> - Variable Glycine <i>Lomandra</i> spp. - Mat-rush <i>Maireana microphylla</i> - Eastern Cottonbush <i>Pimelea curviflora</i> - Curved Rice-flower <i>Themeda triandra</i> - Kangaroo Grass <i>Wahlenbergia</i> spp. - Bluebell	<i>Lomandra</i> spp. - Mat-rush <i>Melichrus urecolatus</i> - Urn Heath <i>Parsonia eucalyptophylla</i> - Gargaloo <i>Poa sieberiana</i> - Fine-leaf Tussock Grass <i>Stypandria glauca</i> - Nodding Blue-lily <i>Haradenbergia violacea</i> - Purple Coral Pea

General Native Vegetation Profile: Urangeline



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creeklines & plains	Low hills
VEGETATION TYPE	Grey Box woodland	Grey Box/White Box woodland
GEOLOGY & SOILS	Unconsolidated riverine deposits of clay, silt, sand & gravel Red-brown earths & grey and brown clays	Residual & colluvial deposits derived from underlying meta-sediments. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Urangeline Creek & Urangeline East	Pleasant Hills & Urangeline areas
TREES > 8 m	<i>Acacia pendula</i> * <i>Allocasuarina verticillata</i> <i>Callitris glaucophylla</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> + creekline only * slight rises	Hickory Wattle Boree / Myall Bulloak Drooping Sheoak Kurrajong White Cypress Pine White Box Blakely's Red Gum Yellow Box <i>E. microcarpa</i> <i>Pittosporum angustifolium</i> * Eastern extremities of catchment
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> <i>A. decora</i> <i>A. difformis</i> <i>A. hakeoides</i> <i>A. montana</i> <i>A. pycnantha</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> <i>Eremophila longifolia</i> <i>Hakea leucopetra</i> <i>Muehlenbeckia florulenta</i> <i>Senna artemisioides</i>	Gold-dust Wattle Deane's Wattle Western Silver Wattle Drooping Wattle Western Black Wattle/ Hakea Wattle Mallee Wattle Kangaroo Thorn Golden Wattle Sweet Bursaria Chinese Shrub <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> <i>Eremophila longifolia</i> Long-leaf Emu-bush <i>Indigofera australis</i> <i>Santalum acuminatum</i> <i>Senna artemisioides</i> * eastern extremities of catchment
GROUND COVERS	<i>Austrostipa</i> spp. <i>Danthonia</i> spp. <i>Dianella longifolia</i> <i>Maireana microphylla</i> <i>Poa</i> spp.	Spear Grass Wallaby Grass Smooth Flax-lily Spreading Flax-lily Everlasting Daisy Mat-rush <i>Austrostipa</i> spp. <i>Danthonia</i> spp. <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Helichrysum</i> spp. <i>Lomandra</i> spp. <i>Poa</i> spp. <i>Themeda triandra</i> Tussock Grass Kangaroo Grass

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

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General Native Vegetation Profile: Urana - Rand - Corowa Region



LANDFORM	Flats and low country below approx. 150 m elevation	Undulating country approx. 150 - 250 m elevation	Hill country approx. 250 - 400 m elevation
VEGETATION TYPE	Woodlands: Grey Box/Boree; Grey Box/Bullock; River Red Gum (creeks) & Lignum community.	Yellow Box woodland; Grey Box & White Cypress Pine woodland.	Dwyer's Red Gum woodland & White Cypress Pine woodland.
GEOLOGY & SOILS	Mainly unconsolidated riverine deposits of clay, silt, sand & gravel. Grey & brown clays.	Unconsolidated riverine deposits of clay, silt, sand & gravel plus residual & colluvial deposits from underlying meta-sediments. Red brown earths.	Mainly residual & colluvial deposits from underlying granites and volcanics. Red brown earths.
LOCATION EXAMPLE	Coreen State Forest (Box/Bullock); NW of region (Box/Boree); Billabong Creek (River Red Gum/Lignum).	Lonesome Pine & Kentucky State Forests	eg. Goombargana Hill.
TREES > 8 m	<i>Acacia dealbata</i> <i>A. pendula</i> # <i>A. stenophylla</i> <i>Allocasuarina huehmannii</i> <i>Brachychiton populneus</i> * <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. camaldulensis</i> * <i>E. melliodora</i> <i>E. microcarpa</i>	<i>Acacia dealbata</i> <i>Allocasuarina huehmannii</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. dealbata/E. dwyeri</i> <i>E. camaldulensis</i> <i>E. melliodora</i> <i>Exocarpos cupressiformis</i> <i>Pittosporum angustifolium</i>	<i>Acacia dealbata</i> <i>A. doratoxylon</i> <i>A. implexa</i> # <i>A. penninervis</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. dwyeri</i> # Mullemblah Hill only
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> - Gold-dust Wattle <i>A. deanei</i> - Deane's Wattle <i>A. difformis</i> - Drooping Wattle <i>A. hakeoides</i> - Hakea Wattle <i>A. lineata</i> - Streaked Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>A. pycnantha</i> - Golden Wattle <i>Bursaria spinosa</i> - Sweet Bursaria + Murray River	<i>Acacia acinacea</i> - Gold-dust Wattle <i>A. brachybotrya</i> - Grey Wattle <i>A. deanei</i> - Deane's Wattle <i>A. decora</i> - Western Golden Wattle <i>A. hakeoides</i> - Hakea Wattle <i>A. linearifolia</i> - Stringybark Wattle <i>A. montana</i> - Mallee Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>A. pycnantha</i> - Golden Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle	<i>Acacia deanei</i> - Deane's Wattle <i>A. montana</i> - Mallee Wattle <i>A. pycnantha</i> - Golden Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Daviesia latifolia</i> - Hop Bitter-pea <i>Indigofera adesmiifolia</i> - Tick Indigo
GROUND COVERS	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Brachycome</i> spp. <i>Bracteantha viscosa</i> <i>Calotis</i> spp. + <i>Carex</i> spp. * <i>Cheilanthes</i> spp. <i>Chloris truncata</i> <i>Chryscephalum apiculatum</i> + <i>Craspedia globosa</i>	Wallaby Grass Flax-lily Chocolate Lily Common Wheatgrass Cranesbill Rock Isotome Scented Mat-rush Cotton Bush/Blue Bush Urn Heath Lignum/Tangled Lignum	Common Reed Tussock Grass Black Roly Poly Nodding Blue-lily Kangaroo Grass Kangaroo Pea Cumbungi Burr-daisy Bluebell

Note: For general re-planting (creekbeds; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

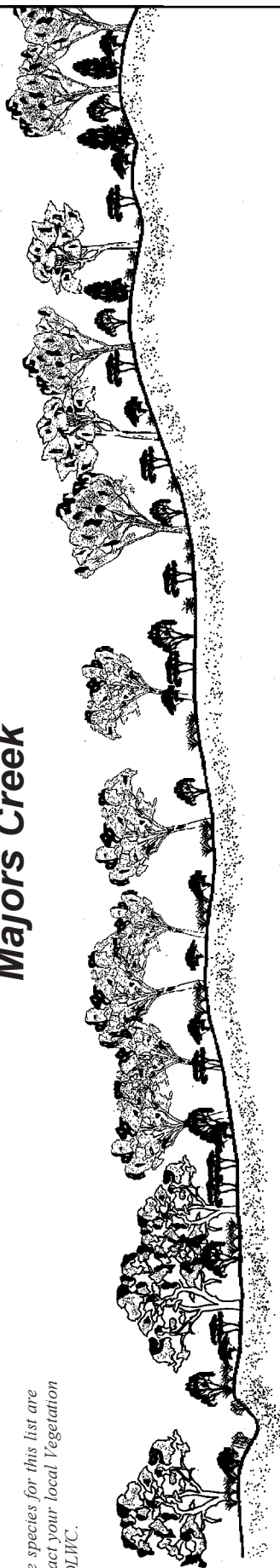
General Native Vegetation Profile: Long Plain - West Hume



LANDFORM	River	Plain	Rising & hill country
VEGETATION TYPE	River Red Gum woodland	Grey Box woodland	Box - Cypress Pine woodland (Yellow Box & Grey Box)
GEOLOGY & SOILS	Riverine deposits of clay, silt, sand & gravel. Alluvial soils.		
LOCATION EXAMPLE	Murray River	Along Riverina Highway	Brocklesby district
TREES > 8 m	<i>Acacia dealbata</i> - Silver Wattle <i>Eucalyptus camaldulensis</i> - River Red Gum	<i>Acacia pendula</i> <i>Allocasuarina luehmanni</i> * <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> * <i>E. melliodora</i> <i>E. microcarpa</i> * lighter soils	Hickory Wattle/Lightwood Drooping Sheoak Kurrajong White Cypress Pine White Box Blakely's Red Gum Yellow Box Grey Box <i>Acacia implexa</i> <i>Allocasuarina verticillata</i> + <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi/E. dealbata</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>Exocarpos cupressiformis</i> + may not be locally native this far west
SHRUBS 1.5 - 8 m	<i>Callistemon sieberi</i> - River Bottlebrush	<i>Acacia acinacea</i> <i>A. deanei</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. montana</i> <i>Bursaria spinosa</i> <i>Cassinia arcuata</i> <i>Euttaxia microphylla</i>	<i>Dodonaea viscosa</i> subsp. <i>cumeata</i> Wedge-leaf Hop-bush <i>Euttaxia microphylla</i> var. <i>microphylla</i> Mallee Bush Pea <i>Indigofera adesmisifolia</i> - Tick Indigo # <i>Pultenaea latygliflora</i> - Twiggly Bush Pea <i>Senna artemisioides</i> var. <i>petiolaris</i> & <i>S. artemisioides</i> var. <i>artemisioides</i> Silver Cassia # lower slopes
GROUND COVERS	<i>Carex</i> spp. - Sedge <i>Juncus</i> spp. - Rush <i>Microlaena stipoides</i> - Weeping Grass <i>Phragmites australis</i> - Common Reed <i>Poa labillardieri</i> - Tussock Grass	<i>Aristida behriana</i> <i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Danthonia</i> spp. <i>Poa labillardieri</i> <i>Sclerolaena muricata</i> var. <i>semiglabra</i> <i>Solanum simile</i> <i>Swainsona procumbens</i>	<i>Boathriochloa macra</i> Red-leg Grass <i>Burr Daisy</i> Yellow Burr Daisy Rock Fern Pretty Cryptandra Spreading Flax-lily Showy Parrot-pea Eastern Cottonbush <i>Boathriochloa macra</i> <i>Calotis cuneifolia</i> <i>Calotis lappulacea</i> <i>Cheilanthes sieberi</i> <i>Cryptandra amara</i> <i>Dianella revoluta</i> <i>Dilwynia sericea</i> <i>Maireana microphylla</i> <i>Burr Daisy</i> Yarrow Burr Daisy Rock Fern Pretty Cryptandra Spreading Flax-lily Showy Parrot-pea Eastern Cottonbush

General Native Vegetation Profile: Majors Creek

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Flats/plain	Lower slopes	Hills
VEGETATION TYPE	River Red Gum woodland	Yellow Box & Blakely's Red Gum woodland	White Box woodland
GEOLOGY & SOILS	Riverine deposits of clay, silt, sand & gravel. Alluvial loams & clays.	Residual & colluvial deposits from underlying meta-sediments. Red brown earths.	
LOCATION EXAMPLE	Murray River & Plain	Moorwatha	One Tree Hill
TREES > 8 m	<i>Acacia dealbata</i> * <i>Callitris glaucophylla</i> <i>Eucalyptus blakeyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i> * <i>E. melliodora</i> * lighter soils	<i>Acacia dealbata</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>Geijera parvifolia</i>	<i>Allocasuarina verticillata</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. dealbata</i> * <i>E. goniocalyx</i> * eastern hills of catchment only
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> <i>Exocarpos strictus</i> + Murray River bank	<i>Acacia acinacea</i> <i>A. deanei</i> <i>A. decora</i> <i>A. difformis</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> <i>Indigofera adesmiifolia</i> <i>Myoporum montanum</i>	<i>Acacia deanei</i> <i>A. difformis</i> <i>A. pycnantha</i> * <i>A. rubida</i> <i>A. verticillata</i> <i>Daviesia latifolia</i> <i>Indigofera adesmiifolia</i> * eastern hills of catchment only
GROUND COVERS	<i>Austrostipa</i> spp. <i>Carex</i> spp. <i>Danthonia</i> spp. <i>Elymus scaber</i> <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Sclerolaena muricata</i> var. <i>semiglabra</i> <i>Typha</i> spp.	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. <i>Dianella revoluta</i> <i>Eryngium</i> spp. <i>Glycine</i> spp. + <i>Juncus</i> spp. <i>Lomandra</i> spp. + <i>Phragmites australis</i> <i>Pimelea curviflora</i> var. <i>sericea</i> <i>Themeda triandra</i> + <i>Typha</i> spp. + drainage lines	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Burchardia umbellata</i> <i>Calotis cuneifolia</i> <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> <i>Convolvulus erubescens</i> <i>Danthonia</i> spp. <i>Dianella revoluta</i> <i>Hardenbergia violacea</i> <i>Lomandra</i> spp. <i>Pimelea curviflora</i> var. <i>sericea</i> <i>Stackhousia monogyna</i> <i>Themeda triandra</i>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Burrumbuttock - West Hume



LANDFORM	Hills	
VEGETATION TYPE	White Box & Grey Box woodland. Dwyers Red Gum woodland (Mt Goombargana)	
GEOLOGY & SOILS	Residual & colluvial deposits from underlying granite & meta-sediments. Red & yellow earths/sandy granites.	
LOCATION EXAMPLE	Burrumbuttock Hill, Mt Goombargana	
TREES > 8 m	<p>Acacia dealbata A. implexa A. pendula Allocasuarina huehmannii A. verticillata Callitris glaucophylla Eucalyptus albens E. blakeyi + E. camaldulensis # E. goniocalyx</p>	<p>Silver Wattle Hickory Wattle/Lightwood Boree Bullock Drooping Sheoak White Cypress Pine White Box Blakely's Red Gum River Red Gum Long-leaf Box</p> <p><i>E. melliodora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box + particularly swamps # in east of catchment</p>
SHRUBS 1.5 - 8 m	<p>Acacia acinacea A. deanei A. decora A. montana A. paradoxa A. pycnantha Bursaria spinosa Cassinia arcuata Eutaxia microphylla var. <i>diffusa</i></p>	<p>Gold-dust Wattle Deane's Wattle Western Golden Wattle Mallee Wattle Kangaroo Thorn Golden Wattle Sweet Bursaria Chinese Shrub Mallee Bush Pea</p> <p><i>Hakea leucoptera</i> - Needlewood <i>Indigofera adesmiifolia</i> - Tick Indigo</p>
GROUND COVERS	<p>Aristida spp. - Wire Grass <i>Austrostipa blackii</i> - Crested Speargrass <i>Austrostipa</i> spp. - Spear Grass <i>Calotis canefolia</i> - Burr Daisy <i>Convolvulus erubescens</i> - Australian Bindweed <i>Danthonia</i> spp. - Wallaby Grass <i>Daviesia genistifolia</i> - Broom Bitter-pea <i>Dianella longifolia</i> - Smooth Flax-lily <i>D. revoluta</i> - Spreading Flax-lily</p>	<p>Acacia <i>acinacea</i> * <i>A. montana</i> <i>A. pycnantha</i> # <i>A. rubida</i> <i>Bursaria spinosa</i> <i>Daviesia ulcifolia</i> <i>Indigofera adesmiifolia</i></p> <p># in west of catchment Spear Grass Red-leg Grass Sticky Everlasting Windmill Grass Yellow Buttons Clematis Australian Bindweed Pretty Cryptandra Wallaby Grass</p> <p># in east of catchment <i>Desmodium</i> spp. <i>Geranium solanderi</i> var. <i>solanderi</i> <i>Glycine</i> spp. <i>Hardenbergia violacea</i> <i>Isotoma axillaris</i> <i>Lomandra</i> spp. <i>Synpandra glauca</i> <i>Themeda triandra</i></p> <p><i>Austrostipa</i> spp. <i>Bathrochloa macra</i> <i>Bracteantha viscosa</i> <i>Chloris truncata</i> <i>Chrysopetalum apiculatum</i> <i>Clematis</i> spp. <i>Convolvulus erubescens</i> <i>Cryptandra amara</i> <i>Danthonia</i> spp.</p> <p>Tick Treefoil Australian Cranesbill Glycine Purple Coral Pea Rock Isotome Mat-rush Nodding Blue-lily Kangaroo Grass</p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
 Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

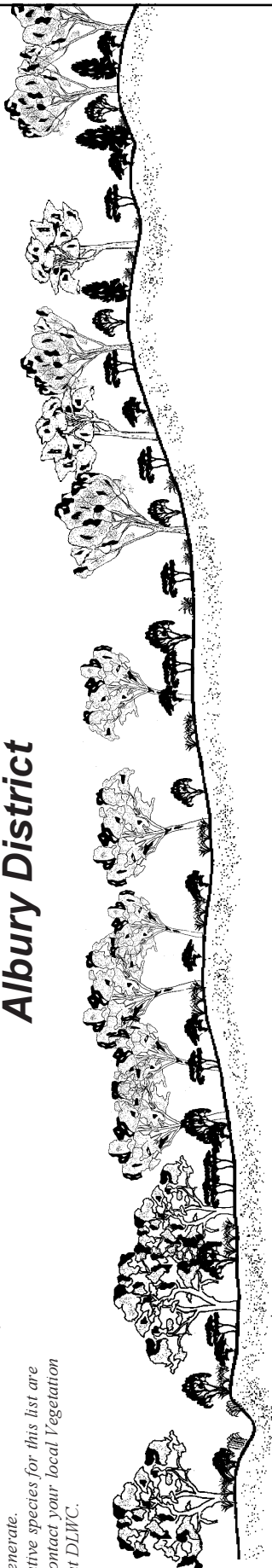
General Native Vegetation Profile: Deadmans - Bungowannah - Long Flat



LANDFORM	Flats/plain	Lower slopes	Hills
VEGETATION TYPE	River Red Gum woodland	Box woodland - White Box on rises/upper slopes. Yellow Box & Blakely's Red Gum woodland along drainage lines.	White Box woodland & Red Gum woodland
GEOLOGY & SOILS	Floodplain sediments - clay, silt, sand & gravel. Alluvial loams and clays.	Residual & colluvial deposits from underlying meta-sediments. Red & yellow earths.	Residual & colluvial deposits from underlying meta-sediments. Shallow red & yellow loams.
LOCATION EXAMPLE	Murray River	Bungowannah vicinity	One Tree Hill
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus camaldulensis</i>	<i>Acacia dealbata</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. dealbata</i> <i>E. gomioctyox</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i>
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> + <i>Hymenanthera dentata</i> + <i>Leptospermum obovatum</i> + along Murray River	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> <i>Indigofera adesmisifolia</i> + <i>Leptospermum continentale</i> + soaks/poorly drained sites	<i>Acacia deanei</i> subsp. <i>paucijuga</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>Bursaria spinosa</i> <i>Daviesia latifolia</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera adesmisifolia</i> Deane's Wattle Kangaroo Thorn Golden Wattle Red-stemmed Wattle Sweet Bursaria Hop Bitter-pea Narrow-leaf Hop-bush Tick Indigo
GROUND COVERS	<i>Carex breviculmus</i> <i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa labillardieri</i> + <i>Typha</i> spp. + soaks/creeks	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Convolvulus erubescens</i> <i>Danthonia</i> spp. <i>Dianella revoluta</i> + <i>Juncus</i> spp. <i>Lomandra</i> spp. + <i>Phragmites australis</i> <i>Poa</i> spp. <i>Themeda triandra</i> + <i>Typha</i> spp.	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Burchardia umbellata</i> <i>Calotis cuneifolia</i> <i>Chelanthus</i> spp. <i>Dianella revoluta</i> <i>Elymus scaber</i> <i>Hardenbergia violacea</i> <i>Lomandra</i> spp. <i>Pimelea curviflora</i> var. <i>sericea</i> Spear Grass Red-leg Grass Milkmaids Burr Daisy Rock Fern Spreading Flax-lily Common Wheatgrass Purple Coral Pea Mat-rush Curved Rice-flower

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Albury District



LANDFORM	Creeks & rivers	Low gently undulating country	Hilly country & ranges
VEGETATION TYPE	River Red Gum woodland	Box woodland (Yellow Box, Apple Box). Also Blakely's Red Gum woodland.	White Box woodland & Red Gum woodland (Blakely's & Tumbledown Red Gum)
GEOLOGY & SOILS	Riverine deposits of clay, silt, sand & gravel. Alluvial loams & clays.	Riverine deposits of clay, silt, sand & gravel. Red & yellow earths.	Mainly high grade phyllite, mica, schist & metamorphised sediments. Shallow red & yellow sandy soils.
LOCATION EXAMPLE	Murray River	Older parts of Albury & Thurgoona area	Nail Can Hill; Black Range
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus camaldulensis</i> Silver Wattle River Red Gum	<i>Acacia dealbata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>E. polyanthemos</i> Silver Wattle Kurralong White Cypress Pine White Box Blakely's Red Gum Apple Box Yellow Box Red Box	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> * mainly lower slopes Blakely's Red Gum # mainly N-NW aspect * <i>E. bridgesiana</i> # <i>E. dealbata</i> <i>E. gomicalyx</i> + <i>E. macrorhyncha</i> * <i>E. melliodora</i> <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i> Native Cherry + mainly S-SE aspect Apple Box Tumbledown Gum Long-leaf Box Red Stringybark Yellow Box Red Box
SHRUBS 1.5 - 8 m	<i>Bursaria spinosa</i> <i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> <i>Leptospermum obovatum</i> Sweet Bursaria River Bottlebrush Tree Violet River Tea-tree	<i>Acacia genistifolia</i> <i>A. gummi</i> <i>Acacia paradoxa</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Grevillea alpina</i> <i>G. lamigera</i> + <i>Leptospermum continentale</i> Spreading Wattle Ploughshare Wattle Kangaroo Thorn Red-stemmed Wattle Varnish Wattle Sweet Bursaria Narrow-leaf Hop-bush Cat's Claws Woolly Grevillea Prickly Tea-tree	<i>Acacia gummi</i> <i>A. paradoxa</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Correa reflexa</i> var. <i>reflexa</i> <i>Daviesia latifolia</i> <i>Dilwynia retorta</i> spp. complex <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> Ploughshare Wattle Kangaroo Thorn Red-stemmed Wattle Varnish Wattle Sweet Bursaria Common Correa Hop Bitter-pea Small-leaf Parrot-pea Narrow-leaf Hop-bush Cat's Claws Woolly Grevillea Tick Indigo Austral Indigo Handsome Flat-pea Bush-pea Twiggy Bush-pea <i>Grevillea alpina</i> <i>G. lamigera</i> <i>Indigofera adesmiifolia</i> <i>I. australis</i> <i>Platylobium formosum</i> <i>Pultenaea foliolosa</i> <i>P. langiflorens</i>
GROUND COVERS	<i>Carex breviculmus</i> <i>C. tereticaulis</i> <i>Juncus</i> spp. <i>Microolaena stipoides</i> <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Typha</i> spp. Sedge Sedge Rush Weeping Grass Common Reed Tussock Grass Cumbungi	<i>Arthropodium mimus</i> <i>Austrostipa</i> spp. <i>Brachyoloma daphnoides</i> <i>Bracteantha viscosa</i> <i>Brunonia australis</i> <i>Bulbine bulbosa</i> <i>Burchardia umbellata</i> <i>Carex</i> spp. <i>Chrysocephalum apiculatum</i> Small Vanilla-lily Spear Grass Daphne Heath Sticky Everlasting Blue Pincushion Bulbine Lily Milkmaids Sedge Yellow Buttons	<i>Danthonia</i> spp. <i>Dianella revoluta</i> <i>Dichopogon strictus</i> <i>Dilwynia sericea</i> <i>Gompholobium huegelii</i> <i>Glycine clandestina</i> <i>G. tabacina</i> <i>Handenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>H. riparia</i> Wallaby Grass Spreading Flax-lily Chocolate Lily Showy Parrot-pea Pale Wedge-pea Twining Glycine Variable Glycine Purple Coral Pea Grey Guinea-flower Erect Guinea-flower <i>Hovea linearis</i> <i>Leucopogon virgatus</i> <i>Lomandra</i> spp. <i>Melichrus urceolatus</i> <i>Microlaena stipoides</i> <i>Pimelea linifolia</i> <i>Poa</i> spp. <i>Themeda triandra</i> <i>Wahlenbergia</i> spp. <i>Wurmbea dioica</i> Common Hovea Common Beard-health Mat-rush Urn Heath Weeping Grass Slender Rice-flower Tussock Grass Kangaroo Grass Bluebell Early Nancy

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
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General Native Vegetation Profile: Bowna - Jindera District



LANDFORM	Hill country	Low, gently undulating country	Rocky outcrop	
VEGETATION TYPE	White Box woodland, Blakely's Red Gum woodland & Red Stringybark dry forest	Box woodland (Yellow Box & White Box) & Blakely's Red Gum woodland	Dwyer's Red Gum woodland & Currawang/Long-leaf Box woodland	
GEOLOGY & SOILS	Residual & colluvial deposits from underlying meta-sediments. Shallow red & yellow loams.	Riverine deposits of clay, silt, sand & gravel, and residual & colluvial deposits from underlying granite. Red & yellow earths.	Residual & colluvial deposits from underlying granite. Sandy granite soils.	
LOCATION EXAMPLE	Spring Hill (Jindera Gap hills)	Jindera vicinity, including Four Mile Creek	Stringybark Hill (west of Gerogery)	
TREES > 8 m	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. gomocalyx</i> <i>* E. macrorhyncha</i> <i>E. nortoni</i> <i>E. polyanthemus</i> <i>Exocarpos cupressiformis</i> <i>* mainly SE aspect</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina luehmanna</i> <i>A. verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>+ E. camaldulensis</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>* E. microcarpa</i> <i>E. polyanthemus</i>	<i>Acacia doratoxylon</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris endlicheri</i> <i>C. glaucophylla</i> <i>* Eucalyptus albens</i> <i>* E. blakeyi</i> <i>E. dwyeri</i> <i>E. gomocalyx</i> <i># E. macrorhyncha</i> <i>E. nortoni</i> <i>* E. polyanthemus</i> <i>Exocarpos cupressiformis</i>	
SHRUBS 1.5 - 8 m	<i>Acacia paradoxa</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Dillwynia</i> spp. <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Grevillea alpina</i> <i>Indigofera australis</i> <i>Platylobium formosum</i> <i>Prostanthera lasiantha</i> <i>Mint Bush</i>	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Daviesia latifolia</i>	<i>Acacia rubida</i> <i>A. verniciflua</i> <i>Correa glabra</i> <i>C. reflexa</i> var. <i>reflexa</i> <i>Dillwynia</i> spp. <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera australis</i> <i>Pultenaea cunninghamii</i>	
GROUND COVERS	<i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macrochaeta</i> - Red-leg Grass <i>Calotis</i> spp. - Burr Daisy <i>+ Carex</i> spp. - Sedge <i>Cheilanthes</i> spp. - Rock Fern <i>Chloris truncata</i> - Windmill Grass	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Daviesia latifolia</i> <i>Desmodium</i> spp. <i>Dianella longifolia</i> - Smooth Flax-lily <i>D. revoluta</i> - Spreading Flax-lily <i>Geranium</i> spp. - Cranesbill <i>Glycine clandestina</i> - Twining Glycine <i>Leucopogon virgatus</i> - Common Beard-head <i>+ drainage lines, creeks, soaks & poorly drained sites</i>	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Daviesia latifolia</i> <i>Gold-dust Wattle</i> <i>Kangaroo Thorn</i> <i>Golden Wattle</i> <i>Red-stemmed Wattle</i> <i>Vamish Wattle</i> <i>Sweet Bursaria</i> <i>Hop Bitter-pea</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>- Narrow-leaf Hop-bush</i> <i>Eutaxia microphylla</i> <i>- Mallee Bush-pea</i> <i>Indigofera adesmiifolia</i> <i>- Tick Indigo</i>	<i>Acacia acinacea</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Daviesia latifolia</i> <i>Desmodium</i> spp. <i>Dianella longifolia</i> - Smooth Flax-lily <i>D. revoluta</i> - Spreading Flax-lily <i>Geranium</i> spp. - Cranesbill <i>Glycine clandestina</i> - Twining Glycine <i>Leucopogon virgatus</i> - Common Beard-head <i>+ drainage lines, creeks, soaks & poorly drained sites</i>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

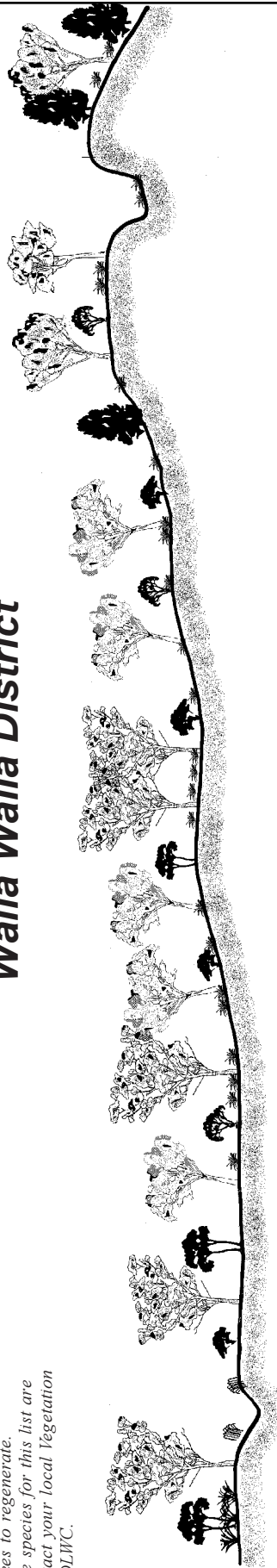
General Native Vegetation Profile: Simmons Creek & North-west Culcairn



LANDFORM	Undulating country & hills	
VEGETATION TYPE	Box - Cypress Pine woodland (White Box & Yellow Box) & Blakely's Red Gum woodland.	
GEOLOGY & SOILS	Mainly residual colluvial deposits from underlying granites & meta-sediments. Red & yellow earths.	
LOCATION EXAMPLE	Mullemblah Hill	
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. implexa</i> <i>A. penninervis</i> <i>Allocasuarina luehmamii</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>Pittosporum angustifolium</i></p> <p>+ Billabong Creek</p>	<p>Silver Wattle Hickory Wattle/Lightwood Mountain Hickory Bulloak Kurrajong White Cypress Pine White Box Blakely's Red Gum Yellow Box Butterbush/Weeping Pittosporum</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia acinacea</i> <i>A. difformis</i> <i>A. montana</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> <i>Hakea leucopetra</i></p> <p>+ Billabong Creek</p>	<p>Gold-dust Wattle Drooping Wattle Mallee Wattle Sweet Bursaria River Bottlebrush Wedge-leaf Hop-bush Silver Needlewood</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. <i>Carex</i> spp. <i>Danthonia</i> spp. <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Juncus</i> spp. <i>Lomandra</i> spp. # <i>Templetonia stenophylla</i></p>	<p>Spear Grass Sedge Wallaby Grass Smooth Flax-lily Rush Mat-rush Templetonia</p> <p><i>Themeda triandra</i> - Kangaroo Grass <i>Scleroaena muricata</i> var. <i>semiglabra</i> - Black Roly Poly</p> <p># not noted in area but suggested for replanting</p>
	<p><i>Acacia acinacea</i> <i>A. difformis</i> <i>A. montana</i> <i>Bursaria spinosa</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> <i>Indigofera adesmifolia</i></p>	<p>Purple Coral Pea Rush Mat-rush Templetonia Kangaroo Grass Fringe Lily + poorly drained sites # not noted in area but suggested for replanting</p>

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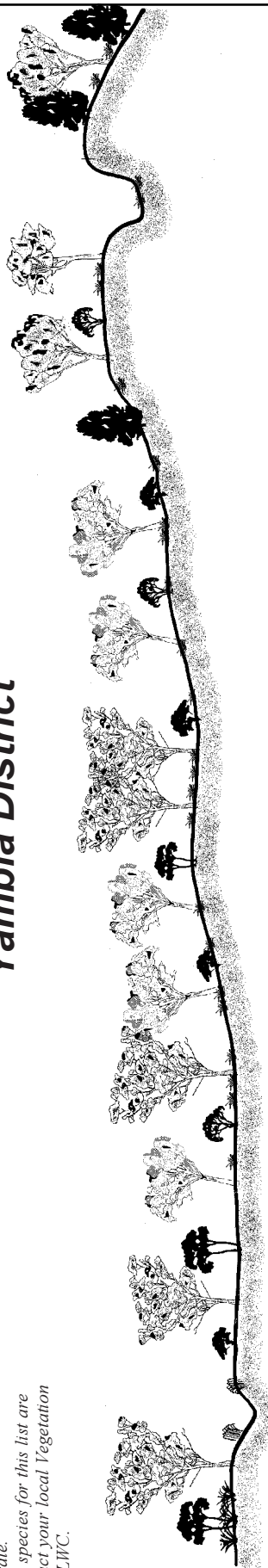
General Native Vegetation Profile: Walla Walla District



LANDFORM	Flats and low country	Rising country & gently undulating hills	Rocky outcrop
VEGETATION TYPE	Box woodland - Yellow Box & Grey Box. Blakely's Red Gum woodland.	White Box woodland	Dwyer's Red Gum woodland with Currawang & Long-leaf Box; Red Stringybark dry forest.
GEOLOGY & SOILS	Riverine deposits of clay, silt, sand & gravel. Alluvial loams & grey & brown clays.	Mainly residual & colluvial deposits from underlying granite. Red and yellow earths.	Residual and colluvial deposits from underlying granite. Sandy granite soils.
LOCATION EXAMPLE	Creeklime country: Billabong; Petries; Back & Middle.	Rising country SE of Walla Walla	Stringybark Hill (NW of Gerogery)
TREES > 8 m	<i>Acacia dealbata</i> <i>Allocasuarina luehmanni</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> + <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> + creeklines	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Acacia penninervis</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. dwyeri</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemos</i> <i>Hakea tephrosperma</i> <i>Pittosporum angustifolium</i>	<i>Acacia doratxyloa</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris endlicheri</i> <i>C. glaucophylla</i> * <i>Eucalyptus albens</i> * <i>E. blakelyi</i> <i>E. dwyeri</i> # <i>E. goniocalyx</i> # <i>E. macrorhyncha</i> <i>E. mortonii</i> * <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i> # Mainly slopes of rocky outcrop
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> <i>A. montana</i> <i>A. paradoncha</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> <i>Eutaxia microphylla</i> + Billabong Creek + <i>Phragmites australis</i> - Common Reed <i>Poa</i> spp. - Tussock Grass <i>Sclerolaena muricata</i> var. <i>semiglabra</i> <i>Themeda triandra</i> - Black Roly Poly + <i>Typha</i> spp. - Cumbungi + creeklines/soaks/poorly drained sites	<i>Acacia acinacea</i> <i>A. montana</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>Bursaria spinosa</i> <i>Eutaxia microphylla</i> <i>Indigofera adesmitifolia</i> Gold-dust Wattle Mallee Wattle Kangaroo Thorn Golden Wattle Sweet Bursaria River Bottlebrush Mallee Bush Pea Billabong Creek Lily Spear Grass Red-leg Grass Bulbine Lily Milkmaids Windmill Grass Wallaby Grass Spreading Flax-lily Common Wheatgrass	<i>Acacia rubida</i> <i>A. verniciflua</i> <i>Correa glabra</i> <i>C. reflexa</i> subsp. <i>reflexa</i> <i>Dilhyntia</i> spp. <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera australis</i> <i>Pultenaea cunninghamii</i> Red-stemmed Wattle Varnish Wattle Rock Correa Common Correa Parrot-pea Narrow-leaf Hop-bush Austral Indigo Grey Bush-pea
GROUND COVERS	<i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macra</i> - Red-leg Grass <i>Calotis cuneifolia</i> - Purple Burr-daisy <i>Carex</i> spp. - Sedge <i>Dianella</i> spp. - Wallaby Grass <i>Dianella revoluta</i> - Spreading Flax-lily <i>Geranium</i> spp. - Cranesbill <i>Lomandra filiformis</i> - Wattle Mat-rush <i>Microlaena stipoides</i> - Weeping Grass	<i>Arthropodium</i> spp. <i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Bulbine bulbosa</i> <i>Burchardia umbellata</i> <i>Chloris truncata</i> <i>Danthonia</i> spp. <i>Dianella revoluta</i> <i>Elymus scaber</i>	<i>Glycine clandestina</i> <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>Isotoma axillaris</i> <i>Lomandra filiformis</i> <i>Pelargonium australe</i> <i>Pimelea curviflora</i> <i>Slypantha glauca</i> <i>Themeda triandra</i> Twining Glycine Purple Coral Pea Grey Guinea-flower Rock Isotome Wattle Mat-rush Native Storksbill Curved Rice-flower Nodding Blue-lily Kangaroo Grass

Note: For general re-planting (creeksides: windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Yambla District



LANDFORM	Low & gently undulating country	Rocky outcrop & hill country
VEGETATION TYPE	Box Woodland - White Box, Yellow Box & Grey Box. Blakely's Red Gum Woodland.	Red Gum woodland; White Box woodland; & Red Stringybark dry sclerophyll forest.
GEOLOGY & SOILS	Lower country - alluvium (sand, silt clay & gravel). Undulating country - porphyry, quartzite, slate, schist, phyllite & greywacke. Sandy yellow earths.	Mainly conglomerates, sandstone, quartzite, reddish shale and siltstone. Sandy yellow earths.
LOCATION EXAMPLE	All the country surrounding Table Top Mountain ('Great Yambla Ridge')	Table Top Mountain ('Great Yambla Ridge')
TREES > 8 m	<p>Acacia dealbata A. implexa Allocasuarina liehmannii A. verticillata Brachychiton populneus * Callitris endlicheri C. glaucophylla Eucalyptus albens E. blakelyi E. bridgesiana + E. camaldulensis</p> <p>Silver Wattle Hickory Wattle/Lightwood Bullock Drooping Sheoak Kurrajong Black Cypress Pine White Cypress Pine White Box Blakely's Red Gum Apple Box River Red Gum</p> <p><i>E. gonicalyx</i> # <i>E. macrohyncha</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemos</i></p> <p>* mainly western slopes of range # mainly S-SE aspect + particularly soaks/drainage lines</p>	<p>Acacia dealbata A. doratxydon A. implexa Allocasuarina verticillata Brachychiton populneus Callitris endlicheri C. glaucophylla Eucalyptus albens * E. blakelyi * E. dealbata E. dyweri</p> <p>Silver Wattle Currawang Hickory Wattle/Lightwood Drooping Sheoak Kurrajong Black Cypress Pine White Cypress Pine White Box Blakely's Red Gum Tumbledown Gum Dwyer's Red Gum</p> <p><i>E. gonicalyx</i> # <i>E. macrohyncha</i> <i>E. nortonii</i> <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i></p> <p>* mainly N-NW aspect # mainly S-SE aspect</p>
SHRUBS 1.5 - 8 m	<p>Acacia acmacea * A. deanei subsp. paucijuga * A. difformis A. paradoxa A. pycnantha A. rubida A. verniciflua Bursaria spinosa Cassimia aculeata Dodonaea viscosa subsp. angustissima</p> <p>Gold-dust Wattle Deane's Wattle Drooping Wattle Kangaroo Thorn Golden Wattle Red-stemmed Wattle Vamish Wattle Sweet Bursaria Common Cassinia Narrow-leaf Hop-bush</p> <p><i>Indigofera adesmiifolia</i> + <i>Leptospermum continentale</i></p> <p>* west of Table Top Mountain + soaks/poorly drained sites</p>	<p><i>Dillwynia juniperina</i> <i>D. physcoides</i> species complex <i>Dodonaea viscosa</i> <i>Indigofera adesmiifolia</i> <i>I. australis</i> + <i>Leptospermum continentale</i> <i>Platylobium formosum</i> <i>Prostanthera lasianthos</i> <i>Pullenaea cunninghamii</i> <i>P. foliolosa</i> <i>P. procumbens</i> + soaks/poorly drained sites</p> <p>Prickly Parrot-pea Parrot-pea Narrow-leaf Hop-bush Tick Indigo Austral Indigo Prickly Tea-tree Handsome Flat-pea Mint Bush Grey Bush-pea Bush-pea Heathy Bush-pea</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Bracteanthra viscosa</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. <i>Dianella longifolia</i> <i>D. revoluta</i> + <i>Juncus</i> spp. <i>Glycine clandestina</i> <i>Lissanthe strigosa</i></p> <p>Spear Grass Red-leg Grass Sticky Everlasting Wallaby Grass Smooth Flax-lily Spreading Flax-lily Rush Twining Glycine Peach Heath</p> <p><i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa</i> spp. # <i>Templetonia stenophylla</i> <i>Themeda triandra</i> + <i>Typha</i> spp. + creeks/soaks/poorly drained areas # not noted in area but suggested for replanting</p>	<p><i>Acacia deanei</i> subsp. paucijuga <i>A. gemistifolia</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Calytrix tetragona</i> <i>Cassimia aculeata</i> <i>C. longifolia</i> <i>C. reflexa</i> var. <i>reflexa</i> <i>Daviesia latifolia</i> <i>D. leptophylla</i></p> <p>Deane's Wattle Spreading Wattle Golden Wattle Red-stemmed Wattle Vamish Wattle Sweet Bursaria Common Fringe-myrtle Common Cassinia Shiny Cassinia Common Correa Hop Bitter-pea Slender Bitter-pea</p> <p><i>Haardenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>Isotome axillaris</i> <i>Lissanthe strigosa</i> <i>Microlaena stipoides</i> <i>Micromyrtus ciliata</i> <i>Poa</i> spp. <i>Spyridium parvifolium</i> <i>Stypania glauca</i> <i>Themeda triandra</i></p> <p>Purple Coral Pea Grey Guinea-flower Rock Isotome Peach Heath Weeping Grass Heath-myrtle Tussock Grass Dusty Miller Nodding Blue-lily Kangaroo Grass</p>

General Native Vegetation Profile: Thugga & Culcairn East

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Flats & lower slopes	Hills
VEGETATION TYPE	Yellow Box woodlands & Grey Box woodlands	White Box woodland & Blakely's Red Gum woodland
GEOLOGY & SOILS	Alluvium - gravel, sand, silt & clay. Grey and brown clays/hard setting yellow soils.	Quartzite, slate, phyllite, greywacke, hornfels, schist & porphyry. Sandy yellow earths.
LOCATION EXAMPLE	Olympic Highway vicinity	Hills in 'Boorook' vicinity
TREES > 8 m	<i>Acacia dealbata</i> <i>Allocasuarina luehmanni</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i> + Billabong Creek	<i>Acacia implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. gomicalyx</i> * <i>E. macrorhyncha</i> <i>Santalum acuminatum</i>
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> * <i>A. difformis</i> * <i>A. montana</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> + Billabong Creek * Western area of district	<i>Acacia acinacea</i> <i>A. decora</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> <i>Cassinia aculeata</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>D. viscosa</i> subsp. <i>cuneata</i> <i>Dilwynia phytocoides</i> spp. complex
GROUND COVERS	<i>Atriplex semibaccata</i> - Creeping/Berry Saltbush <i>Bothriochloa macra</i> - Red-leg Grass <i>Carex</i> spp. - Sedge <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella revoluta</i> - Spreading Flax-lily <i>D. longifolia</i> - Smooth Flax-lily <i>Lomandra multiflora</i> - Many-flowered Mat-rush + <i>Microlaena stipoides</i> - Weeping Grass	<i>Lomandra</i> spp. <i>Pimelea</i> spp. <i>Themeda triandra</i>

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

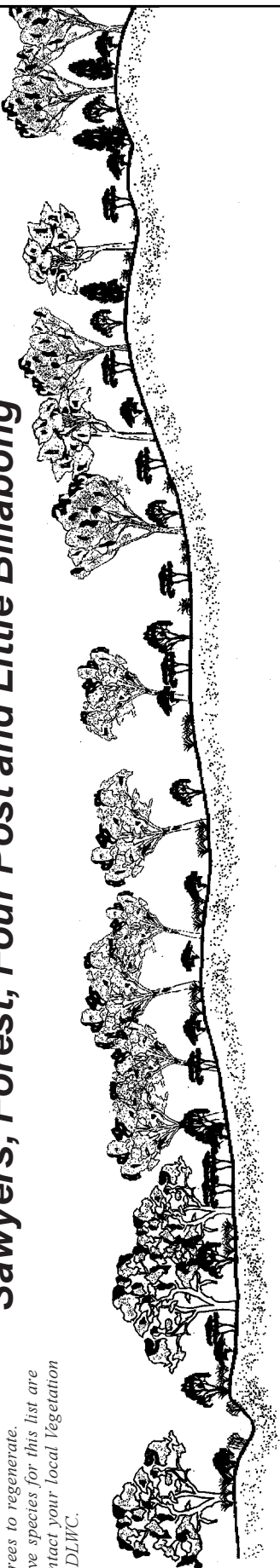
General Native Vegetation Profile: Upper Jerra Jerra & Upper Back



LANDFORM	Hills	Flats & lower slopes	Hills
VEGETATION TYPE	White Box woodland & Red Stringybark dry forest	Blakely's Red Gum & Yellow Box woodland. Grey Box woodland.	Red Stringybark & Scribbly Gum/Snap Gum dry forest
GEOLOGY & SOILS	Granite, gneissic granite & gneiss. Sandy granite soils.	Mainly alluvium - sand, silt, gravel & clay. Red & yellow earths.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy yellow earths.
LOCATION EXAMPLE	Peddles Hill	Cookcardinia & further south	Nest Hill
TREES > 8 m	<i>Acacia dealbata</i> <i>A. doratoxylon</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachyechiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. goniocalyx</i> * <i>E. macrorhyncha</i> # <i>E. meliodora</i> # <i>E. microcarpa</i> * mainly S & SE aspects # lower slopes	<i>Acacia implexa</i> * <i>Brachyechiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. meliodora</i> <i>E. microcarpa</i> <i>E. nortonii</i> * not on clay soils + creeklines only	<i>Acacia dealbata</i> <i>Brachyechiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> * <i>E. goniocalyx</i> / <i>E. nortonii</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> * <i>E. rossii</i> <i>Exocarpos cupressiformis</i>
SHRUBS 1.5 - 8 m	<i>Acacia paradoxa</i> <i>A. pycnantha</i> <i>Cassinia aculeata</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i>	<i>Acacia acinacea</i> <i>A. deanei</i> <i>A. paradoxa</i> <i>A. pycnantha</i>	<i>G. polybractea</i> - Crimson Grevillea <i>Indigofera australis</i> - Austral Indigo <i>Leptospermum multicaule</i> - Silver Tea-tree <i>Persoonia rigida</i> - Hairy Geebung <i>Platylobium formosum</i> - Handsome Flat-pea <i>Pultenaea foliolosa</i> - Bush-pea
GROUND COVERS	<i>Arthropodium</i> spp. <i>Boehriochloa macra</i> <i>Danthonia</i> spp. <i>Geranium</i> spp. <i>Hibbertia obtusifolia</i> <i>Xanthorrhoea</i> spp.	<i>Boehriochloa macra</i> - Red-leg Grass <i>Carex</i> spp. - Sedge <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily <i>D. revoluta</i> - Spreading Flax-lily <i>Elymus scaber</i> - Common Wheatgrass + <i>Juncus</i> spp. - Rush <i>Lissanthe strigosa</i> - Peach Heath <i>Lomandra</i> spp. - Mat-rush <i>Microlaena stipitoides</i> - Weeping Grass	<i>Acacia buxifolia</i> - Box-leaf Wattle <i>A. lamigera</i> - Woolly Wattle <i>A. pycnantha</i> - Golden Wattle <i>Cassinia</i> spp. - Cassinia <i>Daviesia leptophylla</i> - Slender Bitter-pea <i>Dillwynia retorta</i> species complex - Small-leaf Parrot-pea <i>Grevillea lanigera</i> - Woolly Wattle <i>Austrostipa</i> spp. - Spear Grass <i>Boehriochloa macra</i> - Red-leg Grass <i>Brachyoloma daphnoides</i> - Daphne Heath <i>Brunonia australis</i> - Blue Pincushion <i>Bulbine bulbosa</i> - Bulbine Lily <i>Cheranthera linearis</i> - Finger Flower <i>Chryscephalum apiculatum</i> - Yellow Buttons <i>Danthonia</i> spp. - Wallaby Grass <i>Dillwynia</i> spp. - Parrot Pea <i>Dianella revoluta</i> - Spreading Flax-lily <i>Glycine clandestina</i> - Twining Glycine

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLLWC.

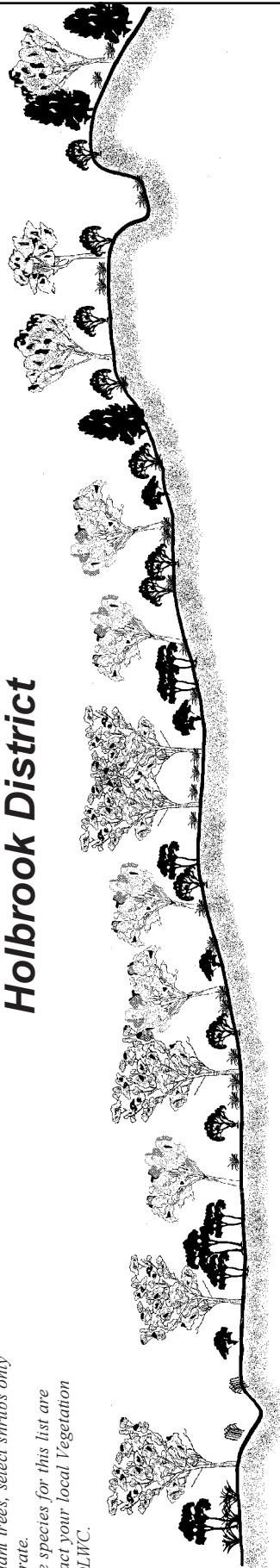
General Native Vegetation Profile: Sawyers, Forest, Four Post and Little Billabong



LANDFORM	Flats & lower slopes	Hills
VEGETATION TYPE	Yellow Box & Blakely's Red Gum woodland	Red Box & Red Stringybark dry sclerophyll forest
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay. Alluvial soils & yellow earths.	Mostly quartzite, slate, phyllite, greywacke, hornfels & schist. Also granite, gneissic granite & gneiss. Sandy yellow earths.
LOCATION EXAMPLE	Country surrounding creeklines e.g. Little Billabong.	Along Hume Highway in SE corner of region
TREES > 8 m	+ <i>Acacia dealbata</i> + <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>Exocarpos cupressiformis</i> + creeks	Silver Wattle Hickory Wattle/Lightwood Drooping Sheoak Kurrajong Black Cypress Pine White Box Blakely's Red Gum Tumbledown Gum * Mainly N & NW aspect Dwyer's Red Gum + Mainly S & SE aspect Red Stringybark # not on granite Silver Bundy Red Box Scribbly Gum/Snap Gum Yellow Box Native Cherry/Cherry Ballart
SHRUBS 1.5 - 8 m	# <i>Acacia genistifolia</i> <i>A. paradoxa</i> <i>Bursaria spinosa</i> + <i>Leptospermum continentale</i> + soaks & poorly drained sites # not noted in area but suggested for replanting	<i>C. arcuata</i> - Chinese Shrub <i>Daviesia leptophylla</i> - Slender Bitter-pea <i>Dilwynia phylloides</i> spp. complex - Parrot Pea <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-Bush <i>Indigofera australis</i> - Austral Indigo <i>Leptospermum multicaule</i> - Silver Tea-tree <i>Pultenaea foliolosa</i> - Bush-pea
GROUND COVERS	+ <i>Amphibromus neesii</i> Swamp Wallaby Grass <i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Chloris truncata</i> <i>Danthonia</i> spp. <i>Dilwynia sericea</i> + <i>Juncus</i> spp. <i>Lissanthe strigosa</i> <i>Microlaena stipoides</i> <i>Poa</i> spp. Windmill Grass Wallaby Grass Parrot Pea Rush Peach Heath <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Sporobolus creber</i> + <i>Typha</i> spp. + creeks/soaks/ poorly drained sites	<i>Isotoma axillaris</i> - Rock Isotome <i>Joycea pallida</i> - Red-anther Wallaby Grass <i>Lissanthe strigosa</i> - Peach Heath <i>Lomandra</i> spp. - Mat-rush <i>Melicope urceolata</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass <i>Poa</i> spp. - Wallaby Grass <i>Shpanandra glauca</i> - Nodding Blue-lily <i>Themeda triandra</i> - Kangaroo Grass <i>Xanthorrhoea</i> spp. - Grass Tree

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Holbrook District



LANDFORM	Flats	Rising country & low hills	Rocky outcrop
VEGETATION TYPE	Red Gum woodland (creeks)	Blakely's Red Gum & Yellow Box Woodland	Dry sclerophyll forest - Dwyer's Red Gum, Red Stringybark & Currawang.
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay. Alluvial soils & yellow earths.	Alluvium - sand, silt, gravel & clay. Also granite, gneissic granite & gneiss. Sandy granite soils.	Granite, gneissic granite & gneiss. Sandy granite soils.
LOCATION EXAMPLE	Along Billabong Creek	Between Hume Highway & Morgan's Ridge	Morgan's Ridge
TREES > 8 m	<p><i>Acacia dealbata</i> # <i>A. implexa</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i> <i>E. melliodora</i></p> <p># not noted in area but suggested for planting</p>	<p><i>Acacia dealbata</i> <i>A. implexa</i> <i>Brachychiton populneus</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. macrohryncha</i> <i>E. melliodora</i></p> <p>Silver Wattle Hickory Wattle/Lightwood Kurrajong White Box Blakely's Red Gum Apple Box Red Stringybark Yellow Box</p>	<p>Silver Wattle Currawang Hickory Wattle/Lightwood Drooping Sheoak Dwyer's Red Gum Long-leaf Box Red Stringybark Red Box Native Cherry</p> <p>* mainly S & SE aspects</p>
SHRUBS 1.5 - 8 m	<p># <i>Bursaria spinosa</i> <i>Callistemon sieberi</i> <i>Kunzea ericoides</i> + # <i>Leptospermum continentale</i></p> <p># not noted in area but suggested for planting + soaks/poorly drained sites</p>	<p># <i>Acacia gemistifolia</i> # <i>A. paradoxa</i> # <i>A. rubida</i> # <i>A. verniciflua</i> # <i>Bursaria spinosa</i> <i>Kunzea ericoides</i> + # <i>Leptospermum continentale</i></p> <p>Spreading/Early Wattle Kangaroo Thorn Red-stemmed Wattle Varnish Wattle Sweet Bursaria Burgan Prickly Tea-tree</p> <p># not noted in area but suggested for planting + soaks/poorly drained sites</p>	<p><i>Acacia busifolia</i> <i>A. verniciflua</i> <i>Calytrix tetragona</i> <i>Persoonia rigida</i></p> <p>Box-leaf Wattle Varnish Wattle Common Fringe-myrtle Hairy Geebung</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. * <i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i></p> <p>Spear Grass Red-leg Grass Sedge Wallaby Grass Rush Weeping Grass</p> <p>* generally higher country + creeklines/soaks/poorly drained sites # not noted in area but suggested for planting</p>	<p>+ <i>Phragmites australis</i> <i>Poa</i> spp. # <i>Templetonia stenophylla</i> <i>Themeda triandra</i> + <i>Typha</i> spp.</p> <p>Common Reed Tussock Grass Templetonia Kangaroo Grass Cumbungi</p>	<p><i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macra</i> - Red-leg Grass <i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bracteantha viscosa</i> - Sticky Everlasting <i>Chloris truncata</i> - Windmill Grass <i>Danthonia</i> spp. - Wallaby Grass <i>Glycine clandestina</i> - Twining Glycine <i>Handenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>H. sericea</i> - Silky Guinea-flower <i>Isotoma axillaris</i> - Rock Isotome</p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

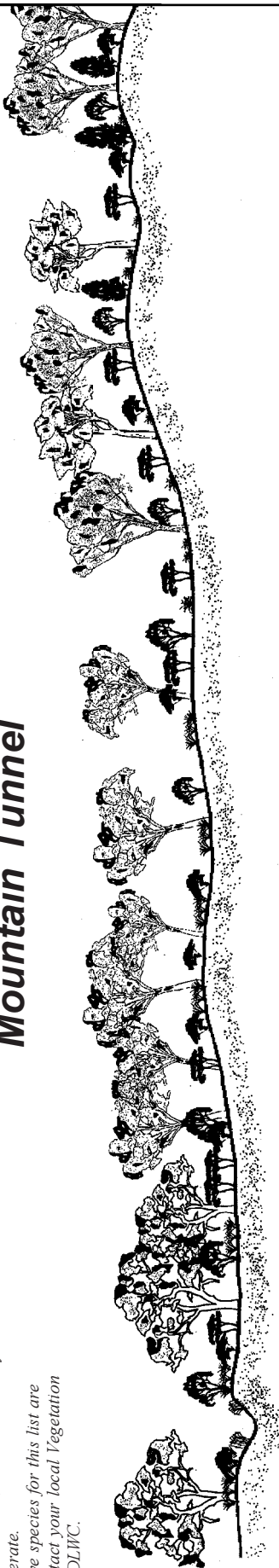
General Native Vegetation Profile: Mountain Creek, Native Dog & Sandy Creek



	Creeks	Low country	Rising & hill country
LANDFORM			
VEGETATION TYPE	Red Gum woodland	Blakely's Red Gum & Yellow Box woodland	White Box woodland Also Blakely's Red Gum & Red Stringybark dry forest.
GEOLOGY & SOILS		Alluvium - sand, silt, gravel & clay Red & yellow earths	Mainly granite, gneissic granite & gneiss. Also quartzite, slate, phyllite, greywacke, hornfels & schist. Mainly sandy granite soils.
LOCATION EXAMPLE	Ten Mile Creek	Along Hume Highway in NE of catchment	Along Hume Highway in SE of catchment
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i> <i>E. rubida</i>	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>Brachychiton populneus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. blakelyi</i> - Blakely's Red Gum * mainly N & NW aspect * <i>E. dealbata</i> - Tumbledown Gum # mainly S & SE aspect <i>E. awoyeri</i> - Dwyer's Red Gum <i>E. gonocalyx</i> - Long-leaf Box # <i>E. macrorhyncha</i> - Red Stringybark <i>E. melliodora</i> - Yellow Box <i>E. polyanthemus</i> - Red Box <i>Exocarpos cupressiformis</i> - Native Cherry/Cherry Ballart
SHRUBS 1.5 - 8 m	<i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> # <i>Kunzea ericoides</i> # not noted in area but suggested for replanting	# <i>Acacia genistifolia</i> # <i>Acacia paradoxa</i> <i>Acacia rubida</i> <i>Bursaria spinosa</i> # <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> # <i>Indigofera adermifolia</i> # <i>Kunzea ericoides</i> # <i>Leptospermum continentale</i> # Not noted in the area but suggested for re-planting	<i>Acacia genistifolia</i> <i>A. pycnantha</i> <i>A. rubida</i> <i>A. verniciflua</i> <i>Bursaria spinosa</i> <i>Cassinia aculeata</i> <i>Daviesia latifolia</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera australis</i> Spreading Wattle/Early Wattle Golden Wattle Red-stemmed Wattle Varnish Wattle Sweet Bursaria Common Cassinia Hop Bitter-pea Narrow-leaf Hop-bush Austral Indigo
GROUND COVERS	<i>Danthonia</i> spp. <i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Poa</i> spp. <i>Phragmites australis</i> <i>Typha</i> spp.	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Danthonia</i> spp. + <i>Carex</i> spp. + <i>Juncus</i> spp. <i>Lomandra</i> spp. <i>Microlaena stipoides</i> <i>Poa</i> spp. <i>Themeda triandra</i>	<i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macra</i> - Red-leg Grass <i>Bracteantha</i> spp. - Everlasting Daisy <i>Danthonia</i> spp. - Wallaby Grass <i>Geranium</i> spp. - Cranesbill <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Isotoma axillaris</i> - Rock Isotome <i>Lissanthe strigosa</i> - Peach Heath <i>Lomandra</i> spp. - Mat-rush <i>Pelargonium</i> spp. - Storksbill <i>Themeda triandra</i> - Kangaroo Grass

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Mountain Tunnel



LANDFORM	Low country	Low hills	Hill country approx. > 500 m elevation	
VEGETATION TYPE	Yellow Box woodland	Dry sclerophyll forest: Long-leaf Box/Silver Bundy & Red Stringybark; & Blakely's Red Gum & Red Stringybark	Moist open forest	
GEOLOGY & SOILS	Mainly alluvium - sand, silt, gravel & clay. Sandy yellow earths.	Granite, gneissic granite & gneiss; & quartzite, slate, phyllite, greywacke, hornfels & schist. Shallow red & yellow loams.	Mainly quartzite, slate, phyllite, greywacke, hornfels & schist. Shallow red & yellow loams.	
LOCATION EXAMPLE	Woomargama village vicinity	Woomargama State Forest (lower reaches)	Woomargama State Forest (upper reaches)	
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i> <i>E. mannifera</i> <i>E. melliodora</i> <i>E. rubida</i>	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>Allocasuarina verticillata</i> - Drooping Sheoak <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. blakelyi</i> - Blakely's Red Gum <i>E. goniacalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. melliodora</i> - Yellow Box	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>Eucalyptus bicosata</i> - Eurabbie + <i>E. camphora</i> - Mountain Swamp Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. goniacalyx</i> - Long-leaf Box * <i>E. macrorhyncha</i> - Red Stringybark * <i>E. mannifera</i> - Brittle Gum	
SHRUBS 1.5 - 8 m	# <i>Acacia paradoxa</i> <i>A. rubida</i> # <i>Bursaria spinosa</i> + <i>Leptospermum continentale</i> # not noted in area but suggested for replanting + soaks/poorly drained sites	Kangaroo Thorn Red-stemmed Wattle Sweet Bursaria Prickly Tea-tree	+ <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Persoonia rigida</i> - Hairy Geebung <i>Platylobium formosum</i> - Handsome Flat-pea <i>Pultenaea cunninghamii</i> - Grey Bush-pea <i>P. daphnoides</i> - Bush-pea <i>P. foliolosa</i> - Bush-pea <i>P. procumbens</i> - Heathy Bush-pea + soaks/poorly drained sites	
GROUND COVERS	<i>Bothriochloa macra</i> - Red-leg Grass + <i>Carex</i> spp. - Sedge <i>Danthonia</i> spp. - Wallaby Grass + <i>Cyperus ligidus</i> - Sedge + <i>Juncus</i> spp. - Rush <i>Microlaena stipoides</i> - Weeping Grass + <i>Phragmites australis</i> - Common Reed	+ <i>Adiantum aethiopicum</i> - Common Maidenhair <i>Astroloma humifusum</i> - Native Cranberry <i>Austrostipa</i> spp. - Spear Grass + <i>Blechnum nudum</i> - Water Fern <i>Bothriochloa macra</i> - Red-leg Grass <i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bracteantha</i> spp. - Everlasting Daisy <i>Brunonia australis</i> - Blue Pincushion <i>Bulbine bulbosa</i> - Bulbine Lily	<i>Chrysocephalum apiculatum</i> - Yellow Buttons <i>Clematis aristata</i> - Old Man's Beard <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily <i>Dichopogon strictus</i> - Chocolate Lily <i>Dillwynia sericea</i> - Showy Parrot-pea <i>Glycine clandestina</i> - Twining Glycine <i>Handbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Joycea pallida</i> - Red-anther Wallaby Grass	<i>Leucopogon virgatus</i> - Common Beard-head <i>Melichris urceolatus</i> - Urn Heath <i>Pimelea</i> spp. - Rice-flower <i>Poa siebertiana</i> - Tussock Grass <i>Stypandra glauca</i> - Nodding Blue-lily <i>Themeda triandra</i> - Kangaroo Grass <i>Xanthorrhoea</i> spp. - Grass-tree + mainly creeklines

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

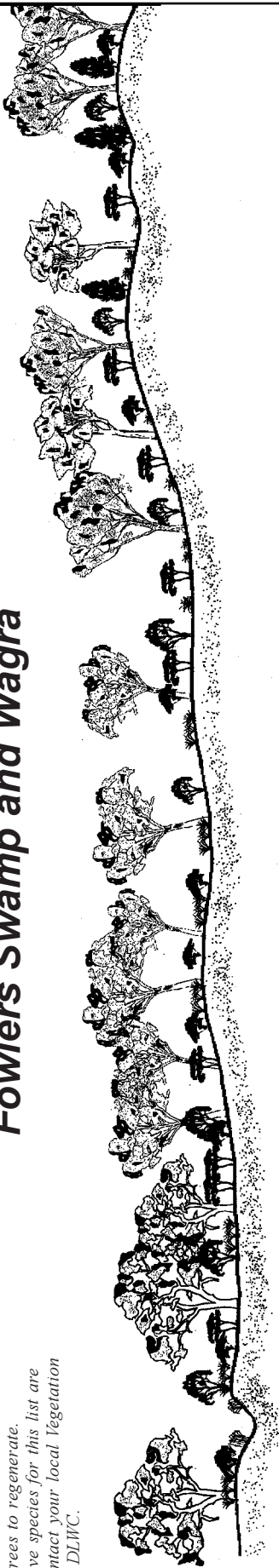
General Native Vegetation Profile: Mullengandra



LANDFORM	Flats & lower slopes	Hill country
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland	Red Box & White Box woodland, Hill Red Gum woodland & Red Stringybark dry forest.
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay along Mullengandra Creek. Mainly quartzite, slate & some granite/gneiss. Red and yellow earths/light alluvial soils.	Mainly quartzite & slate. Also granite/gneiss. Sandy yellow earths.
LOCATION EXAMPLE	Along Hume Highway, through most of catchment	Upper reaches of Sweetwater Creek
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. implexa</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. macrorhyncha</i> <i>E. melliodora</i></p> <p>+ mainly creeks</p>	<p>Silver Wattle Hickory Wattle/Lightwood White Box Blakely's Red Gum Apple Box River Red Gum Red Stringybark Yellow Box</p> <p><i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. dwyeri</i> <i>E. goniotocalyx</i> * <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemus</i> <i>Exocarpos cupressiformis</i></p> <p>* Mainly S & SE aspect</p>
SHRUBS 1.5 - 8 m	<p><i>A. paradoxa</i> + <i>Leptospermum continentale</i></p> <p>+ poorly drained sites/soaks</p>	<p><i>Daviesia latifolia</i> - Hop Bitter-pea <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-bush <i>Dilwynia retorta</i> spp. complex - Small-leaf Parrot-pea + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Platylobium formosum</i> - Handsome Flat-pea <i>Pultenaea foliolosa</i> - Bush-pea</p> <p><i>Acacia paradoxa</i> - Kangaroo Thorn <i>A. rubida</i> - Red-stemmed Wattle <i>A. verniciflua</i> - Varnish Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle <i>Cassinia aculeata</i> - Common Cassinia <i>C. longifolia</i> - Shiny Cassinia</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. <i>Bothriochloa macra</i> + <i>Carex appressa</i> <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Poa</i> spp. + <i>Phragmites australis</i> <i>Themeda triandra</i> + <i>Typha</i> spp.</p> <p>+ Creeks, soaks & poorly drained sites</p>	<p><i>Glycine clandestina</i> - Twining Glycine <i>Handenbergia violacea</i> - Purple Coral Pea <i>hibbertia obtusifolia</i> - Grey Guinea-flower <i>Joycea pallida</i> - Red-anther Wallaby Grass <i>Leucopogon virgatus</i> - Common Beard-heath <i>Lomandra</i> spp. - Mat-rush <i>Melichrus urceolatus</i> - Urn Heath <i>Pelargonium australe</i> - Native Storksbill <i>Pimelea</i> spp. - Rice-flower <i>Poa sieberiana</i> - Tussock Grass <i>Slypandra glauca</i> - Nodding Blue-lily <i>Xanthorrhoea</i> spp. - Grass Tree</p> <p><i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bracteantha bracteata</i> - Golden Everlasting <i>B. viscosa</i> - Sticky Everlasting <i>Brunonia australis</i> - Blue Pincushion <i>Chloris truncata</i> - Windmill Grass <i>Chrysocephalum</i> spp. - Everlasting <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella</i> spp. - Flax-lily <i>Dichopogon strictus</i> - Chocolate Lily <i>Dilwynia sericea</i> - Showy Parrot-pea <i>Geranium</i> spp. - Cranesbill</p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Fowlers Swamp and Wagra



LANDFORM	Flats & lower slopes	Hill country
VEGETATION TYPE	Yellow Box woodland on lower slopes. White Box on mid-slopes.	Red Gum woodland & Red Stringybark dry forest
GEOLOGY & SOILS	Granite, gneissic granite & gneiss. Sandy granite soils.	
LOCATION EXAMPLE	Wymah vicinity	Wagra Mountain
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. implexa</i> <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. polyanthemos</i></p> <p>+ creeks</p>	<p><i>E. melliodora</i> - Yellow Box <i>E. nortoni</i> - Silver Bundy <i>E. polyanthemos</i> - Red Box # <i>E. robertsonii</i> - Robertson's Peppermint <i>Exocarpos cupressiformis</i> - Native Cherry</p> <p># Higher elevations, mainly above 500 metres * Mainly S & SE aspects</p>
SHRUBS 1.5 - 8 m	<p><i>A. paradoxa</i> # <i>A. rubida</i> # <i>Bursaria lasiophylla</i> # + <i>Leptospermum continentale</i></p> <p>Kangaroo Thorn Red-stemmed Wattle Hairy Bursaria Prickly Tea-tree</p> <p># not noted in area but suggested for replanting + soaks/poorly drained sites</p>	<p><i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-bush <i>Dilwynia retorta</i> spp. complex - Small-leaf Parrot-pea <i>Indigofera australis</i> - Austral Indigo + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Platylobium formosum</i> - Handsome Flat-pea <i>Pultenaea foliolosa</i> - Bush-pea + soaks/poorly drained sites <i>Persoonia rigida</i> - Hairy Geebung</p>
GROUND COVERS	<p><i>Bothriochloa macrochaeta</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa</i> spp. <i>Themeda triandra</i> + <i>Typha</i> spp.</p> <p>+ Creeks, soaks & poorly drained sites</p>	<p><i>Dianella longifolia</i> - Smooth Flax-lily <i>Dichopogon strictus</i> - Chocolate Lily <i>Dilwynia sericea</i> - Showy Parrot-pea <i>Geranium</i> spp. - Cranesbill <i>Glycine claudestina</i> - Twining Glycine <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Pelargonium</i> spp. - Storksbill <i>Pimelea</i> spp. - Rice-flower <i>Poa</i> spp. - Tussock grass <i>Symplocos glauca</i> - Nodding Blue-lily</p>

General Native Vegetation Profile: Talmalmo - Murray

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Flats and lower slopes	Hill country
VEGETATION TYPE	Red Gum Woodland along creeks. Box - Blakely's Red Gum woodland on lower slopes.	Red Box & Red Stringybark dry sclerophyll forest
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay, along creeks. Mainly granite, gneissic granite & gneissic. Also quartzite, slate & schist on lower slopes. Light alluvial soils.	Mainly granite, gneissic granite & gneiss. Also quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy granite soils.
LOCATION EXAMPLE	Talmalmo	Woomargama State Forest
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. polyanthemus</i> + Murray River	<i>E. polyanthemus</i> - Red Box * <i>E. robertsonii</i> - Robertson's Peppermint * <i>E. rubida</i> - Candlebark * <i>E. viminalis</i> - Manna Gum <i>Exocarpos cupressiformis</i> - Native Cherry * Mainly over 500 m elevation or on moist S & SE aspects
SHRUBS 1.5 - 8 m	<i>Acacia rubida</i> <i>A. verniciflua</i> <i>Bursaria lasiophylla</i> + <i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> <i>Kunzea ericoides</i> * <i>Leptospermium continentale</i> + Murray River <i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Themeda triandra</i> + <i>Typha</i> spp. + creeks, river, soaks & poorly drained sites	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>A. melanoxylon</i> - Blackwood <i>Allocasuarina verticillata</i> - Drooping Sheoak <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>Eucalyptus blakelyi</i> - Blakely's Red Gum * <i>E. bicostata</i> - Eurabbie * <i>E. dives</i> - Broad-leaved Peppermint <i>E. gomicalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark * <i>E. mannifera</i> - Brittle Gum <i>Acacia rubida</i> - Red-stemmed Wattle <i>A. verniciflua</i> - Varnish Wattle <i>Bursaria lasiophylla</i> - Hairy Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle <i>Cassinia aculeata</i> - Common Cassinia <i>C. longifolia</i> - Shiny Cassinia <i>Daviesia latifolia</i> - Hop Bitter-pea <i>D. leptophylla</i> - Slender Bitter-pea <i>Adiantum aethiopicum</i> - Common Maidenhair <i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macra</i> - Red-leg Grass <i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bracteantha bracteata</i> - Golden Everlasting <i>B. viscosa</i> - Sticky Everlasting <i>Brunonia australis</i> - Blue Pincushion <i>Bulbine bulbosa</i> - Bulbine Lily <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily
GROUND COVERS	<i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Themeda triandra</i> + <i>Typha</i> spp. + creeks, river, soaks & poorly drained sites	<i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Kunzea ericoides</i> - Burgan <i>Kunzea parvifolia</i> - Violet Kunzea <i>Hymenanthera dentata</i> - Tree Violet + <i>Leptospermium continentale</i> - Prickly Tea-tree <i>Platylabium formosum</i> - Handsome Flat-pea <i>Pultenaea cunninghamii</i> - Grey Bush-pea <i>P. foliolosa</i> - Bush-pea <i>Dilwynia sericea</i> - Showy Parrot-pea <i>Geranium</i> spp. - Cranesbill <i>Glycine clandestina</i> - Twining Glycine <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Pelargonium australe</i> - Native Storksbill <i>Pimelea</i> spp. - Rice-flower <i>Poa</i> spp. - Tussock Grass <i>Stypandra glauca</i> - Nodding Blue-lily <i>Themeda triandra</i> - Kangaroo Grass

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Ten Mile



LANDFORM	Flats	Lower slopes	Hills - N & NW aspect	Hills - S & SE aspect
VEGETATION TYPE	Blakely's Red Gum woodland	Blakely's Red Gum & Yellow Box woodland	Dry forest	Moist open forest
GEOLOGY & SOILS	Alluvium - sand, silt, clay & gravel. Sandy yellow earths.	Alluvium - sand, silt, clay & gravel; granite, gneissic granite & gneiss; & quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy yellow earths.	Mainly granite, gneissic granite & gneiss. Also quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy granite soils.	
LOCATION EXAMPLE	NW of Annandale South	SE of Annandale South	Woomargama State Forest	Mount Narra Narra
TREES > 8 m	<i>Acacia dealbata</i> - Silver Wattle <i>Eucalyptus blakeyi</i> - Blakely's Red Gum <i>E. bridgesiana</i> - Apple Box <i>E. melliodora</i> - Yellow Box	<i>Acacia dealbata</i> - Silver Wattle <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>Eucalyptus albens</i> - White Box <i>E. blakeyi</i> - Blakely's Red Gum <i>E. bridgesiana</i> - Apple Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. melliodora</i> - Yellow Box <i>E. polyanthemos</i> - Red Box	<i>Acacia dealbata</i> - Silver Wattle <i>A. melanoxylon</i> - Blackwood <i>Eucalyptus bicostata</i> - Eurabbie + <i>E. camphora</i> - Mountain Swamp Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. goniocalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. nortoni</i> - Silver Bundy <i>E. robertsonii</i> - Robertson's Peppermint <i>E. rubida</i> - Candlebark <i>E. viminalis</i> - Manna Gum <i>Exocarpos cupressiformis</i> - Native Cherry	<i>Acacia dealbata</i> - Silver Wattle + creeks/soaks <i>A. melanoxylon</i> - Blackwood <i>Eucalyptus bicostata</i> - Eurabbie + <i>E. camphora</i> - Mountain Swamp Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. goniocalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. nortoni</i> - Silver Bundy <i>E. robertsonii</i> - Robertson's Peppermint <i>E. rubida</i> - Candlebark <i>E. viminalis</i> - Manna Gum <i>Exocarpos cupressiformis</i> - Native Cherry
SHRUBS 1.5 - 8 m	# <i>Bursaria spinosa</i> - Sweet Bursaria <i>Kunzea ericoides</i> - Burgan + <i>Leptospermum continentale</i> - Prickly Tea-tree # not noted in area but suggested for replanting + soaks/poorly drained sites	<i>Acacia paradoxa</i> - Kangaroo Thorn # <i>A. rubida</i> - Red-stemmed Wattle # <i>Bursaria spinosa</i> - Sweet Bursaria <i>Kunzea ericoides</i> - Burgan + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Pultenaea cunningghamii</i> - Grey Bush-pea + soaks/poorly drained sites	<i>Acacia gumii</i> - Ploughshare Wattle <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-bush <i>A. paradoxa</i> - Kangaroo Thorn <i>A. rubida</i> - Red-stemmed Wattle <i>I. australis</i> - Austral Indigo <i>Kunzea parvifolia</i> - Violet Kunzea + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Pultenaea cunningghamii</i> - Grey Bush-pea <i>P. procumbens</i> - Heathy Bush-pea <i>Persoonia rigida</i> - Hairy Geebung + soaks/poorly drained sites	<i>Acacia rubida</i> - Red-stemmed Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Cassinia aculeata</i> - Common Cassinia <i>Kunzea ericoides</i> - Burgan + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Persoonia rigida</i> - Hairy Geebung + soaks/poorly drained sites
GROUND COVERS	+ <i>Blechnum nudum</i> - Water Fern <i>Bathriochloa macra</i> - Red-leg Grass + <i>Carex</i> spp. - Sedge <i>Danthonia</i> spp. - Wallaby Grass <i>Juncus</i> spp. - Rush <i>Microlaena stipoides</i> - Weeping Grass + creeks/soaks/poorly drained sites	+ <i>Phragmites australis</i> - Common Reed <i>Poa</i> spp. - Tussock Grass <i>Themeda triandra</i> - Kangaroo Grass + <i>Typha</i> spp. - Cumbungi + creeks/soaks/poorly drained sites	* <i>Dillwynia sericea</i> - Showy Parrot-pea <i>Glycine clandestina</i> - Twining Glycine * <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Isotoma axillaris</i> - Rock Isotome	<i>Joycea pallida</i> - Red-anther Wallaby Grass * <i>Melicthus urceolatus</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass <i>Pimelea</i> spp. - Rice-flower <i>Poa sieberiana</i> - Tussock Grass <i>Synandra glauca</i> - Nodding Blue-lily <i>Themeda triandra</i> - Kangaroo Grass * <i>Xanthorrhoea</i> spp. - Grass Tree * mainly N & NW aspect

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile:

Scent Bottle, Serpentine & Upper Yarra Yarra (Wantagong)



LANDFORM	Flats	Lower slopes	Hills - N & NW aspect	Hills - S & SE aspect
VEGETATION TYPE	Blakely's Red Gum woodland	Box woodland - Yellow Box & Red Box	Red Box & Red Stringybark dry sclerophyll forest	Moist open forest
GEOLOGY & SOILS	Alluvium - sand, silt, clay & gravel. Sandy alluviums.		Quartzite, slate, phyllite, greywacke, hornfels & schist. Also granite, gneissic granite & gneiss. Sandy yellow earths & sandy granite earths.	
LOCATION EXAMPLE	'Narrawa' vicinity	'Fordell' vicinity	Woomargama State Forest	
TREES > 8 m	<i>Acacia dealbata</i> - Silver Wattle <i>A. melanoxylon</i> - Blackwood <i>Eucalyptus blakelyi</i> - Blakely's Red Gum <i>E. bridgetiana</i> - Apple Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. melliodora</i> - Yellow Box	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Eucalyptus blakelyi</i> <i>E. gonitocalyx</i> <i>E. nortonii</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>Exocarpos cupressiformis</i>	Silver Wattle Hickory Wattle/Lightwood Drooping Sheoak Kurrajong Blakely's Red Gum Long-leaf Box Silver Bundy Red Stringybark Red Box Native Cherry	<i>Acacia dealbata</i> - Silver Wattle <i>A. melanoxylon</i> - Blackwood + <i>Eucalyptus camphora</i> - Mountain Swamp Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. gonitocalyx</i> - Long-leaf Box <i>E. mannifera</i> - Brittle Gum <i>E. nortonii</i> - Silver Bundy <i>E. robertsonii</i> - Robertson's Peppermint <i>E. rubida</i> - Candlebark <i>E. viminalls</i> - Manna Gum <i>Exocarpos cupressiformis</i> - Native Cherry
SHRUBS 1.5 - 8 m	+ <i>Leptospermum continentale</i> - Prickly Tea-tree + soaks/poorly drained sites	<i>Acacia paradoxa</i> - Kangaroo Thorn <i>A. rubida</i> - Red-stemmed Wattle <i>Bursaria lasiophylla</i> - Hairy Bursaria + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Pultenaea cunninghamii</i> - Grey Bush-pea + soaks/poorly drained sites	<i>Indigofera adesmifolia</i> - Tick Indigo <i>I. australis</i> - Austral Indigo <i>Kunzea parvifolia</i> - Violet Kunzea + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Pultenaea cunninghamii</i> - Grey Bush-pea <i>P. procumbens</i> - Heathy Bush-pea <i>Persoonia rigida</i> - Hairy Geebung + soaks/poorly drained sites	<i>Acacia rubida</i> <i>Bursaria lasiophylla</i> <i>Cassinia aculeata</i> + <i>Leptospermum continentale</i> <i>Persoonia rigida</i> - Prickly Tea-tree Hairy Geebung + soaks/poorly drained sites
GROUND COVERS	+ <i>Blechnum nudum</i> - Fishbone Water Fern <i>Bothriochloa macra</i> - Red-leg Grass + <i>Carex</i> spp. - Sedge <i>Danthonia</i> spp. - Wallaby Grass + <i>Juncus</i> spp. - Rush <i>Microlaena stipoides</i> - Weeping Grass	+ <i>Phragmites australis</i> - Common Reed <i>Poa</i> spp. - Tussock Grass <i>Themeda triandra</i> - Kangaroo Grass + <i>Typha</i> spp. - Cumbungi + creeks/soaks	<i>Danthonia</i> spp. - Wallaby Grass <i>Dichopogon strictus</i> - Chocolate Lily * <i>Dilwynia sericea</i> - Showy Parrot-pea <i>Glycine clandestina</i> - Twining Glycine * <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower	<i>Joycea pallida</i> - Red-anther Wallaby Grass * <i>Melichrus urceolatus</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass <i>Poa sieberiana</i> - Tussock Grass <i>Themeda triandra</i> - Kangaroo Grass * <i>Xanthorrhoea</i> spp. - Grass Tree * mainly N & NW aspect

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Yarra Yarra

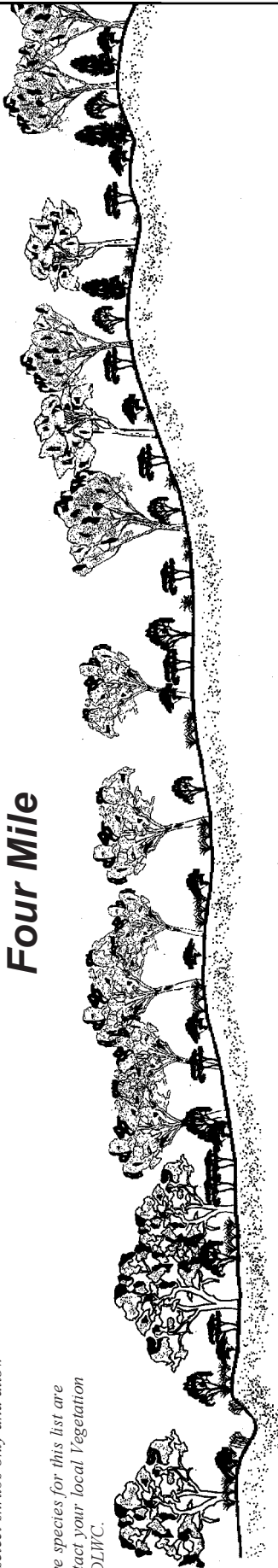


LANDFORM	Rocky outcrop, hill & mid-slope country	Flats & low country	Hill country
VEGETATION TYPE	Dry sclerophyll forest - Red Box & Red Stringybark. Also Red Gum forest.	Blakley's Red Gum & Yellow Box woodland.	Dry sclerophyll forest - Red Box & Red Stringybark
GEOLOGY & SOILS	Granite, gneissic granite & gneiss. Sandy granite soils.	Alluvium - sand, silt, gravel & clay. Sandy yellow earths.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Shallow red & yellow loams.
LOCATION EXAMPLE	Morgan's Ridge - western edge of catchment	Yarra Yarra Junction	Eastern edge of catchment
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. dorataylon</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. dwyeri</i> <i>E. goniacalyx</i> <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemus</i> <i>Exocarpos cupressiformis</i></p> <p>Silver Wattle Currawang Hickory Wattle/Lightwood Drooping Sheoak Kurrajong White Box Blakley's Red Gum Dwyer's Red Gum Long-leaf Box Red Stringybark Yellow Box Red Box Native Cherry/Cherry Ballart</p>	<p><i>Acacia dealbata</i> - Silver Wattle <i>Eucalyptus blakelyi</i> - Blakley's Red Gum <i>E. bridgesiana</i> - Apple Box + <i>E. camaldulensis</i> - River Red Gum <i>E. melliodora</i> - Yellow Box + creeks</p>	<p><i>Acacia dealbata</i> Silver Wattle Hickory Wattle/Lightwood Drooping Sheoak Blakely's Red Gum Dwyer's Red Gum Long-leaf Box Red Stringybark Silver Bundy Red Box Native Cherry/Cherry Ballart</p> <p># not noted in area but suggested for replanting</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia buxifolia</i> <i>A. verniciflua</i> # <i>A. rubida</i> <i>Calytrix tetragona</i> <i>Persoonia rigida</i></p> <p>Box-leaf Wattle Varnish Wattle Red-stemmed Wattle Common Fringe-myrtle Hairy Geebung</p> <p># not noted in area but suggested for replanting</p>	<p># <i>Acacia genistifolia</i> - Spreading/Early Wattle # <i>A. paradoxa</i> - Kangaroo Thorn # <i>A. rubida</i> - Red-stemmed Wattle # <i>Bursaria spinosa</i> - Sweet Bursaria + <i>Leptospermum continentale</i> - Prickly Tea-tree</p> <p># not noted in area but suggested for replanting + poorly drained sites</p>	<p><i>Grevillea polybractea</i> - Crimson Grevillea <i>Indigofera australis</i> - Austral Indigo <i>Kunzea parvifolia</i> - Violet Kunzea <i>Pultenaea foliolosa</i> - Bush-pea</p> <p>Western Golden Wattle Woolly Wattle Kangaroo Thorn Common Fringe-myrtle Common Cassinia Shiny Cassinia Hop Bitter-pea Slender Bitter-pea Parrot-pea</p> <p># not noted in area but suggested for replanting</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macra</i> - Red-leg Grass <i>Brachyloma daphnoides</i> - Daphne Heath <i>Chloris truncata</i> - Windmill Grass <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella revoluta</i> - Spreading Flax-lily <i>Brachyotoma daphnoides</i> - Daphne Heath <i>Bracteantha bracteata</i> - Golden Everlasting <i>Hardenbergia violacea</i> - Purple Coral Pea</p> <p><i>Hibbertia obtusifolia</i> <i>H. sericea</i> - Silky Guinea-flower <i>Isotoma axillaris</i> - Rock Isotome <i>Microlaena stipoides</i> - Weeping Grass <i>Stypandra glauca</i> - Nodding Blue-lily <i>Xanthorrhoea</i> spp. - Grass Tree</p>	<p>Sedge Wallaby Grass Rush Weeping Grass Common Reed Tussock Grass Kangaroo Grass Cumbungi</p> <p>+ Creeks/soaks/poorly drained sites</p>	<p><i>Bothriochloa macra</i> - Red-leg Grass <i>Bracteantha viscosa</i> - Sticky Everlasting <i>Chloris truncata</i> - Windmill Grass <i>Danthonia</i> spp. - Wallaby Grass <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>H. sericea</i> - Silky Guinea-flower</p> <p><i>Lissanthe strigosa</i> - Peach Heath <i>Lomandra filiformis</i> - Wattle Mat-rush <i>Melicoides urceolata</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass</p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Four Mile



LANDFORM	Flats	Lower slopes	Hills
VEGETATION TYPE	Red Gum & Yellow Box woodland	Yellow Box woodland	Dry sclerophyll forest - Red Box & Red Stringybark
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay. Sandy alluvials.	Quartzite, slate, phyllite, hornfels & schist. Red & yellow earths.	
LOCATION EXAMPLE	Lower reaches of Four Mile Creek	'Yammacoona' vicinity	'Manoora' vicinity
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i> <i>E. melliodora</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Brachychiton populineus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. gomocalyx</i> <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemos</i>	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>Allocasuarina verticillata</i> - Drooping Sheoak <i>Brachychiton populineus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. blakelyi</i> - Blakely's Red Gum * <i>E. dives</i> - Broad-leaved Peppermint <i>E. gomocalyx</i> - Long-leaf Box # <i>E. macrorhyncha</i> - Red Stringybark # <i>E. polyanthemos</i>
SHRUBS 1.5 - 8 m	<i>Acacia paradoxa</i> # <i>A. rubida</i> # <i>Bursaria spinosa</i> # * <i>Kunzea ericoides</i> + <i>Leptospermum continentale</i> # not noted in area but suggested for re-planting * particularly creekbanks	Woolly Wattle Kangaroo Thorn Red-stemmed Wattle Sweet Bursaria Seven Dwarf's Grevillea Burgan Prickly Tea-tree (soaks) Bush-pea	<i>Grevillea polybractea</i> - Crimson Grevillea <i>Hymenanthera dentata</i> - Tree Violet <i>Indigofera australis</i> <i>Kunzea parvifolia</i> - Violet Kunzea <i>Pultenaea foliolosa</i> - Bush-pea
GROUND COVERS	+ <i>Carex</i> spp. <i>Danthonia</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa</i> spp. <i>Austrostipa</i> spp. <i>Themeda triandra</i> + <i>Typha</i> spp. + creeks/soaks/drainage lines	Spear grass Red-leg Grass Sedge Wallaby Grass Spreading Flax-lily Rush Weeping Grass Common Reed Tussock Grass Kangaroo Grass Cumbungi Grass Tree + creeks/soaks/drainage lines	<i>Bothriochloa macra</i> - Red-leg Grass <i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bracteantha</i> spp. - Everlasting Daisy <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella revoluta</i> - Spreading Flax-lily <i>Glycine clandestina</i> - Twining Glycine <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>H. sericea</i> - Silky Guinea-flower <i>Joycea pallida</i> - Red-anther Wallaby Grass

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

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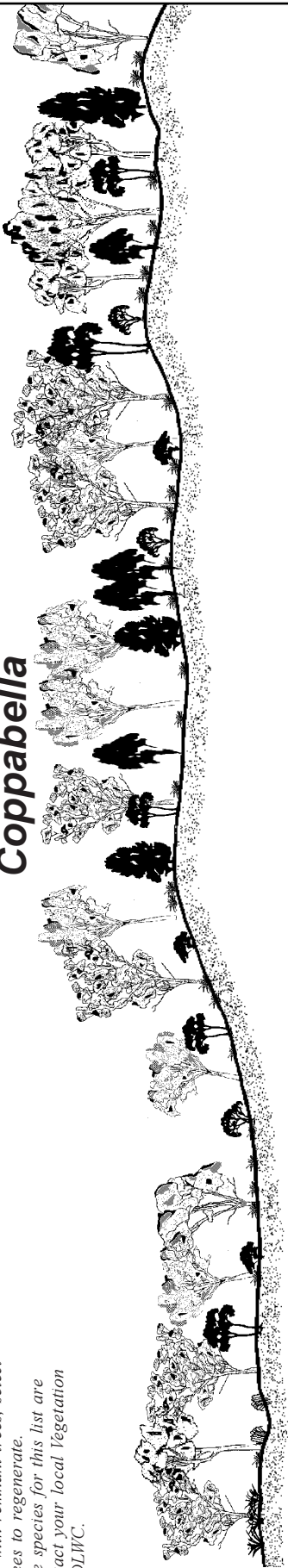
General Native Vegetation Profile: Lunts Sugarloaf



LANDFORM	Flats and lower slopes		Hills
VEGETATION TYPE	Blakely's Red Gum/Box woodland		Dry sclerophyll forest - Red Stringybark, Long-leaf Box (lower reaches) Dry sclerophyll forest - Peppermint, Brittle Gum (upper reaches)
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay (flats). Quartzite, slate, phyllite, greywacke, hornfels & schist (slopes). Sandy yellow earths.		Quartzite, slate, phyllite, greywacke, hornfels & schist. Shallow red & yellow sandy soils.
LOCATION EXAMPLE	Intersection of Little Billabong & Hume Highway		Eastern region of catchment
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. bridgestiana</i> <i>E. goniocalyx</i> <i>E. melliodora</i> <i>E. polyanthemus</i></p>	<p>Silver Wattle Blackwood Blakely's Red Gum Apple Box Long-leaf Box Yellow Box Red Box</p>	<p>Silver Wattle Hickory Wattle/Lightwood Blackwood White Box Blakely's Red Gum Mountain Swamp Gum Long-leaf Box Red Stringybark Brittle Gum Red Box Robertson's Peppermint Scribbly Gum/Snap Gum + creeks/soaks</p>
SHRUBS 1.5 - 8 m	<p># <i>Acacia genistifolia</i> <i>A. paradoxa</i> # <i>A. rubida</i> # <i>Bursaria spinosa</i> <i>Indigofera adesmiifolia</i> + <i>Leptospermum continentale</i></p>	<p>Spreading/Early Wattle Kangaroo Thorn Red-stemmed Wattle Sweet Bursaria Tick Indigo Prickly Tea-tree</p>	<p># <i>Dilwynia phylloides</i> Parrot-pea # <i>Indigofera australis</i> Austral Indigo <i>Kunzea parvifolia</i> Violet Kunzea # <i>Pultanea foliolosa</i> Bush-pea</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. <i>Borhriochloa macra</i> + <i>Carex</i> spp. <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i></p>	<p><i>Poa</i> spp. <i>Themeda triandra</i> + <i>Typha</i> spp. + creeks/soaks/drainage lines</p>	<p># not noted in area but suggested for replanting <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>H. sericea</i> - Silky Guinea-flower <i>Joycea pallida</i> - Red-anther Wallaby Grass <i>Lissanthe strigosa</i> - Peach Heath <i>Lomandra</i> spp. - Mat-rush <i>Melichrus urceolatus</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass <i>Sympandra glauca</i> - Nodding Blue-lily <i>Themeda triandra</i> - Kangaroo Grass</p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

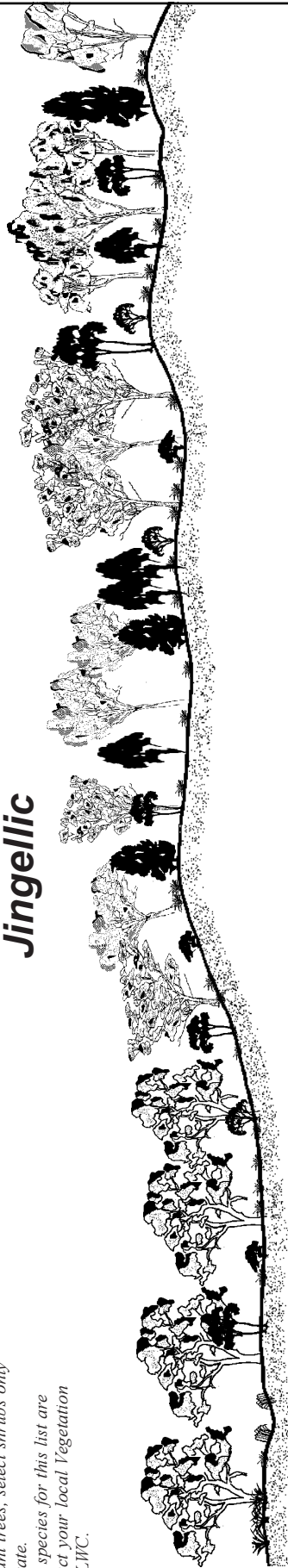
General Native Vegetation Profile: Coppabella



LANDFORM	Creeks and depressions		Hills
VEGETATION TYPE	Forest - eg. Mountain Swamp Gum		Dry sclerophyll forest - Red Stringybark with Long-leaf Box & Silver Bundy; Robertson's Peppermint with Candlebark.
GEOLOGY & SOILS	Quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy yellow earths (creeklines) shallow red & yellow earths (hills).		
LOCATION EXAMPLE	Coppabella Creek Munderoo State Forest		
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgestiana</i> <i>E. camphora</i> <i>E. dives</i> <i>E. viminalis</i></p>	<p>Silver Wattle Blackwood Apple Box Mountain Swamp Gum Broad-leaved Peppermint Manna Gum</p>	<p><i>E. mannifera</i> <i>E. melliodora</i> <i>E. nortonii</i> <i>E. pauciflora</i> <i>E. polyanthemus</i> <i>E. robertsonii</i> <i>E. rubida</i> <i>E. viminalis</i> <i>Exocarpos cupressiformis</i></p>
SHRUBS 1.5 - 8 m	<p><i>Bursaria lasiophylla</i> <i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> + <i>Leptospermum continentale</i> + poorly drained sites</p>	<p>Hairy Bursaria River Bottlebrush Tree Violet Prickly Tea-tree</p>	<p>Small-leaf Parrot-pea Narrow-leaf Hop-bush Tree Violet Austral Indigo Violet Kunzea Prickly Tea-tree Mountain Mirbelia Hairy Geebung Grey Bush-pea Heathy Bush-pea Handsome Flat-pea</p>
GROUND COVERS	<p>+ <i>Adiantum aethiopicum</i> + <i>Blechnum</i> spp. + <i>Carex appressa</i> + <i>Cyperus lucidus</i> + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa labillardieri</i> + <i>Typha</i> spp.</p>	<p>Common Maidenhair Water Fern Sedge Sedge Rush Rush Weeping Grass Common Reed Tussock Grass Cumbungi</p>	<p>Spreading Flax-lily Twining Glycine Pale Weedy-pea Purple Coral Pea Guinea-flower Common Hovea Red-anther Wallaby Grass Rush Mat-rush Urn Heath Weeping Grass Tussock Grass Slender Rice-flower Kangaroo Grass</p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Jingellic



LANDFORM	Lower country	Hill country below approx. 500 m elevation	Hills above approx. 500 m elevation
VEGETATION TYPE	River Red Gum woodland (Murray River)	Dry sclerophyll forest - Red Stringybark & Red Box	Dry sclerophyll forest
GEOLOGY & SOILS	Mainly alluvium - sand, silt, gravel & clay. Light alluvial soils.	Mainly quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy yellow earths.	Mainly granite, gneissic granite & gneiss. Sandy granite soils.
LOCATION EXAMPLE	Jingellic village	Around Carboona road intersection	Black Ridge
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgesiana</i> <i>E. camaldulensis</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>A. melanoxylon</i> <i>Brachychiton populneus</i> * <i>Eucalyptus blakelyi</i> <i>E. gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> * <i>E. dealbata</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus gomicalyx</i> + <i>E. camphora</i> <i>E. bicostata</i> <i>E. macrorhyncha</i> <i>E. mannifera</i> * <i>E. polyanthemus</i> <i>E. robertsonii</i> <i>E. viminalis</i> <i>E. pauciflora</i> * mainly north aspect + soaks/poorly drained sites
SHRUBS 1.5 - 8 m	<i>Bursaria lasiophylla</i> + <i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> + major creeks & rivers	<i>Acacia ribida</i> <i>Bursaria lasiophylla</i> <i>Calytrix tetragona</i> <i>Cassinia aculeata</i> <i>C. longifolia</i> <i>Daviesia latifolia</i> <i>D. leptophylla</i>	<i>Kunzea ericoides</i> <i>K. parvifolia</i>
GROUND COVERS	+ <i>Carex</i> spp. + <i>Cyperus lucidus</i> + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa labillardieri</i> + <i>Typha</i> spp.	Common Maidenhair Native Cranberry Vanilla Lily Spear Grass Water Fern Red-leg Grass Blue Pincushion Bulbine Lily Wallaby Grass Spreading Flax-lily Twimming Glycine	Purple Coral Pea/Sarsaparilla Grey Guinea-flower Common Hovea Red-anther Wallaby Grass Mat-rush Urn Heath Weeping Grass Slender Rice-flower Tussock Grass Native Raspberry Dusty Miller Kangaroo Grass + mainly creeks * mainly quartzite (not granite)

General Native Vegetation Profile: Rosewood Plateau

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Creeklines & depressions	Rolling hills
VEGETATION TYPE	Mountain Swamp Gum forest	Moist open forest - Red Stringybark & Brittle Gum; Apple Box & Robertson's Peppermint
GEOLOGY & SOILS	Quartzite, slate, phyllite, greywacke, hornfels & schist. Light alluvial soils & sandy yellow earths.	
LOCATION EXAMPLE	Mannus Creek	Rosewood vicinity
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgesiana</i> <i>E. camphora</i> <i>E. pauciflora</i> <i>E. stellulata</i></p>	<p>Silver Wattle Blackwood Apple Box Mountain Swamp Gum White Sallee/Snow Gum Black Sallee</p>
SHRUBS 1.5 - 8 m	<p><i>Leptospermum grandifolium</i> + <i>L. continentale</i> <i>Pomaderris eriocephala</i></p> <p>+ soaks/poorly drained sites</p>	<p>Kangaroo Thorn Dagger Wattle Harry Bursaria Common Cassinia Shiny Cassinia Common Correa Hop Bitter-pea Slender Bitter-pea Rosemary Grevillella</p>
GROUND COVERS	<p><i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Typha</i> spp.</p>	<p><i>Melichrus urceolatus</i> <i>Microlaena stipoides</i> <i>Poa</i> spp. <i>Rubus parvifolius</i> <i>Themeda triandra</i></p>

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

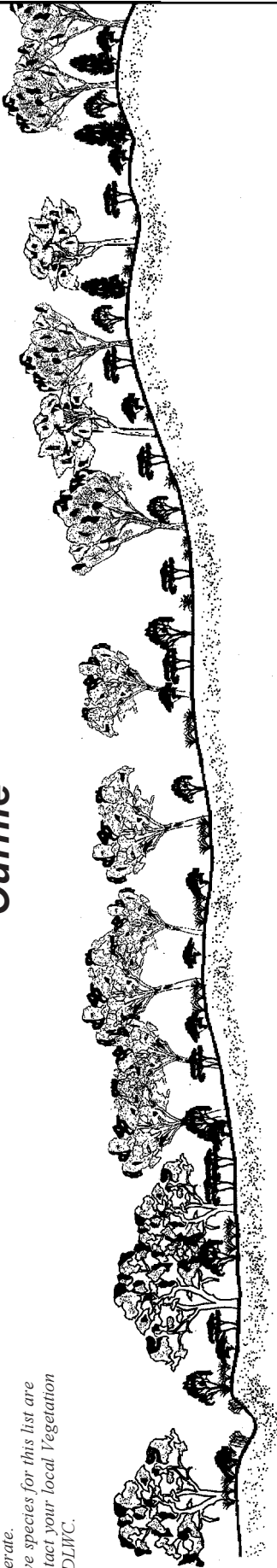
General Native Vegetation Profile: Munderoo



Note - there appears to be little difference between the vegetation on granite & quartzite soils.

LANDFORM	Creeklines and depressions	Rolling hills
VEGETATION TYPE	Mountain Swamp Gum forest	Moist open forest: Robertson's Peppermint & Apple Box; Broad-leaved Peppermint & Brittle Gum
GEOLOGY & SOILS	Granite, gneissic granite and gneiss. Sandy alluvial soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Sandy yellow earths.
LOCATION EXAMPLE	Munderoo Creek	Most of district
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgestana</i> <i>E. camphora</i> <i>E. pauciflora</i> <i>E. stellulata</i>	<i>E. macrorhyncha</i> # <i>E. mannifera</i> <i>E. pauciflora</i> <i>E. robertsonii</i> <i>E. rubida</i> <i>E. stellulata</i>
SHRUBS 1.5 - 8 m	<i>Baeckea utilis</i> + <i>Leptospermum continentale</i> <i>L. obovatum</i> <i>L. polygalifolium</i> <i>Lomatia myricoides</i> <i>Polyscias sambucifolius</i> + soaks/poorly drained sites	<i>Leptospermum continentale</i> <i>L. obovatum</i> <i>L. polygalifolium</i> <i>Mirabella oxylaboides</i> <i>Platylobium formosum</i> + soaks/poorly drained sites
GROUND COVERS	<i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Typha</i> spp.	Red-leg Grass Daphne Heath Old Man's Beard Cranesbill Purple Coral Pea/Sarsaparilla Wattle Mat-rush Spiny-headed Mat-rush Urn Heath Weeping Grass Wallaby Grass Native Raspberry Kangaroo Grass

General Native Vegetation Profile: Ournie

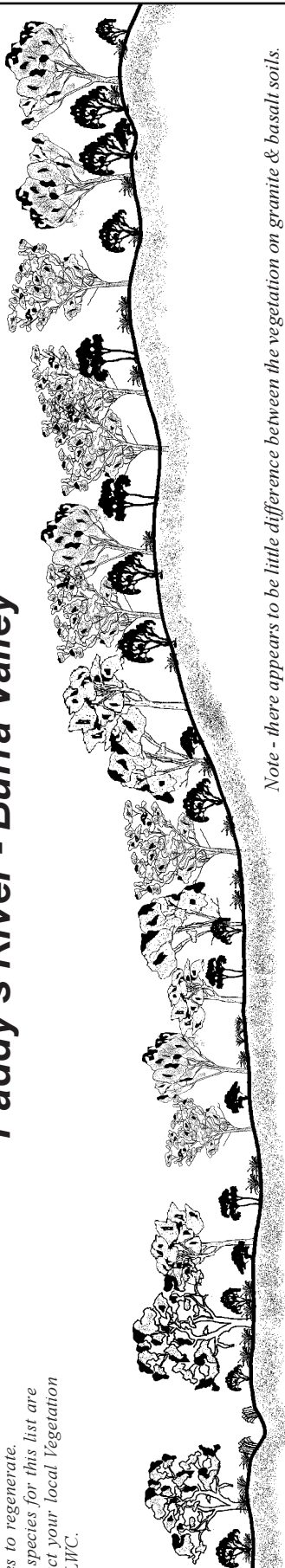


Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	River & plain	Lower slopes	Upper slopes & steep hills
VEGETATION TYPE	River Red Gum woodland	Red Box & Blakely's Red Gum woodland	Sclerophyll forest: Red Stringybark with Silver Bundy (N-NW aspect); Broad-leaved Peppermint (S-SE aspect).
GEOLOGY & SOILS	Alluvium - sand, silt gravel & clay. Light alluvial soils.	Granite, gneissic granite & gneiss. Sandy yellow earths.	
LOCATION EXAMPLE	Murray River	Southern stretch of Tumbarumba road	Oak Hill
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgestana</i> <i>E. camaldulensis</i>	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>Eucalyptus blakelyi</i> - Blakely's Red Gum <i>E. bridgesiana</i> - Apple Box <i>E. gomocalyx</i> - Long-leaf Box <i>E. nortonii</i> - Silver Bundy <i>E. macrobrachycha</i> - Red Stringybark	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood + <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>Eucalyptus blakelyi</i> - Blakely's Red Gum <i>E. bicostata</i> - Eurabbie * <i>E. dives</i> - Broad-leaved Peppermint + <i>E. camphora</i> - Mountain Swamp Gum # <i>E. gomocalyx</i> - Long-leaf Box + mainly creeks * mainly S aspect # mainly N & NW aspect
SHRUBS 1.5 - 8 m	<i>Callistemon sieberi</i> <i>Bursaria lasiophylla</i> <i>Hymenanthera dentata</i>	<i>Correa reflexa</i> var. <i>reflexa</i> - Common Correa <i>Daviesia latifolia</i> - Hop Bitter-pea <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-bush # <i>Hymenanthera dentata</i> - Tree Violet <i>Indigofera australis</i> - Austral Indigo <i>Kunzea ericoides</i> - Burgan <i>K. parvifolia</i> - Violet Kunzea	* <i>Leptospermum continentale</i> - Prickly Tea-tree <i>Pultenaea procumbens</i> - Heathy Bush-pea + creek banks in hills # particularly south aspect * soaks/poorly drained sites
GROUND COVERS	+ <i>Carex</i> spp. + <i>Juncus</i> spp. <i>Microlaena stipoides</i> + <i>Phragmites australis</i> <i>Poa labillardieri</i> + <i>Typha</i> spp. + creeks/soaks/poorly drained sites	Spear Grass Red-leg Grass Water Fern Daphne Heath Sedge Convulvulus/Bindweed Wallaby Grass Smooth Flax-lily Spreading Flax-lily Twining Glycine Purple Coral Pea Grey Guinea-flower	Red-anther Wallaby Grass Rush Wattle Mat-rush Spiny-headed Mat-rush Urn Heath Weeping Grass Common Reed Tussock Grass Native Raspberry Kangaroo Grass Cumbungi Grass Tree + creeks/soaks

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Paddy's River - Burra Valley



Note - there appears to be little difference between the vegetation on granite & basalt soils.

LANDFORM	Rivers, creeklines and depressions		Rolling Hills			
VEGETATION TYPE	Mountain Swamp Gum forest		Open forest - Red Stringybark & Long-leaf box (N & NW aspect) Tall wet forest - Robertson's Peppermint, Candlebark & Mountain Grey Gum (S & SE aspect & higher elevations)			
GEOLOGY & SOILS	Mainly granite, gneissic granite & gneiss. Also basalt. Light alluvial soils, sandy granite soils & red basalt soils.					
LOCATION EXAMPLE	Paddy's River Bago State Forest					
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus camphora</i> <i>E. stellulata</i>	Silver Wattle Blackwood Mountain Swamp Gum Black Sallee	<i>Acacia dealbata</i> <i>A. kettlewelliae</i> <i>A. melanoxylon</i> <i>Brachychiton populneus</i> <i>Eucalyptus bridgesiana</i> <i>E. bicostata</i> <i>E. camphora</i> * <i>E. dalrympleana</i> * <i>E. delegatensis</i> <i>E. goniocalyx</i> <i>E. macrorhyncha</i> <i>E. mannifera</i>	Silver Wattle Buffalo Wattle Blackwood Kurrajong Apple Box Eurabbie Mountain Swamp Gum Mountain Grey Gum Alpine Ash Long-leaf Box Red Stringybark Brittle Gum	<i>E. nortoni</i> * <i>E. pauciflora</i> <i>E. polyanthemus</i> <i>E. robertsonii</i> * <i>E. rubida</i> * <i>E. stellulata</i> <i>E. viminalis</i> <i>Exocarpos cupressiformis</i> Native Cherry	Silver Bundy White Sallee/Snow Gum Red Box Robertson's Peppermint Candlebark Black Sallee Manna Gum
SHRUBS 1.5 - 8 m	<i>Leptospermum brevipes</i> <i>L. grandifolium</i> <i>Lomatia myricoides</i>	Slender Tea-tree Mountain Tea-tree River Lomatia	<i>Acacia gunnii</i> <i>A. scutiformis</i> <i>A. rubida</i> <i>Bursaria lasiophylla</i> <i>Cassinia aculeata</i> <i>C. longifolia</i> <i>Daviesia latifolia</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	Ploughshare Wattle Dagger Wattle Red-stemmed Wattle Hairy Bursaria Common Cassinia Shiny Cassinia Hop Bitter-pea Narrow-leaf Hop-bush	<i>Grevillea rosmarinifolia</i> <i>Indigofera ademiifolia</i> <i>I. australis</i> <i>Kunzea ericoides</i> + <i>Leptospermum continentale</i> <i>Mirbelia oxylobioides</i> <i>Platylobium formosum</i>	Rosemary Grevillea Tick Indigo Austral Indigo Burgan Prickly Tea-tree Mountain Mirbelia Handsome Flat-pea
GROUND COVERS	<i>Adiantum aethiopicum</i> <i>Blechnum</i> spp. <i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Phragmites australis</i> <i>Poa labillardieri</i>	Common Maidenhair Water Fern Sedge Rush Weeping Grass Common Reed Tussock grass	<i>Bothriochloa macra</i> <i>Calotis scabrosifolia</i> <i>Carex</i> spp. <i>Dianella longifolia</i> <i>Geranium solanderi</i> <i>Gompholobium huegelii</i> <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i>	Red-leg Grass Rough Burr-daisy Sedge Smooth Flax-lily Australian Cranesbill Pale Wedge-pea Purple Coral Pea Grey Guinea-flower	+ soaks/poorly drained sites <i>Leucopogon virgatus</i> <i>Lomandra</i> spp. <i>Melicthus urceolatus</i> <i>Poa</i> spp. <i>Rubus parvifolius</i> <i>Themeda triandra</i> <i>Thysanotus tuberosus</i> <i>Wahlenbergia communis</i>	Beard-heath Mat-rush Urn Heath Tussock grass Native Raspberry Kangaroo Grass Fringe-lily Bluebell

General Native Vegetation Profile: Tooma

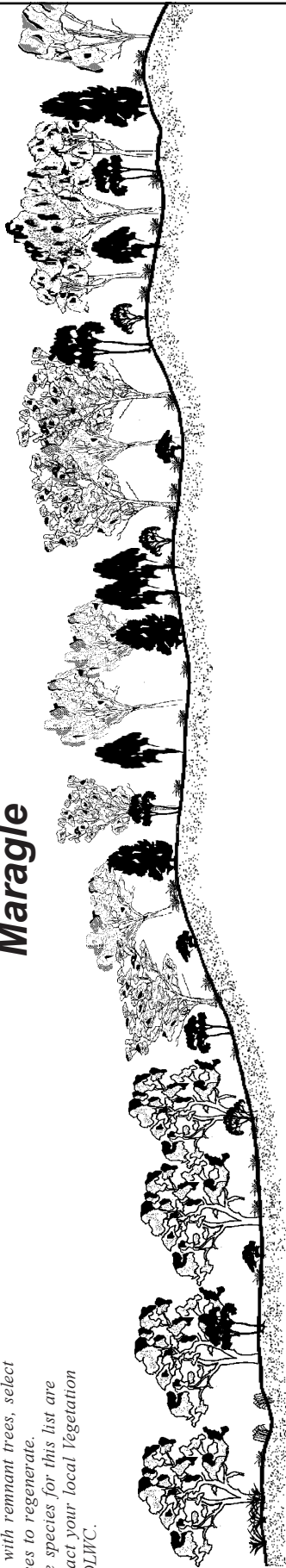
Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



	Creeks & low country	Lower slopes	Hill country
LANDFORM			
VEGETATION TYPE	River Red Gum woodland	Blakely's Red Gum woodland	Red Stringybark dry sclerophyll forest (N-NW aspect). Broad-leaved Peppermint forest (SE aspect) Robertson's Peppermint, Candlebark, & Long-leaf Box forest (upper reaches).
GEOLOGY & SOILS	Light alluvial soils	Granite & gneissic granite. Sandy granite soils.	Mainly granite & gneissic granite (Maragle Mt). Also quartzite (Mt Garland). Mainly sandy granite soils.
LOCATION EXAMPLE	Tooma Creek at Tooma	Back Tooma - Tumbarumba road	Maragle Mountain
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus camaldulensis</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. melitodora</i>	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hrekyory Wattle/ Lightwood <i>A. kettlewelliae</i> - Buffalo Wattle <i>A. melanoxylon</i> - Blackwood <i>Eucalyptus bicostata</i> - Eurabbie <i>E. bridgestiana</i> - Apple Box <i>E. camphora</i> - Mountain Swamp Gum <i>E. dalrympleana</i> - Mountain Grey Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. goniacalyx</i> - Long-leaf Box + <i>E. macrohyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum
SHRUBS 1.5 - 8 m	<i>Callistemon sieberi</i> <i>Bursaria lasiophylla</i> <i>Hymenanthera dentata</i> <i>Kunzea ericoides</i> <i>Leptospermum brevipes</i> Slender Tea-tree + <i>L. continentale</i> <i>L. obovatum</i> <i>Lomatia myricoides</i>	<i>Acacia buxifolia</i> <i>A. rubida</i> <i>Bursaria lasiophylla</i> <i>Calytrix tetragona</i> <i>Grevillea rosmarinifolia</i> <i>Hymenanthera dentata</i> <i>Kunzea ericoides</i> <i>K. parvifolia</i> + <i>Leptospermum continentale</i>	<i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-bush <i>Grevillea rosmarinifolia</i> - Rosemary Grevillea <i>Hymenanthera dentata</i> - Tree Violet <i>Kunzea ericoides</i> - Burgan + <i>Leptospermum continentale</i> - Prickly Tea-tree <i>L. grandifolium</i> - Mountain Tea-tree
GROUND COVERS	<i>Bothriochloa macra</i> <i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Phragmites australis</i> <i>Poa</i> spp.	<i>Bothriochloa macra</i> <i>Carex</i> spp. <i>Danthonia</i> spp. <i>Glycine claudestina</i> <i>Microlaena stipoides</i> <i>Poa</i> spp. <i>Themeda triandra</i>	<i>Bothriochloa macra</i> - Red-leg Grass <i>Brachyloa daphnoides</i> - Daphne Heath <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily <i>Glycine claudestina</i> - Twining Glycine <i>Handenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Melicthrus urceolatus</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass <i>Pelargonium australe</i> - Native Storksbill

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Maragle



LANDFORM	Lower country	Hills below about 500 m elevation	Hills above about 500 m elevation
VEGETATION TYPE	Woodland	Yellow Box & Blakely's Red Gum woodland, Broad-leaved Peppermint (S aspect) & Red Stringybark forest.	Sclerophyll forest - Robertson's Peppermint, Candlebark & Long-leaf box.
GEOLOGY & SOILS	Mainly granite & gneissic granite. Light alluvial soils.	Mainly granite & gneissic granite. Also basalt (western edge of catchment). Mainly sandy granite soils.	Mainly quartzite, slate, phyllite, greywacke, hornfels & schist (eg. China Walls area). Also granite & gneissic granite (Clarkes Hill). Sandy granite soils.
TREES > 8 m	<ul style="list-style-type: none"> * <i>Acacia dealbata</i> * <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> * <i>E. camphora</i> <i>E. goniacalyx</i> <i>E. melliodora</i> <p>* key species for creeks/drainage lines</p>	<ul style="list-style-type: none"> * <i>Acacia dealbata</i> - Silver Wattle + <i>A. implexa</i> - Hickory Wattle/Lightwood * <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong # + <i>Eucalyptus blakelyi</i> - Blakely's Red Gum * <i>E. bridgesiana</i> - Apple Box ~ <i>E. dives</i> - Broad-leaved Peppermint + <i>E. goniacalyx</i> - Long-leaf Box # + <i>E. macrohyncha</i> - Red Stringybark # <i>E. melliodora</i> - Yellow Box <i>E. nortonii</i> - Silver Bundy <i>E. polyanthemos</i> - Red Box + <i>Exocarpos cupressiformis</i> - Native Cherry <p>* key species for creeks/drainage lines</p>	<ul style="list-style-type: none"> * <i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood * <i>A. melanoxylon</i> - Blackwood <i>Eucalyptus bicostata</i> - Eurabbie * <i>E. bridgesiana</i> - Apple Box * <i>E. camphora</i> - Mountain Swamp Gum <i>E. dalrympleana</i> - Mountain Grey Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. goniacalyx</i> - Long-leaf Box # <i>E. macrohyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. nortonii</i> - Silver Bundy <i>E. pauciflora</i> - White Sallee/Snow Gum <p>* Key species for creeks/drainage lines</p> <p># mainly N-NW aspects</p> <p>~ mainly S-SE aspects</p>
SHRUBS 1.5 - 8 m	<ul style="list-style-type: none"> * <i>Bursaria lasiophylla</i> * <i>Callistemon sieberi</i> * <i>Hymenanthera dentata</i> * <i>Leptospermum grandifolium</i> <p>* key species for creeks/drainage lines</p>	<ul style="list-style-type: none"> <i>Acacia buxifolia</i> - Box-leaf Wattle <i>A. rubida</i> - Red-stemmed Wattle <i>A. vernicifluta</i> - Varnish Wattle # + <i>Bursaria lasiophylla</i> - Hairy Bursaria * <i>Callistemon sieberi</i> - River Bottlebrush <i>Cassinia aculeata</i> - Common Cassinia <i>C. longifolia</i> - Shiny Cassinia <i>Correa reflexa</i> var. <i>reflexa</i> - Common Correa 	<ul style="list-style-type: none"> * <i>L. grandifolium</i> - Mountain Tea-tree <i>Platylobium formosum</i> - Handsome Flat-pea <p>* key species for creeks/drainage lines</p> <p>+ species observed on basalt (although also on granite & quartz)</p> <p># soaks/67 poorly drained sites</p>
GROUND COVERS	<ul style="list-style-type: none"> <i>Bothriochloa macra</i> * <i>Carex</i> spp. <i>Danthonia</i> spp. * <i>Juncus</i> spp. <i>Microlaena stipoides</i> * <i>Phragmites australis</i> <p>* key species for creeks/drainage lines</p>	<ul style="list-style-type: none"> <i>Hibbertia obtusifolia</i> - Grey Guinea-flower * <i>Juncus</i> spp. - Rush <i>Lomandra</i> spp. - Mat-rush <i>Melicichrus urceolatus</i> - Urn Heath <i>Microlaena stipoides</i> - Weeping Grass <i>Pelargonium australe</i> - Storksbill * <i>Phragmites australis</i> - Common Reed <i>Poa</i> spp. - Tussock Grass 	<ul style="list-style-type: none"> <i>Rubus parvifolius</i> - Native Raspberry <i>Themeda triandra</i> - Kangaroo Grass <i>Wahlenbergia</i> spp. - Bluebell + <i>Xanthorrhoea</i> spp. - Grass Tree <p>* key species for creeks/drainage lines</p> <p>+ species mainly observed on basalt country (although also on granite & quartz)</p>

General Native Vegetation Profile: Ardenside - Welaregang



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	River and low country	Low hills & mid slopes	Upper slopes & high hills
VEGETATION TYPE	River Red Gum woodland	Blakely's Red Gum woodland (N-NW aspect) & Red Stringybark dry sclerophyll forest (S-SE aspect)	Dry sclerophyll forest - Peppermint, Red Stringybark
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay. Light alluvial soils.	Granite, granodiorite & tonalite. Sandy granite soils.	
LOCATION EXAMPLE	Murray River	Welaregang	Mount Welaregang
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgesiana</i> <i>E. camaldulensis</i>	Silver Wattle Blackwood Apple Box River Red Gum	* <i>Acacia dealbata</i> - Silver Wattle * <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>E. polyanthemos</i> - Red Box * <i>E. bicostata</i> - Eurabbie * <i>E. bridgesiana</i> - Apple Box <i>E. dives</i> - Broad-leaved Peppermint <i>E. stellulata</i> - Black Sallee <i>E. viminialis</i> - Manna Gum <i>E. gonicalyx</i> - Long-leaf Box <i>E. macrorrhyncha</i> - Red Stringybark <i>E. nortoni</i> <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i>
SHRUBS 1.5 - 8 m	<i>Bursaria lasiophylla</i> <i>Callistemon sieberi</i> <i>Hymenanthera dentata</i>	Hairy Bursaria River Bottlebrush Tree Violet	* <i>Grevillea lamigera</i> Woolly Wattle Tree Violet <i>Indigofera australis</i> Austral Indigo <i>Kunzea parvifolia</i> Violet Kunzea <i>Leptospermum continentale</i> Prickly Tea-tree (soaks) * <i>L. grandifolium</i> Mountain Tea-tree <i>Persoonia rigida</i> Hairy Geebung <i>Platylobium formosum</i> Handsome Flat-pea <i>Pultenaea procumbens</i> Heathy Bush-pea
GROUND COVERS	<i>Blechnum</i> spp. * <i>Carex</i> spp. * <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Poa labillardieri</i> * <i>Phragmites australis</i> * <i>Typha</i> spp. * key species for creekline revegetation in hill country	Water Fern Sedge Rush Weeping Grass Tussock Grass Common Reed Cumbungi	* key species for creekside revegetation in hill country Red-anther Wallaby Grass Wattle Mat-rush Spiny-headed Mat-rush Urn Heath * key species for creekside revegetation in hill country Weeping Grass Common Reed Tussock Grass Native Raspberry Kangaroo Grass Grass Tree

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Lower Tooma - Greg Greg



LANDFORM	River and low country	Low hills & mid slopes	Upper slopes & high hills
VEGETATION TYPE	River Red Gum woodland	Blakely's Red Gum woodland (N-NW aspects), Box woodland & Stringybark/Broad-leaved Peppermint forest (S-SE aspect).	Dry sclerophyll forest
GEOLOGY & SOILS	Alluvium - sand, silt, gravel & clay Light alluvial soils	Granite & gneissic granite. Sandy granite soils.	
LOCATION EXAMPLE	Murray River and lower Tooma River	Warbrook	Welumba Hill
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgesiana</i> <i>E. camaldulensis</i>	Silver Wattle Blackwood Apple Box River Red Gum	* <i>Acacia dealbata</i> - Silver Wattle * <i>A. melanoxylon</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine * <i>E. bicostata</i> - Eurabbie * <i>E. bridgesiana</i> - Apple Box * <i>E. dives</i> - Broad-leaved Peppermint * <i>E. goniacalyx</i> - Long-leaf Box <i>E. macrohyncha</i> <i>E. nortoni</i> <i>Exocarpos cupressiformis</i> * Key species for creekline revegetation in hill country + Mainly N-NW aspects
SHRUBS 1.5 - 8 m	<i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> <i>Kunzea ericoides</i> <i>Leptospermum brevipes</i> <i>L. grandifolium</i> <i>L. obovatum</i> <i>Pomaderris aspera</i>	Red-stemmed Wattle Hairy Bursaria Common Cassinia Shiny Cassinia Common Correa Hop Bitter-pea Tree Violet Violet Kunzea	+ <i>Leptospermum continentale</i> * <i>L. grandifolium</i> <i>Persoonia rigida</i> <i>Platylobium formosum</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> * Key species for creekline revegetation in hill country + Poorly drained sites/soaks
GROUND COVERS	<i>Carex</i> spp. <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Phragmites australis</i> <i>Poa labillardieri</i> <i>Typha</i> spp.	Red-leg Grass Sedge Wallaby Grass Smooth Flax-lily Twining Glycine Purple Coral Pea Red-anther Wallaby Grass Rush Mat-rush	<i>Melichrus urceolatus</i> * <i>Microlaena stipoides</i> <i>Poa</i> spp. <i>Rubus parvifolius</i> <i>Themeda triandra</i> <i>Xanthorrhoea</i> spp. * Key species for creeklines in hill country

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General Native Vegetation Profiles

MURRUMBIDGEE CATCHMENT — WAGGA WAGGA & SURROUNDING DISTRICTS

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General Native Vegetation Profile:

Narrandera - Morundah - Galore - Collingullie Region



Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

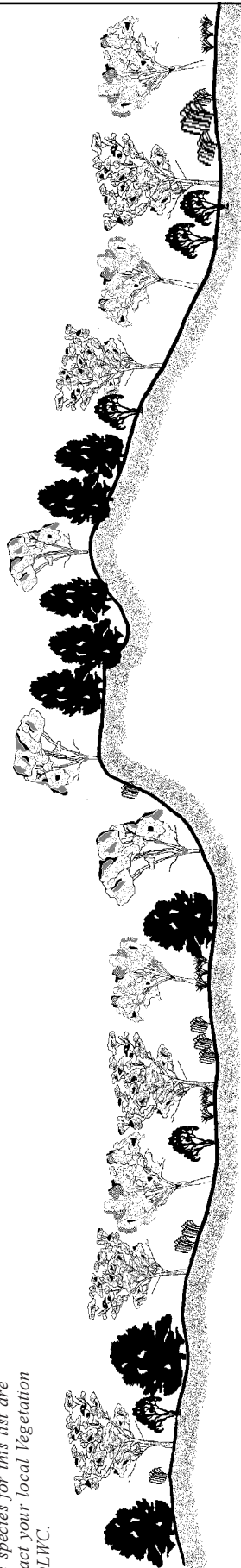
LANDFORM	Low rises	Plains & watercourses	Higher rocky outcrop
VEGETATION TYPE	White Cypress Pine/Grey Box woodland	Grey Box woodland	Blakely's Red Gum/Yellow Box/Grey Box woodland
GEOLOGY & SOILS	Residual & colluvial deposits from underlying Tertiary. Red & red-brown earths.	Unconsolidated riverine deposits of clay, silt, sand and gravel. Alluvial soils.	Conglomerate, sandstone, & quartzites. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Gillenbah State Forest	Sturt Highway	Galore Hill
TREES > 8 m	<i>Acacia doratxyton</i> - Currawang <i>Brachychiton populneus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus dealbata</i> - Tumbledown Gum <i>E. microcarpa</i> - Grey Box	<i>Acacia pendula</i> - Myall/Boree <i>Allocasuarina luehmammi</i> - Bulloak <i>Callitris glaucophylla</i> - White Cypress Pine + <i>Eucalyptus camaldulensis</i> - River Red Gum <i>E. melitodora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box <i>Hakea tephrosperma</i> - Hooked Needlewood + dry & running watercourses	<i>Acacia doratxyton</i> - Currawang <i>Allocasuarina luehmammi</i> - Bulloak <i>A. verticillata</i> - Drooping Sheoak <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>C. glaucophylla</i> - White Cypress Pine <i>Eucalyptus blakeyi</i> - Blakely's Red Gum <i>E. melitodora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box <i>Excocarpus cupressiformis</i> - Native Cherry <i>Geijera panyfolia</i> - Wilga <i>Pittosporum phylliracoides</i> - Butterbush
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> - Western Silver Wattle - Deane's Wattle <i>Cassinia laevis</i> - Cough Bush <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eriostemon brevifolius</i> - Downy Wax-flower	* <i>Acacia decora</i> - Western Silver Wattle <i>A. deanei</i> - Deane's Wattle <i>A. difformis</i> - Drooping Wattle <i>A. hakeoides</i> - Hakea/Western Black Wattle <i>A. montana</i> - Mallee Wattle <i>A. oswaldii</i> - Miljee * <i>A. pycnantha</i> - Golden Wattle * <i>Bursaria spinosa</i> - Sweet Bursaria <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Muehlenbeckia florulenta</i> - Lignum <i>Senna artemisioides</i> - Silver Cassia	<i>Acacia deanei</i> subsp. <i>paucijuga</i> - Deane's Wattle <i>A. decora</i> - Western Silver Wattle <i>A. montana</i> - Mallee Wattle <i>A. pycnantha</i> - Golden Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eriostemon myoporoides</i> - Long-leaf Wax-flower <i>Grevillea floribunda</i> - Seven Dwarf's Grevillea <i>Hakea leucoptera</i> - Silver Needlewood <i>Indigofera adesmitifolia</i> - Tick/Leafless Indigo <i>Indigofera australis</i> - Austral Indigo <i>Pultenaea foliolosa</i> - Bush pea <i>P. largiflorens</i> - Twiggy Bush pea <i>Santalum acuminatum</i> - Quandong <i>Senna artemisioides</i> subsp. <i>zygophylla</i> - Silver Cassia
GROUND COVERS	<i>Danthonia</i> spp. - Wallaby Grass <i>Emada nutans</i> - Climbing Saltbush <i>Lomandra filiformis</i> - Wattle Ma-rush <i>Pimelea curviflora</i> subsp. <i>gracilis</i> - Curved Rice-flower <i>Stackhousia monogyna</i> - Creamy Candles <i>Swainsona murrayana</i> - Slender Darling Pea	<i>Dichopogon strictus</i> - Chocolate Lily <i>Einadia nutans</i> - Climbing Saltbush <i>Sclerolaena muricata</i> var. <i>semiglabra</i> - Black Roly-poly <i>Stipa</i> spp. - Spear Grass <i>Vitadina cuneata</i> - Fuzzweed	<i>Hardenbergia violacea</i> - Purple Coral Pea <i>Lomandra</i> spp. - Mat-rush <i>Melichrus urceolatus</i> - Um Heath <i>Parsonia encalyptophylla</i> - Gargaloo <i>Poa siebertiana</i> - Fine Leaf Tussock Grass <i>Synandra glauca</i> - Nodding Blue-lily <i>Glycine</i> spp. - Glyceme

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs.

If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.

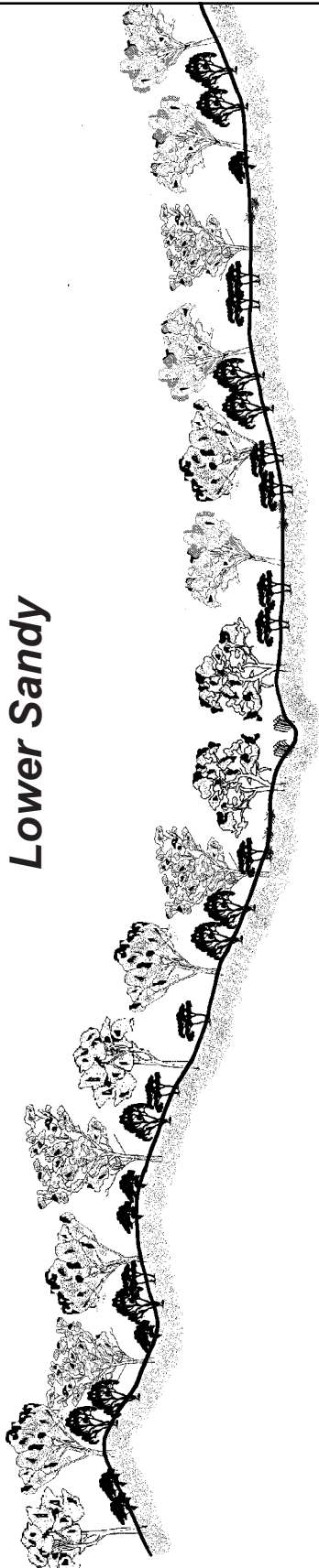
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLIWC.

General Native Vegetation Profile: The Rock - Henty - Milbrulong Region



LANDFORM	Low hills	Flats & slight rises	High rocky outcrop	Low rises
VEGETATION TYPE	White Cypress Pine & Yellow Box woodland	Grey Box/Yellow Box & Blakely's Red Gum woodland	Dwyer's Red Gum & Black Cypress Pine woodland	White Box/Blakely's Red Gum/Grey Box woodland
GEOLOGY & SOILS	Residual & colluvial deposits from underlying meta-sediments. Red & red-brown earths.	Unconsolidated riverine deposits of clay, silt, sand & gravel. Grey and brown clays.	Conglomerate, sandstone, quartzite Lithosols (earthy soils)	Unconsolidated deposits of sand, silt, clay & gravel. Red podzolic (duplex soil).
LOCATION EXAMPLE	Milbrulong State Forest	Grubben/Bullenbung area	The Rock Nature Reserve	East of The Rock & Burkes Creek
TREES > 8 m	<i>Allocasuarina luehmanni</i> - Bulloak <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. meliiodora</i> - Yellow Box <i>Exocarpos cupressiformis</i> - Native Cherry	<i>Acacia pendula</i> - Myall <i>Allocasuarina luehmanni</i> - Bulloak <i>E. meliiodora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box <i>Brachychiton populneus</i> - Kurrajong + <i>E. camaldulensis</i> <i>Callitris glaucophylla</i> - River Red Gum - White Cypress Pine + creeklines <i>Eucalyptus blakeyi</i> - Blakely's Red Gum	<i>Acacia doratxyylon</i> - Currawang <i>Allocasuarina luehmanni</i> - Bulloak <i>A. verticillata</i> - Drooping Sheoak <i>Brachychiton populneus</i> - Kurrajong <i>Callitris endlicheri</i> - Black Cypress Pine <i>E. polyanthemos</i> <i>C. glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. meliiodora</i> - Blakely's Red Gum <i>E. dwyeri</i> - Dwyer's Red Gum	* <i>Acacia dealbata</i> - Silver Wattle + <i>A. leucoclada</i> - Northern Silver Wattle <i>Brachychiton populneus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>Eucalyptus blakeyi</i> - Blakely's Red Gum <i>E. meliiodora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box * Burkes Creek + north of Yerong Creek
SHRUBS 1.5 - 8 m	<i>Acacia hakeoides</i> - Hakea Wattle <i>A. montana</i> - Mallee Wattle <i>A. pycnantha</i> - Golden Wattle <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eutaxia microphylla</i> - Mallee Bush-pea	<i>Acacia deanei</i> - Deane's Wattle <i>A. decora</i> - Western Silver Wattle <i>A. difformis</i> - Drooping Wattle <i>A. flexifolia</i> - Bent-leaf Wattle <i>A. hakeoides</i> - Hakea Wattle <i>A. montana</i> - Mallee Wattle <i>A. pycnantha</i> - Golden Wattle <i>A. verniciflua</i> - Varnish Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Dodonaea viscosa</i> subsp. <i>cuneata</i> - Wedge-leaf Hop-bush <i>Eremophila longifolia</i> - Berrigan <i>Eutaxia microphylla</i> - Mallee Bush-pea <i>Maireana microphylla</i> - Eastern Cottonbush	<i>Acacia acinacea</i> - Gold-dust Wattle <i>A. deanei</i> - Deane's Wattle <i>A. decora</i> - Western Silver Wattle <i>A. difformis</i> - Drooping Wattle <i>A. gunnii</i> - Ploughshare Wattle <i>A. linearifolia</i> - Stringybark Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>A. pycnantha</i> - Golden Wattle <i>A. verniciflua</i> - Varnish Wattle <i>Bursaria spinosa</i> - Sweet Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle <i>Cassinia laevis</i> - Cough Bush	<i>A. decora</i> - Western Silver Wattle <i>A. pycnantha</i> - Golden Wattle * <i>Callistemon sieberi</i> - River Bottlebrush <i>Eutaxia microphylla</i> - Mallee Bush-pea * Burkes Creek
GROUND COVERS	<i>Bracteanta viscosa</i> - Sticky Everlasting <i>Chrysocephalum semipapposum</i> - Clustered Everlasting <i>Einadia nutans</i> - Climbing Saltbush <i>Pimelea</i> spp. - Rice-flower <i>Stackhousia monogyne</i> - Creamy Candles <i>Templetonia stenophylla</i> - Templetonia	<i>Austrostipa</i> spp. - Spear Grass <i>Damthonia</i> spp. - Wallaby Grass <i>Typha</i> spp. - Cumbungi <i>Vittadima cuneata</i> - Fuzzweed	<i>Danthonia</i> spp. - Wallaby Grass <i>Dianella revoluta</i> - Spreading Flax-lily <i>Dillwynia sericea</i> - Showy Parrot-pea <i>Einadia nutans</i> - Climbing Saltbush <i>Glycine canescens</i> - Silky Glycine <i>Lissanthe strigosa</i> - Peach Heath <i>Stypantha glauca</i> - Nodding Blue-lily	<i>Aristida behriana</i> - Brush Wire Grass <i>Bulbine bulbosa</i> - Bulbine Lily <i>Chrysocephalum apiculatum</i> - Yellow Buttons <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily <i>Elymus scaber</i> - Common Wheat-grass <i>Glycine clandestina</i> - Twining Glycine <i>Lomandra</i> spp. - Mat-rush <i>Themeda triandra</i> - Kangaroo Grass <i>Wahlenbergia</i> spp. - Bluebell

General Native Vegetation Profile: Lower Sandy



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Higher slopes	Flats	Low to mid slopes
VEGETATION TYPE	White Box woodland	Grey Box & Yellow Box woodland	Yellow Box/Grey Box/White Box woodland
GEOLOGY & SOILS	Quartzite, slate, phyllite, greywacke, hornfels & schist. Lithosols (earthy loams) & red podzolic (duplex) soils.	Alluvium - sand, silt, clay & gravel. Alluvial soils & red podzolic (duplex) soils.	Alluvium - sand, silt, clay & gravel. Non-calciic brown soils, red earths & red-brown earths.
LOCATION EXAMPLE	Pominalama Reserve	Uranquinty/Yarragundry area	North of Uranquinty
TREES > 8 m	<i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>Exocarpos cupressiformis</i>	<i>Eucalyptus blakeyi</i> <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i>	<i>Acacia leucoclada</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. melliodora</i> <i>E. microcarpa</i>
SHRUBS 1.5 - 8 m	<i>Acacia acinacea</i> - Gold-dust Wattle <i>A. deanei</i> - Deane's Wattle <i>A. decora</i> - Western Silver Wattle <i>A. genistifolia</i> - Spreading / Early Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>A. pycnantha</i> - Golden Wattle <i>A. verniciflua</i> - Varnish Wattle <i>Bursaria spinosa</i> - Sweet Bursaria	<i>Dillwynia phylloides</i> species complex - Small-leaf Parrot-pea <i>Indigofera adesmisifolia</i> - Tick / Leafless Indigo <i>Pultenaea procumbens</i> - Heathy Bush-pea	<i>Acacia deanei</i> <i>A. decora</i> <i>A. montana</i> # <i>Bursaria spinosa</i>
GROUND COVERS	<i>Aristida ramosa</i> - Brush Wire Grass <i>Austrostipa</i> spp. - Spear Grass <i>Bracteantha viscosa</i> - Sticky Everlasting <i>Calotis cuneifolia</i> - Purple Burr-daisy <i>Danthonia</i> spp. - Wallaby Grass <i>Dillwynia sericea</i> - Showy Parrot-pea <i>Elymus scaber</i> - Common Wheat-grass <i>Glycine clandestina</i> - Twining Glycine <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Lomandra</i> spp. - Mat-rush	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Danthonia</i> spp. <i>Dianella revoluta</i> + <i>Phragmites australis</i> <i>Poa</i> spp. <i>Themeda triandra</i>	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> <i>Bracteantha viscosa</i> <i>Danthonia</i> spp. <i>Dianella revoluta</i> <i>Lomandra multiflora</i> <i>Poa</i> spp. <i>Themeda triandra</i>

General Native Vegetation Profile: Upper Sandy



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Flats & lower slopes	Mid to upper slopes & ridgelines
VEGETATION TYPE	Yellow Box & Blakely's Red Gum woodland	Tumbledown Gum/Blakely's Red Gum & Red Box woodland
GEOLOGY & SOILS	Alluvium - Quartzite, slate, phyllite, greywacke, hornfels & schist Red podzolic (duplex) & non-calcic brown soils	Quartzite, slate, phyllite, greywacke, hornfels, schist & granite. Red podzolic (duplex) soils & lithosols (siliceous sands).
LOCATION EXAMPLE	Sandy Creek/Mangoplath Road area	Plum Pudding Hill/O'Brien's Creek Road area
TREES > 8 m	<p>* <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. melliodora</i> <i>E. microcarpa</i> * <i>E. polyanthemus</i></p> <p>* rises</p>	<p>Hickory Wattle/Lightwood Kurralong White Cypress Pine White Box Blakely's Red Gum Apple Box Tumbledown Gum Red Stringybark Yellow Box Grey Box Red Box Mugga/Red Ironbark</p> <p>* Granite areas + drainage lines</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia deanei</i> <i>A. decora</i> <i>A. montana</i> <i>A. verniciflua</i></p>	<p>Box-leaf Wattle Western Silver Wattle Spreading/Early Wattle Woolly Wattle Golden Wattle</p> <p><i>Daviesia leptophylla</i> <i>Pultenaea foliolosa</i></p> <p>Slender Bitter-pea Bush-pea</p>
GROUND COVERS	<p><i>Aristida behriana</i> <i>Bothriochloa macra</i> <i>Bracteantha viscosa</i> + <i>Carex appressa</i> <i>Chloris truncata</i> + <i>Phragmites australis</i> <i>Themeda triandra</i> + <i>Typha</i> spp. <i>Wahlenbergia</i> spp.</p>	<p><i>Brachyoloma daphnoides</i> + <i>Carex</i> spp. <i>Cheilanthes</i> spp. <i>Dianella revoluta</i> <i>Geranium solanderi</i> <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i> + <i>Juncus</i> spp. <i>Lomandra</i> spp. + <i>Phragmites australis</i></p> <p>Daphne Heath Sedge Rock Fern Spreading Flax-lily Austral Cranesbill Purple Coral Pea Grey Guinea-flower Rush Mat-rush Common Reed</p> <p><i>Sympandra glauca</i> + <i>Typha</i> spp. <i>Wurmbea dioica</i> + drainage lines/soaks</p> <p>Nodding Blue-lily Cumbungi Early Nancy</p>

General Native Vegetation Profile: Binni



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLIWC.

LANDFORM	Creeklime & low lying areas	Low to mid slopes	Upper slopes
VEGETATION TYPE	River Red Gum/Blakely's Red Gum & Yellow Box woodland	White Box woodland	Red Box/Red Stringybark woodland
GEOLOGY & SOILS	Alluvium - Quartzite, slate, phyllite, greywacke, hornsteins & schist. Red podzolic (duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red podzolic (duplex) soils & lithosols (siliceous sands).	
LOCATION EXAMPLE	Burkes Creek & Mangoplath	Mangoplath Botanic Gardens	Mangoplath to Cookardmia Road
TREES > 8 m	+ <i>Acacia dealbata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgestiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. polyanthemos</i> + creeklines	<i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i>	<i>Allocastraria verticillata</i> <i>Eucalyptus albens</i> <i>E. dwyeri/E. dealbata</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>E. rossii</i>
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> <i>A. difformis</i> <i>A. montana</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> + creeklines	<i>Acacia decora</i> <i>A. montana</i> <i>A. pycnantha</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Pultenaea foliolosa</i>	<i>Acacia bixifolia</i> <i>A. gemistifolia</i> <i>A. lanigera</i> <i>Calytrix tetragona</i> <i>Daviesia latifolia</i>
GROUND COVERS	<i>Brachyloma daphnoides</i> <i>Bulbine bulbosa</i> <i>Carex</i> spp. <i>Chrysocephalum apiculatum</i> <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Lomandra</i> spp. <i>Microlaena stipoides</i> <i>Poa</i> spp.	<i>Austrostipa</i> spp. <i>Bulbine bulbosa</i> <i>Chrysocephalum apiculatum</i> <i>Danthomia eriantha</i> <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Dichopogon strictus</i> <i>Hibbertia riparia</i> <i>Lomandra filiformis</i> <i>Poa</i> spp. <i>Vittadina cuneata</i>	<i>Danthomia</i> spp. <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Dichopogon strictus</i> <i>Dilwynia sericea</i> <i>Hibbertia riparia</i> <i>Melichrus urceolatus</i> <i>Poa</i> spp.

General Native Vegetation Profile: Yerong Creek - Wattle District



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Lower slopes & rises	Hills
VEGETATION TYPE	Grey Box/Yellow Box & Blakely's Red Gum woodland	White Box (mid slopes)/Red Stringybark woodland. Blakely's/Dwyer's Red Gum woodland.
GEOLOGY & SOILS	Alluvium (lower). Quartzite, slate, phyllite, greywacke, hornfels & schist (higher). Red podzolic (duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Also conglomerate, sandstone, quartzite, reddish shale & siltstone. RRed podzolic (duplex) soils & lithosols (earthy loams).
LOCATION EXAMPLE	Olympic Highway	Bulloc Bulloc Hill
TREES > 8 m	<p><i>Acacia leucoclada</i> <i>Allocasuarina luehmanna</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i></p> <p>+ creeklines</p>	<p>Hickory Wattle/Lightwood Bulloak Drooping Sheoak Kurrajong White Cypress Pine White Box Blakely's Red Gum River Red Gum Yellow Box Grey Box</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia deanei</i> <i>A. decora</i> <i>A. genistifolia</i> <i>A. montana</i> <i>A. pycnantha</i> <i>A. verniciflua</i> <i>Grevillea floribunda</i></p> <p>Deane's Wattle Western Silver Wattle Spreading/Early Wattle Mallee Wattle Golden Wattle Varnish Wattle Seven Dwarfs Grevillea</p>	<p>Western Silver Wattle Drooping Wattle Spreading/Early Wattle Woolly Wattle Golden Wattle Varnish Wattle Prickly Parrot-pea</p> <p># not noted in area but suggested for re-planting</p>
GROUND COVERS	<p><i>Bothriochloa macra</i> + <i>Carex</i> spp. <i>Cheilanthes</i> spp. <i>Dianella revoluta</i> <i>Eimadia nutans</i> + <i>Juncus</i> spp. <i>Poa</i> spp. <i>Stypandra glauca</i></p> <p>Red-leg Grass Sedge Rock Fern Spreading Flax-lily Climbing Saltbush Rush Tussock Grass Nodding Blue-lily</p> <p><i>Themeda triandra</i> - Kangaroo Grass + <i>Typha</i> spp. - Cumbungi + drainage lines</p>	<p>Red-leg Grass Rock Fern Wallaby Grass Flax-lily Showy Parrot-pea Cranesbill Twining Glycine Grey Guinea-flower</p> <p><i>Lissanthe strigosa</i> <i>Lomandra</i> spp. <i>Stypandra glauca</i> Nodding Blue-lily</p>

General Native Vegetation Profile: Buckaringah



Note: For general re-planting (Creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Flats & lower slopes	Hills
VEGETATION TYPE	Grey & Yellow Box woodland/Grey Box & White Cypress Pine woodland	White Box woodland & Red Stringybark dry forest (shaley hills)
GEOLOGY & SOILS	Mainly alluvial deposits of sand, silt, clay & gravel. Red-brown earths.	Granite, gneissic granite & gneiss. Quartzite, slate, phyllite, greywacke, hornfels & schist. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Olympic Highway	Cookarbine Hill
TREES > 8 m	<p><i>Acacia implexa</i> <i>Allocasuarina luehmanni</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> + creeklines only</p>	<p>Currawang Hickory Wattle/Lightwood Drooping Sheoak Kurrajong White Cypress Pine White Box Blakely's Red Gum Apple Box River Red Gum Yellow Box Grey Box</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia acinacea</i> <i>A. deanei</i> <i>A. decora</i> <i>A. difformis</i> <i>A. montana</i> <i>A. pycnantha</i> <i>Bursaria spinosa</i> <i>Dodonaea viscosa</i> subsp. <i>cuneata</i></p>	<p><i>Cassinia aculeata</i> <i>Dillwynia</i> spp. <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>D. viscosa</i> subsp. <i>cuneata</i> Common Cassinia Parrot-pea Narrow-leaf Hop-bush Wedge-leaf Hop-bush</p>
GROUND COVERS	<p><i>Atriplex spinibractea</i> - Spiny-fruit Saltbush <i>Austrostipa</i> spp. - Spear Grass <i>Bothriochloa macra</i> - Red-leg Grass + <i>Carex</i> spp. - Sedge + drainage lines & creeks <i>Danthonia</i> spp. - Wallaby Grass <i>Dianella longifolia</i> - Smooth Flax-lily <i>D. revoluta</i> - Spreading Flax-lily <i>Einadia nutans</i> - Climbing Saltbush</p>	<p><i>Isotoma axillaris</i> <i>Lissanthe strigosa</i> <i>Lomandra</i> spp. <i>Pimelea limifolia</i> subsp. <i>limifolia</i> <i>Themeda triandra</i> <i>Xanthorrhoea</i> spp. Spear Grass Red-leg Grass Windmill Grass Wallaby Grass Spreading Flax-lily Cranesbill Twining Glycine Grey Guinea-flower</p>

General Native Vegetation Profile: Lake Albert



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWIC.

LANDFORM	Higher slopes & ridgelines	Flats & lower slopes	Mid slopes
VEGETATION TYPE	Tumbledown Gum & White Cypress Pine woodland	Yellow Box & Blakely's Red Gum woodland	Blakely's Red Gum woodland
GEOLOGY & SOILS	Granite. Siliceous sands.	Alluvium - Terrace alluvium. Yellow podzolic (duplex) soils.	Granite. Red podzolic (duplex) soils.
LOCATION EXAMPLE	Plum Pudding Hill	Gregadoo Road & Rowan area	Gregadoo Hill (western aspect)
TREES > 8 m	<i>Allocasuarina verticillata</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. dealbata</i> <i>E. gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i>	<i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>+ E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> + drainage lines	Hickory Wattle/Lightwood Drooping Sheoak Kurrajong Black Cypress Pine White Cypress Pine White Cypress Pine Blakely's Red Gum River Red Gum Yellow Box Grey Box
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> <i>A. gemistifolia</i> <i>A. lanigera</i> <i>Indigofera australis</i> <i>Pultenaea foliolosa</i>	<i>Acacia decora</i> # <i>A. gemistifolia</i> #+ <i>Leptospermum continentale</i> + soaks & poorly drained areas # not noted in area but suggested for re-planting	Western Silver Wattle Spreading/Early Wattle Varnish Wattle Common Fringe-myrtle Chinese shrub Bush-pea
GROUND COVERS	<i>Burchardia umbellata</i> <i>Cheilanthes</i> spp. <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>Stypandra glauca</i>	+ <i>Carex</i> spp. <i>Dianella revoluta</i> <i>Maireana microphylla</i> <i>+ Typha</i> spp. + drainage lines	Brush Wire Grass Sticky Everlasting Daphne Heath Tall Sedge Rock Fern Grey Guinea-flower Peach Heath Many-flowered Mat-rush Urn Heath Nodding Blue-lily

General Native Vegetation Profile: Wagga Wagga City



Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Higher slopes	Mid to lower slopes	River's edge	Low rises (catchment for Lake Albert)	
VEGETATION TYPE	White Box woodland	Mixed Box woodland	River Red Gum woodland	Grey box woodland	
GEOLOGY & SOILS	Quartzite, slate, phyllite, greywacke, hornfels & schist. Lithosols (siliceous sands) & red podzolic (duplex) soils.		Unconsolidated riverine deposits of clay, silt, sand & gravel (alluvium). Alluvial soils.	Alluvium - sand, silt, clay, gravel & terrace alluvium. Yellow podzolic (duplex) soils.	
LOCATION EXAMPLE	Willan's Hill	Kapooka area	Gobba Bridge to Eunony Bridge	Rawling Park Bushland Reserve	
TREES > 8 m	<i>Acacia doratylon</i> - Currawang <i>A. implexa</i> - Hickory Wattle <i>Allocasuarina verticillata</i> - Drooping Sheoak <i>Brachychiton populineus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box	<i>Acacia implexa</i> # <i>Banksia marginata</i> <i>Brachychiton populineus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. melliodora</i> <i>E. microcarpa</i> # was on low sand hills around Wagga Wagga	<i>Acacia dealbata</i> - Silver Wattle <i>A. leucolada</i> - Northern Silver Wattle <i>Brachychiton populineus</i> - Kurrajong <i>Casuarina cunninghamiana</i> - River Sheoak <i>Eucalyptus camaldulensis</i> - River Red Gum	<i>Brachychiton populineus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine * <i>Eucalyptus albens</i> - White Box <i>E. blakelyi</i> - Blakely's Red Gum <i>E. melliodora</i> - Yellow Box <i>E. microcarpa</i> - Grey Box * <i>E. polyanthemus</i> - Red Box * eastern boundary of catchment on slight rises	
SHRUBS 1.5 - 8 m	<i>Acacia buxifolia</i> - Box-leaf Wattle <i>A. deanei</i> - Deane's Wattle <i>A. decora</i> - Western Silver Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>A. pycnantha</i> - Golden Wattle <i>Bursaria spinosa</i> - Sweet Bursaria	<i>Acacia deanei</i> <i>Acacia decora</i> <i>Calytrix tetragona</i> <i>Pultenaea foliolosa</i>	# <i>Callistemon sieberi</i> - River Bottlebrush # <i>Eremophila deserti</i> - Turkey-bush # not noted in area but suggested for re-planting	# <i>Acacia deanei</i> - Deane's Wattle <i>A. decora</i> - Western Silver Wattle <i>A. pycnantha</i> - Golden Wattle # <i>Pultenaea foliolosa</i> - Bush-pea # not noted in area but suggested for re-planting	
GROUND COVERS	<i>Bracteantha viscosa</i> - Sticky Everlasting <i>Cheilanthes sieberi</i> - Rock Fern <i>Dianella longifolia</i> - Smooth Flax-lily <i>D. revoluta</i> - Spreading Flax-lily <i>Einadia nutans</i> - Climbing Saltbush <i>Glycine canescens</i> - Silky Glycine <i>Lomandra</i> spp. - Mat-rush <i>Pimelea curviflora</i> - Rice Flower <i>Fittadina cuneata</i> - Fuzzweed <i>Wahlenbergia stricta</i> - Bluebell	<i>Bracteantha viscosa</i> <i>Dianella revoluta</i> <i>Dilwynia sericea</i> <i>Einadia nutans</i> <i>Hardenbergia violacea</i> <i>Themeda triandra</i>	<i>Geranium solanderi</i> - Austral Cranesbill <i>Lomandra</i> spp. - Mat-rush <i>Phragmites australis</i> - Common Reed <i>Typha</i> spp. - Cumbungi <i>Fittadina cuneata</i> - Fuzzweed <i>Wahlenbergia</i> spp. - Bluebell	<i>Aristida behriana</i> <i>Bracteantha viscosa</i> <i>Calotis cuneifolia</i> <i>Cheilanthes</i> spp. <i>Chrysocephalum apiculatum</i> <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Geranium solanderi</i> <i>Lomandra multiflora</i> <i>Poa</i> spp.	Brush Wire Grass Sticky Everlasting Purple Burr-daisy Rock Fern Yellow Buttons Smooth Flax-lily Spreading Flax-lily Austral Cranesbill Mat-rush Tussock Grass

General Native Vegetation Profile: Lower Kyeamba & Main



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	River & flood plain	Lower slopes	Mid & upper slopes
VEGETATION TYPE	River Red Gum woodland	Yellow Box & Blakely's Red Gum woodland	White Box woodland
GEOLOGY & SOILS	Riverine deposits of clay, silt, sand & gravel Alluvial soils	Yellow solonchic (mottled-yellow duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schists. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Murrumbidgee River	Sturt Highway/Alfredtown	Ladysmith/Borambola area
TREES > 8 m	<i>Acacia dealbata</i> <i>A. leucoclada</i> <i>A. melanoxylon</i> <i>Casuarina cunninghamiana</i> <i>Eucalyptus camaldulensis</i>	<i>Eucalyptus blakeyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i>	* <i>Acacia doratoxylon</i> + <i>A. implexa</i> * <i>Allocasuarina verticillata</i> <i>Brachychiton populineus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. melliodora</i> + <i>E. polyanthemus</i> <i>E. sideroxylon</i>
SHRUBS 1.5 - 8 m	# <i>Callistemon sieberi</i> # <i>Eremophila deserti</i> # not noted in area but suggested for re-planting	Blakely's Red Gum Apple Box Yellow Box Grey Box Red Box	Currawang Hickory Wattle Drooping Sheoak Kurrajong White Cypress Pine White Box Blakely's Red Gum Yellow Box Red Box Mugga Ironbark
GROUND COVERS	<i>Phragmites australis</i> Common Reed	<i>Acacia decora</i> # <i>A. gemistifolia</i> # <i>A. pycnantha</i> # not noted in area but suggested for re-planting	<i>Acacia decora</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. verniciflua</i> <i>Daviesia leptophylla</i> <i>Pultenaea foliolosa</i>
	+ <i>Juncus</i> spp. <i>Maureana microphylla</i> + <i>Typha</i> spp. + drainage lines	Western Silver Wattle Spreading / Early Wattle Golden Wattle	Western Silver Wattle Kangaroo Thorn Golden Wattle Vamish Wattle Slender Bitter-pea Bush-pea
	+ <i>Rush</i> Eastern Cottonbush Cumbungi		Smooth Flax-lily Spreading Flax-lily Purple Coral Pea Mat-rush Bluebell

General Native Vegetation Profile: Coreinbob

Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLLWC.



LANDFORM	Creekline	Flats & low lying areas	Rising slopes & ridgelines
VEGETATION TYPE	River Red Gum woodland	Yellow Box & Blakely's Red Gum woodland	White Box woodland
GEOLOGY & SOILS	Alluvium. Alluvial soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Yellow solonchalc (mottled duplex) & red & yellow podzolic (duplex) soils.	Unconsolidated riverine deposits of clay, silt, sand & gravel. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Coreinbob Creek	Sturt Highway	"Tamboolba" area
TREES > 8 m	<i>Acacia dealbata</i> - Silver Wattle <i>Eucalyptus blakelyi</i> - Blakely's Red Gum <i>E. bridgesiana</i> - Apple Box + <i>E. camaldulensis</i> - River Red Gum + creekline only	<i>Brachychiton populneus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. blakelyi</i> - Blakely's Red Gum <i>E. melliodora</i> - Yellow Box	<i>Allocasuarina verticillata</i> - Drooping Sheoak <i>Brachychiton populneus</i> - Kurrajong <i>Callitris glaucophylla</i> - White Cypress Pine <i>Eucalyptus albens</i> - White Box <i>E. sideroxylon</i> * <i>E. polyanthemus</i> * low rises
SHRUBS 1.5 - 8 m	# <i>Acacia decora</i> - Western Silver Wattle # <i>A. paradoxa</i> - Kangaroo Thorn # <i>A. pycnantha</i> - Golden Wattle # + <i>Leptospermum continentale</i> - Prickly Tea-tree + poorly drained sites/soaks # not noted in area but suggested for re-planting	# <i>Acacia decora</i> - Western Silver Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>A. pycnantha</i> - Golden Wattle <i>A. verniciflua</i> - Varnish Wattle <i>Daviesia leptophylla</i> - Slender Bitter-pea <i>Pultenaea foliolosa</i> - Bush-pea # not noted in area but suggested for re-planting	<i>Acacia buxifolia</i> <i>A. lanigera</i> <i>A. pycnantha</i> <i>Daviesia leptophylla</i> <i>Dillwynia phycoides</i> species complex <i>Grevillea polybractea</i> + <i>Leptospermum continentale</i> Prickly Tea-tree <i>Pultenaea foliolosa</i> <i>Syphelia triflora</i> + damp/poorly drained sites Box-leaf Wattle Woolly Wattle Golden Wattle Slender Bitter-pea Small-leaf Parrot-pea Crimson Grevillea + <i>Leptospermum continentale</i> Prickly Tea-tree Bush-pea Pink Five Corners
GROUND COVERS	# + <i>Carex</i> spp. - Sedge + <i>Typha</i> spp. - Cumbungi + creeks/drainage lines # not noted in area but suggested for re-planting	# <i>Chrysocephalum apiculatum</i> - Yellow Buttons <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Maireana microphylla</i> - Eastern Cottonbush # not noted in area but suggested for re-planting	<i>Brachyoloma daphnoides</i> <i>Dianella revoluta</i> <i>Melicthus urecolatus</i> <i>Styphandra glauca</i> <i>Xanthorrhoea</i> spp. Daphne Heath Spreading Flax-lily Urn Heath Nodding Blue-lily Grass-tree

General Native Vegetation Profile: Lower O'Briens & Tywong

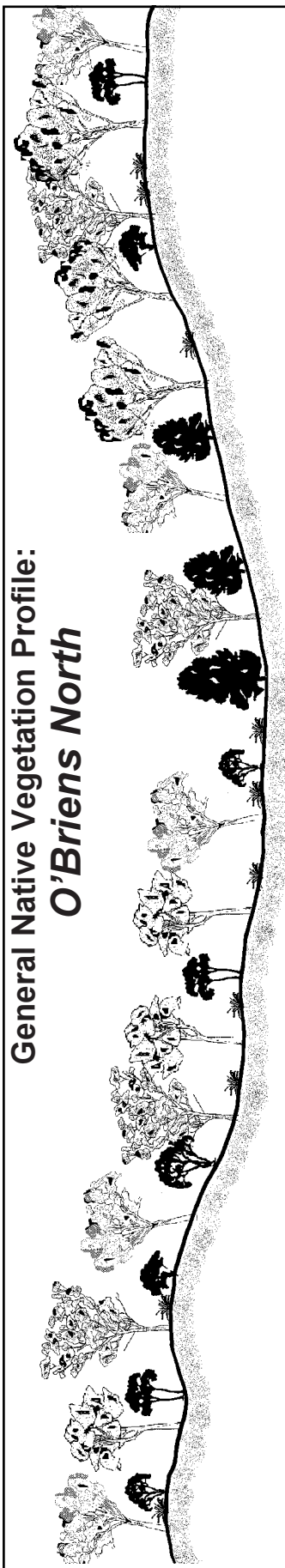


Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creeklines & flats	Rising country
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland	Red Box woodland
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay and gravel (alluvium) Yellow solonetzic (mottled-yellow duplex)	Granite, Quartzite, slate, phyllite, greywacke, hornfels & schist. Yellow solonetzic (mottled duplex), red podzolic (duplex) & lithosols (siliceous sands).
LOCATION EXAMPLE	Gregadoo area	
TREES > 8 m	<p><i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i></p> <p>+ creeklines</p>	<p>Silver wattle Hickory Wattle/Lightwood Drooping Sheoak Black Cypress Pine White Cypress Pine White Box Blakely's Red Gum Red Stringybark Red Box Mugga/Red Ironbark</p> <p>* upper slopes</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia decora</i> + <i>Leptospermum continentale</i></p> <p>+ damp, poorly drained sites</p>	<p>Western Silver Wattle Spreading/Early Wattle Mallee Wattle Golden Wattle Austral Indigo Bush-pea</p> <p># not noted in area but suggested for re-planting</p>
GROUND COVERS	<p>+ <i>Carex</i> spp. <i>Danthonia</i> spp. + <i>Phragmites australis</i> <i>Poa</i> spp. + <i>Typha</i> spp.</p> <p>+ creeklines/drainage lines</p>	<p>Wallaby Grass Grey Guinea-flower Peach Heath Rice-flower Tussock Grass</p> <p># not noted in area but suggested for re-planting</p>

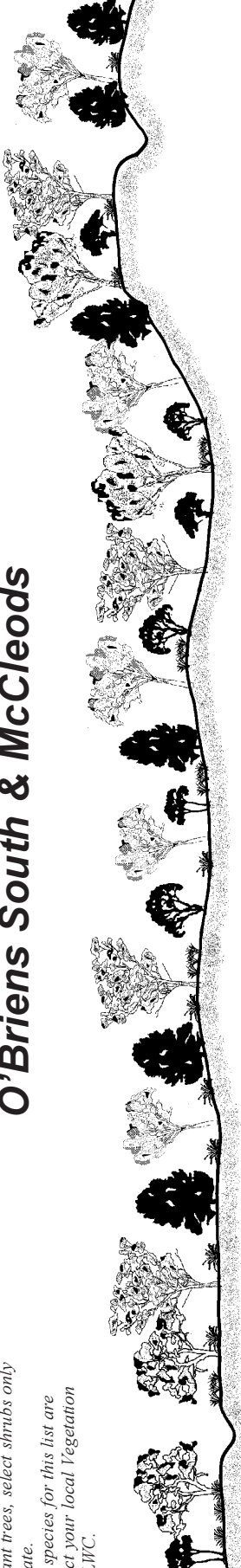
General Native Vegetation Profile: O'Briens North

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Upper to lower slopes	Lower to upper slopes
VEGETATION TYPE	Blakely's Red Gum woodland	Red Box & Red Stringybark woodland
GEOLOGY & SOILS	Granite	Quartzite, slate, phyllite, greywacke, hornfels & schist. Yellow solonchalc (drainage lines), red & yellow podzolic (duplex), & lithosols (siliceous loams).
LOCATION EXAMPLE	Mt. Flakney (east face)	Big Springs Road & O'Briens Creek Road
TREES > 8 m	<p><i>Acacia implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Eucalyptus blakelyi</i> * <i>E. bridgestiana</i> * <i>E. goniocalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> * <i>E. sideroxylon</i></p> <p>Hickory Wattle/Lightwood Drooping Sheoak Kurrajong Blakely's Red Gum Apple Box Long-leaf Box Red Stringybark Red Box Red/Mugga Ironbark</p> <p>* lower reaches</p>	<p><i>Acacia implexa</i> <i>Allocasuarina verticillata</i> * <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus blakelyi</i> <i>E. bridgestiana</i> * <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i> <i>E. rossii</i> <i>E. sideroxylon</i></p> <p>Hickory Wattle/Lightwood Drooping Sheoak Kurrajong White Cypress Pine Blakely's Red Gum Apple Box Red Stringybark Yellow Box Grey Box Red Box Scribbly Gum/Snap Gum Mugga/Red Ironbark</p> <p>* upper reaches</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia buxifolia</i> <i>A. genistifolia</i> <i>A. pycnantha</i> <i>Calytrix tetragona</i> <i>Indigofera australis</i> <i>Pultenaea foliolosa</i></p> <p>Box-leaf Wattle Spreading/Early Wattle Golden Wattle Common Fringe-myrtle Austral Indigo Bush-pea</p>	<p><i>Acacia genistifolia</i> <i>A. lamigera</i> <i>A. paradoxa</i> <i>A. pycnantha</i> + <i>Daviesia leptophylla</i> <i>Leptospermum continentale</i> <i>Pultenaea foliolosa</i></p> <p>Spreading/Early Wattle Woolly Wattle Kangaroo Thorn Golden Wattle Slender Bitter-pea Prickly Tea-tree Bush-pea</p>
GROUND COVERS	<p><i>Aristida</i> spp. <i>Bothriochloa macra</i> <i>Bulbine bulbosa</i> <i>Cheilanthes</i> spp. <i>Cheiranthra cyanea</i> <i>Geranium solanderi</i> <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i></p> <p>Wire Grass Red-leg Grass Bulbine Lily Rock Fern Finger Flower Austral Cranesbill Purple Coral Pea Grey Guinea-flower</p> <p><i>Lissanthe strigosa</i> - Peach Heath <i>Lomandra multiflora</i> - Many-flowered Mat Rush <i>Microlaena stipoides</i> - Weeping Grass <i>Pimelea limifolia</i> - Rice-flower <i>Stypandra glauca</i> - Nodding Blue-lily</p>	<p><i>Bracteantha viscosa</i> + <i>Carex appressa</i> <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Geranium solanderi</i> <i>Glycine clandestina</i> <i>Hibbertia obtusifolia</i> + <i>Juncus</i> spp.</p> <p>Sticky Everlasting Tall Sedge Smooth Flax-lily Spreading Flax-lily Austral Cranesbill Twining Glycine Grey Guinea-flower Rush</p>

General Native Vegetation Profile: O'Briens South & McCleods



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creeklines & flats	Mid slopes	Upper slopes & rocky ridgelines
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland		
GEOLOGY & SOILS	Alluvium. Yellow solonchic (mottled-yellow duplex).	Granite. Quartzite, slate, phyllite, greywacke, hornfels & schist. Red podzolic (duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red podzolic (duplex) soils & lithosols (siliceous loams).
LOCATION EXAMPLE	McClouds & O'Briens Creeks	O'Briens Creek Road & Maxwell	Livingstone State Forest
TREES > 8 m	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Eucalyptus blakeyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>E. polyanthemus</i> <i>E. sideroxylon</i>	<i>Acacia implexa</i> <i>Brachychiton populneus</i> <i>Callitris endlicheri</i> <i>C. glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. goniocalyx</i> <i>E. melliodora</i> <i>E. polyanthemus</i>	<i>Acacia doratoxylon</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. blakeyi</i> <i>E. goniocalyx</i> <i>E. macrorhyncha</i>
SHRUBS 1.5 - 8 m	Spreading Wattle Woolly Wattle Kangaroo Thorn Golden Wattle Prickly Tea-tree Bush-pea + <i>soaks/poorly drained sites</i>	Hickory Wattle Kurralong Black Cypress Pine White Cypress Pine White Box Blakely's Red Gum Long-leaf Box Yellow Box Red Box	Currawang Hickory Wattle Drooping Sheoak Kurralong White Cypress Pine White Box Blakely's Red Gum Long-leaf Box Red Stringybark
GROUND COVERS	Tall Sedge Wallaby Grass Rush Peach Heath Mat Rush Cumbungi + <i>drainage lines/damp areas</i>	Spreading/Early Wattle Kangaroo Thorn Common Fringe-myrtle Slender Bitter-pea Small-leaf Parrot-pea Bush-pea # not noted in area but suggested for re-planting	<i>Dilwynia juniperina</i> - Prickly Parrot-pea <i>D. phylloides</i> - Small-leaf Parrot-pea <i>Grevillea floribunda</i> - Seven Dwarfs Grevillea <i>G. lanigera</i> - Woolly Grevillea <i>Indigofera australis</i> - Austral Indigo <i>Leptospermum multicaule</i> - Silver Tea-tree <i>Persoonia rigida</i> - Hairy Geebung <i>Pultenaea foliolosa</i> - Bush Pea
	+ <i>Carex appressa</i> <i>Danthonia</i> spp. + <i>Juncus</i> spp. <i>Lissanthe strigosa</i> <i>Lomandra</i> spp. + <i>Typha</i> spp.	<i>Brachyloma daphnoides</i> <i>Dianella revoluta</i> <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>Stypandra glauca</i> <i>Themeda triandra</i>	<i>Brachyloma daphnoides</i> - Daphne Heath <i>Bracteantha viscosa</i> - Sticky Everlasting <i>Brunonia australis</i> - Blue Pincushion <i>Cheiranthra linearis</i> - Finger Flower <i>Chrysocephalum semipapposum</i> - Clustered Everlasting <i>Danthonia</i> spp. - Wallaby Grass <i>Dilwynia sericea</i> - Showy Parrot-pea <i>Hardenbergia violacea</i> - Purple Coral Pea
			<i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Hovea linearis</i> - Common Hovea <i>Isotoma axillaris</i> - Rock Isotome <i>Leucopogon</i> spp. - Beard Heath <i>Lomandra</i> spp. - Mat-rush <i>Melichrus urceolatus</i> - Urn Heath <i>Pimelea limifolia</i> - Rice-flower <i>Stackhousia monogyna</i> - Creamy Candles <i>Stypandra glauca</i> - Nodding Blue Lily

General Native Vegetation Profile: Livingstone

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



	Lower slopes	Upper slopes
LANDFORM		
VEGETATION TYPE	Blakely's Red Gum & Red Box woodland	Tumbledown Gum & Red Stringybark woodland
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay & gravel. Yellow solonchic (mottled-yellow duplex).	Quartzite, slate, phyllite, greywacke, hornfels & schist. Also granite. Red podzolic (duplex) soils.
LOCATION EXAMPLE	O'Briens/Pillagalala Creeks & Livingstone Gully Road	Cheviot Hills
TREES > 8 m	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Callitris glaucophylla</i> + <i>Eucalyptus blakelyi</i> + <i>E. bridgestiana</i> + <i>E. microcarpa</i> <i>E. polyanthemus</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Eucalyptus dealbata</i> / <i>E. dwyeri</i> <i>E. goniocalyx</i> / <i>E. nortonii</i> <i>E. macrohyncha</i> <i>E. polyanthemus</i>
SHRUBS 1.5 - 8 m	Silver Wattle Hickory Wattle/Lightwood White Cypress Pine Blakely's Red Gum Apple Box Grey Box Red Box	Silver Wattle Hickory Wattle/Lightwood Tumbledown Gum/Dwyer's Red Gum Long-leaf Box/Silver Bundy Red Stringybark Red Box
GROUND COVERS	# + <i>Acacia genitifolia</i> # <i>Bursaria spinosa</i> <i>A. paradoxa</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> # not noted in area but suggested for re-planting	Spreading/Early Wattle Kangaroo Thorn Narrow-leaf Hop-bush Austral Indigo Bush-pea # not noted in area but suggested for re-planting
GROUND COVERS	# + <i>Carex</i> spp. + <i>Juncus</i> spp. # + <i>Phragmites australis</i> # + <i>Typha</i> spp. + creek/drainage lines # not noted in area but suggested for re-planting	<i>Aristida</i> spp. + <i>Carex appressa</i> <i>Danthonia</i> spp. <i>Hibbertia obtusifolia</i> <i>Lissanthe strigosa</i> <i>Themeda triandra</i> + poorly drained sites

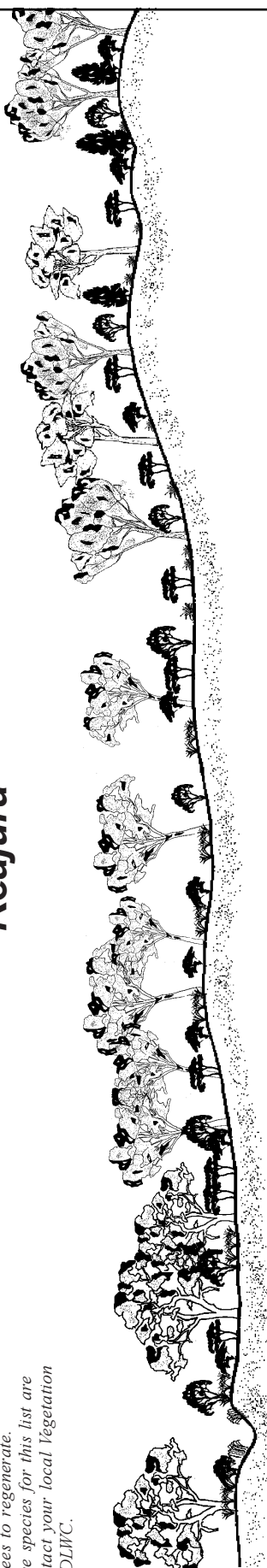
General Native Vegetation Profile: Upper Kyeamba



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creeklines & flats	Low to mid slopes	Upper slopes
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland	Blakely's Red Gum woodland	Red Box/Red Stringybark woodland
GEOLOGY & SOILS	Alluvium Yellow solonchic (mottled-yellow duplex) soils	Red and yellow podzolic (duplex) soils	Kyeamba adamellite
LOCATION EXAMPLE	Book Book area	"Talland"	Kyeamba/Kilgowla Mountain
TREES > 8 m	<p><i>Acacia dealbata</i> <i>Eucalyptus blakeyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melitodora</i> <i>E. microcarpa</i> + creekline only</p>	<p>Silver Wattle Hickory Wattle / Lightwood Drooping Sheoak Kurrajong White Cypress Pine Blakely's Red Gum Long-leaf Box / Silver Bundy Red Stringybark Red Box</p>	<p>Silver Wattle Currawang Hickory Wattle Drooping Sheoak Kurrajong Blakely's Red Gum Long-leaf Box Red Stringybark Red Box</p>
SHRUBS 1.5 - 8 m	<p># <i>Acacia gemistifolia</i> # <i>A. pycnantha</i> # <i>A. vermiciflua</i> # not noted in area but suggested for re-planting</p>	<p><i>Acacia dealbata</i> <i>A. implexa</i> <i>Allocasuarina verticillata</i> <i>Brachychiton populneus</i> <i>Callitris glaucophylla</i> <i>Eucalyptus blakeyi</i> <i>E. goniodalyx</i> / <i>E. nortonii</i> <i>E. macrohyncha</i> <i>E. polyanthemus</i> <i>Acacia gemistifolia</i> <i>A. paradoxa</i> + <i>Leptospermum continentale</i> + soaks/poorly drained sites</p>	<p><i>Acacia gemistifolia</i> <i>A. gunnii</i> <i>Cassinia longifolia</i> <i>Cheiranthera cyanea</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Grevillea lanigera</i> <i>Putenaea foliolosa</i> <i>Styphelia triflora</i> Spreading / Early Wattle Ploughshare Wattle Shiny Cassinia Finger Flower Narrow-leaf Hop-bush Woolly Grevillea Bush-pea Pink Five Corners</p>
GROUND COVERS	<p><i>Austrostipa</i> spp. + <i>Carex</i> spp. + <i>Juncus</i> spp. + <i>Typha</i> spp. + creeklines/damp areas</p>	<p><i>Aristida</i> spp. <i>Brachyoloma daphnoides</i> + <i>Carex appressa</i> <i>Cheiranthera cyanea</i> <i>Geranium solanderi</i> <i>Handenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>Isotoma axillaris</i> <i>Lissanthe strigosa</i> <i>Melichrus urceolatus</i> <i>Stypandra glauca</i> + drainage lines</p>	<p>Wire Grass Red-leg Grass Daphne Heath Tall Sedge Wallaby Grass Showy Parrot-pea Grey Guinea-flower Mat-rush Urn Heath Nodding Blue-lily Cumbungi + drainage lines/damp areas</p>

General Native Vegetation Profile: Keajura



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creekline & low-lying areas	Mid slopes	Upper slopes
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland	Red Stringybark woodland	Red Box/Red Stringybark woodland
GEOLOGY & SOILS	Alluvium. Yellow solonchic (mottled-yellow duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red & yellow podzolic (duplex) soils.	Kyeamba adamellite. Red and yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Keajura Creek & Hume Highway	Keajura/Coreinbob area & Hume Highway	Kilgowla Mountain
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. melliodora</i> <i>E. microcarpa</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Allocasuarina verticillata</i> <i>Callitris glaucophylla</i> <i>Eucalyptus albens</i> <i>E. gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>E. rossii</i> <i>E. sideroxylon</i>	<i>Acacia dealbata</i> <i>A. daratxylon</i> <i>A. implexa</i> <i>Brachychiton populneus</i> <i>Eucalyptus gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>E. sideroxylon</i>
SHRUBS 1.5 - 8 m	Silver Wattle Blakely's Red Gum Apple Box Yellow Box Grey Box	Silver Wattle Blackwood Drooping Sheoak White Cypress Pine White Box Long-leaf Box Red Stringybark Red Box Scribbly Gum/Snap Gum Red/Mugga Ironbark	Spreading/Early Wattle Ploughshare Wattle Varnish Wattle Shiny Cassinia Slender Bitter-pea Small-leaf Parrot-pea Crimson Grevillea
GROUND COVERS	<i>Acacia genitifolia</i> # <i>A. paradoxa</i> # <i>Cassinia arcuata</i> # not noted in area but suggested for re-planting	<i>Acacia lamigera</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>A. verniciflua</i> <i>Cassinia arcuata</i> <i>Daviesia leptophylla</i> <i>Grevillea lamigera</i> <i>Pultenaea foliolosa</i>	<i>Acacia genitifolia</i> <i>A. gummii</i> <i>A. verniciflua</i> <i>Cassinia longifolia</i> <i>Daviesia leptophylla</i> <i>Dilwynia retorta</i> spectes complex <i>Grevillea polybractea</i> <i>Brachyloma daphnoides</i> <i>Hibbertia obtusifolia</i> <i>Lomandra</i> spp. <i>Melchioris urceolatis</i>
	#+ <i>Carex</i> spp. ## <i>Juncus</i> spp. + <i>Phragmites australis</i> + <i>Typha</i> spp. + creeks/watercourses # not noted in area but suggested for re-planting	Woolly Wattle Kangaroo Thorn Golden Wattle Varnish Wattle Chinese Shrub Slender Bitter-pea Woolly Grevillea Bush-pea Yellow Buttons Wallaby Grass Smooth Flax-lily Spreading Flax-lily Showy Parrot-pea Common Wheat-grass Twining Glycine Many-flowered Mat-rush Snow/Tussock Grass Nodding Blue-lily Tall Bluebell	Yellow Buttons Wallaby Grass Smooth Flax-lily Spreading Flax-lily Showy Parrot-pea Common Wheat-grass Twining Glycine Many-flowered Mat-rush Snow/Tussock Grass Nodding Blue-lily Tall Bluebell

General Native Vegetation Profile: Upper Burkes

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Creepline & low-lying land	Mid to upper slopes & ridgelines
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland	Box & Red Stringybark woodlands
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay & gravel (alluvium). Yellow solonetzic (mottled duplex) & alluvial soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Burkes Creek	Pulletop State Forest/Westby/Turkey Springs/'Wingelo'
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. melliodora</i> <i>E. polyanthemus</i>	Silver Wattle Hickory Wattle/Lightwood White Box Long-leaf Box/Silver Bundy Red Stringybark Red Box Scribbly Gum/Snap Gum Native Cherry
SHRUBS 1.5 - 8 m	+ <i>Callistemon sieberi</i> # <i>Eremophila deserti</i> + creepline # not noted in area but suggested for re-planting	<i>Dilwynia retorta</i> <i>Grevillea lanigera</i> <i>G. polybractea</i> <i>Leptospermum multicaule</i> <i>Platylobium formosum</i> <i>Pultenaea foliolosa</i> * not in Pulletop State Forest
GROUND COVERS	<i>Carex appressa</i> # <i>Juncus</i> spp. #+ <i>Phragmites australis</i> <i>Typha</i> spp. + creepline # not noted in area but suggested for re-planting	Small-leaf Parrot-pea Woolly Grevillea Crimson Grevillea Silver Tea-tree Handsome Flat-pea Bush-pea Urn Heath Rice-flower Snow/Tussock Grass Creamy Candles Nodding Blue-lily Kangaroo Grass Tall Bluebell Grass-tree

General Native Vegetation Profile: Burkes & Graveyard

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Creeklines & flats	Mid to upper slopes	Upper slopes & rocky ridgelines
VEGETATION TYPE	Blakely's Red Gum & Yellow Box woodland	White Box & Red Box/Red Stringybark woodland	Mixed woodland
GEOLOGY & SOILS	Alluvium. Red podzolic (duplex) soils.	Granite. Lithosols (siliceous loams).	Quartzite, slate, phyllite, greywacke, hornfels & schist. Lithosols (siliceous loams) & red podzolic (duplex) soils.
LOCATION EXAMPLE	Burkes Creek	Graveyard area	Livingstone Slate Forest
TREES > 8 m	<i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. polyanthemus</i> + creeklines	<i>Acacia implexa</i> <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> + <i>E. camaldulensis</i> <i>E. gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> + creeklines	Currawang Hickory Wattle/ Lightwood Black Cypress Pine White Box Blakely's Red Gum Long-leaf Box Red Stringybark Red Box
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> <i>A. paradaxa</i> #+ <i>Callistemon sieberi</i> # <i>Myoporum deserti</i> + creeklines # not noted in area but suggested for re-planting	Box-leaf Wattle Spreading/Early Wattle Kangaroo Thorn Sweet Bursaria Bush-pea # <i>Acacia buxifolia</i> <i>A. gemistifolia</i> <i>A. paradaxa</i> <i>Bursaria spinosa</i> # <i>Pultenaea foliolosa</i> # not noted in area but suggested for re-planting	<i>Acacia doratoxylon</i> <i>A. implexa</i> <i>Callitris endlicheri</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>Acacia buxifolia</i> - Box-leaf Wattle <i>A. gemistifolia</i> - Spreading / Early Wattle <i>A. gummii</i> - Ploughshare Wattle <i>A. paradaxa</i> - Kangaroo Thorn <i>Bursaria spinosa</i> - Hairy Bursaria <i>Calytrix tetragona</i> - Common Fringe-myrtle <i>Correa reflexa</i> - Common Correa <i>Daviesia latifolia</i> - Hop Bitter-pea <i>D. leptophylla</i> - Slender Bitter-pea <i>Dilwynia juniperina</i> - Prickly Parrot-pea <i>D. phyllicoides</i> species complex - Small-leaf Parrot-pea <i>Grevillea floribunda</i> - Seven Dwarfs Grevillea <i>G. lanigera</i> - Woolly Grevillea <i>Indigofera australis</i> - Austral Indigo <i>Leptospermum multicaule</i> - Silver Tea-tree <i>Persoonia rigida</i> - Hairy Geebung <i>Pultenaea foliolosa</i> - Bush-pea
GROUND COVERS	+ <i>Carex appressa</i> #+ <i>Juncus</i> spp. #+ <i>Phragmites australis</i> #+ <i>Typha</i> spp. +creeks/drainage lines # not noted in area but suggested for re-planting	Spear Grass Daphne Heath Wallaby Grass Common Wheat-grass Twining Glycine Grey Guinea-flower Peach Heath Urn Heath Nodding Blue-lily	<i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bracteantha viscosa</i> - Sticky Everlasting <i>Brunonia australis</i> - Blue Pincushion <i>Cheiranthra linearis</i> - Finger Flower <i>Chrysocephalum semipapposum</i> - Clustered Everlasting <i>Danthonia</i> spp. - Wallaby Grass <i>Dilwynia sericea</i> - Showy Parrot-pea <i>Hardenbergia violacea</i> - Purple Coral Pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Hovea linearis</i> - Common Hovea <i>Isotoma axillaris</i> - Rook Isotome <i>Leucopogon</i> spp. - Beard Heath <i>Lomandra</i> spp. - Mat-rush <i>Melicchrus urceolatus</i> - Urn Heath <i>Pimelea limifolia</i> - Rice-flower <i>Stachhouisia monogyna</i> - Creamy Candles <i>Stypandra glauca</i> - Nodding Blue-lily

General Native Vegetation Profile: Major



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Lower slopes	Mid to upper slopes & ridgelines
VEGETATION TYPE	Red Box woodland	Box & Red Stringybark woodland
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay and gravel - alluvium. Yellow solonchetic (mottled duplex) & red podzolic (duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red podzolic (duplex) soils.
LOCATION EXAMPLE	Pulletop area	Pulletop State Forest
TREES > 8 m	<i>Acacia implexa</i> <i>Brachychiton populneus</i> <i>Callitris endlicheri</i> <i>Eucalyptus blakelyi</i> <i>E. melliodora</i> <i>E. polyanthemus</i>	<i>Acacia dealbata</i> <i>Eucalyptus albens</i> <i>E. goniocalyx/E. nortonii</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. rossii</i> <i>Exocarpos cupressiformis</i>
SHRUBS 1.5 - 8 m	<i>Acacia decora</i> # <i>A. gemistifolia</i> # <i>A. paradoxa</i> # <i>Bursaria spinosa</i> <i>Pultenaea foliolosa</i> # not noted in area but suggested for re-planting	<i>Grevillea polybractea</i> <i>Leptospermum multicaule</i> <i>Persoonia rigida</i> <i>Platylobium formosum</i> <i>Pultenaea foliolosa</i> Crimson Grevillea Silver Tea-tree Hairy Geebung Handsome Flat-pea Bush-pea
GROUND COVERS	# <i>Brachyloma daphnoides</i> + <i>Carex</i> spp. # <i>Danthonia</i> spp. + <i>Juncus</i> spp. # <i>Lissanthe strigosa</i> # <i>Melicurus urceolatus</i> + damp areas # not noted in area but suggested for re-planting	<i>Melicurus urceolatus</i> <i>Pimelea linifolia</i> <i>Poa sieberiana</i> <i>Stachyotria monogyna</i> <i>Styandra glauca</i> <i>Themeda triandra</i> <i>Wahlenbergia stricta</i> <i>Xanthorrhoea</i> spp. Urn Heath Rice-flower Snow/Tussock Grass Creamy Candles Nodding Blue-lily Kangaroo Grass Tall Bluebell Grass-tree

General Native Vegetation Profile: Mates Gully



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLIWC.

	Lower slopes	Upper slopes
LANDFORM		
VEGETATION TYPE	Box woodland (eg. Red Box)	Box, Red Stringybark, & Ironbark woodlands
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay & gravel. Yellow solonchetic (mottled duplex) & red and yellow podzolic (duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Sturt Highway to Hume Highway (Tarcutta Road)	Mates Gully Reserve (R.L.P.B.)
TREES > 8 m	<i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melioidora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i> + creeklines only	Hickory Wattle/Lightwood White Box Blakely's Red Gum Red Stringybark Red Box Scribbly Gum Mugga/Red Ironbark
SHRUBS 1.5 - 8 m	<i>Acacia deanei</i> <i>A. decora</i> <i>A. paradoxa</i> <i>A. pycnantha</i> + <i>Leptospermum continentale</i> + soaks/poorly drained sites	Spreading/Early Wattle Woolly Wattle Kangaroo Thorn Golden Wattle Chinese Shrub Slender Bitter-pea Small-leaf Parrot-pea Seven Dwarfs Grevillea Austral Indigo Handsome Flat-pea Pink Five Corners
GROUND COVERS	## <i>Carex</i> spp. <i>Chrysocephalum apiculatum</i> ## <i>Dianella revoluta</i> ## <i>Juncus</i> spp. ## <i>Maireana microphylla</i> ## <i>Poa</i> spp. + drainage lines/poorly drained sites # not noted in area but suggested for re-planting	<i>Brachyoloma daphnoides</i> + <i>Carex</i> spp. <i>Chrysocephalum apiculatum</i> <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Dillwynia sericea</i> <i>Geranium solanderi</i> <i>Hardenbergia violacea</i> Daphne Heath Sedge Yellow Buttons Smooth Flax-lily Spreading Flax-lily Showy Parrot-pea Austral Cranesbill Purple Coral Pea
		<i>Hibbertia obtusifolia</i> <i>Lomandra</i> spp. <i>Melichrus urceolatus</i> <i>Poa</i> spp. <i>Stypantha glauca</i> <i>Xanthorrhoea</i> spp. Grey Guinea-flower Mat-rush Urn Heath Tussock Grass Nodding Blue-lily Grass-tree + drainage lines/poorly drained sites

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Lower Tarcutta



LANDFORM VEGETATION TYPE	Mid to upper slopes	Creepline, flats & lower slopes	Rocky hills & ridgelines
GEOLOGY & SOILS	Ironbark & Box woodland Quartzite, slate, phyllite, greywacke, hornfels & schist. Red & yellow podzolic (duplex) soils.	Yellow Box/Blakely's Red Gum & Red Box woodland Alluvium - clay, silt, sand & gravel. Yellow solonchic (mottled-yellow duplex) soils.	Red Stringybark woodland Quartzite, slate, phyllite, greywacke, hornfels & schist. Lithosols (earthy loams) & red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Mundarlo Road & Mt. Adrah area	Tarcutta region & Tarcutta Creek	"The Willows" East Tarcutta
TREES > 8 m	<i>Acacia dealbata</i> <i>Allocasuarina verticillata</i> <i>Callitris endlicheri</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. dealbata</i> <i>E. gontocalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. sideroxylon</i> <i>Exocarpos cupressiformis</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i> <i>E. meliodora</i> <i>E. microcarpa</i> <i>E. polyanthemus</i> <i>E. sideroxylon</i> + creeklines only	<i>Acacia dealbata</i> <i>Brachychiton populneus</i> <i>Callitris endlicheri</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. dealbata</i> <i>E. dives</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. robertsonii</i> <i>E. sideroxylon</i>
SHRUBS 1.5 - 8 m	<i>Acacia genistifolia</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Daviesia leptophylla</i> <i>Indigofera australis</i> <i>Pultenaea australis</i> <i>Bracteantha viscosa</i> <i>Brunonia australis</i> <i>Chrysocephalum apiculatum</i> <i>Danthonia eriantha</i> <i>Dianella revoluta</i> <i>Dichopogon strictus</i> <i>Dillwynia sericea</i> <i>Hardenbergia violacea</i> <i>Lissanthe strigosa</i> <i>Lomandra multiflora</i> <i>Spyridium parvifolium</i> <i>Sypandra glauca</i> <i>Themeda triandra</i>	<i>Acacia acinacea</i> <i>A. genistifolia</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Daviesia leptophylla</i> <i>Pultenaea foliolosa</i> + <i>Carex</i> spp. <i>Dianella revoluta</i> + <i>Juncus</i> spp. <i>Mairea microphylla</i> + drainage lines/damp areas	<i>A. paradoxa</i> + <i>Callistemon sieberi</i> <i>Leptospermum</i> spp. + creek/drainage lines <i>Aristida</i> spp. <i>Bothriochloa macra</i> <i>Brachyoloma daphnoides</i> <i>Cheilanthes sieberi</i> <i>Leucopogon</i> spp. <i>Melichrus urceolatus</i> <i>Microlaena stipoides</i> <i>Spyridium parvifolium</i> <i>Sypandra glauca</i> <i>Wahlenbergia</i> spp. <i>Xanthorrhoea</i> spp.
GROUND COVERS	Spreading/Early Wattle Kangaroo Thorn Golden Wattle Slender Bitter-pea Austral Indigo Bush-pea Sticky Everlasting Blue Pincushion Yellow Buttons Wallaby Grass Spreading Flax-lily Chocolate Lily Showy Parrot-pea Purple Coral Pea Peach Heath Many-flowered Mat-rush Dusty Miller Nodding Blue-lily Kangaroo Grass	Gold-dust Wattle Spreading/Early Wattle Kangaroo Thorn Golden Wattle Slender Bitter-pea Bush-pea Sedge Spreading Flax-lily Rush Eastern Cottonbush + drainage lines/damp areas	Kangaroo Thorn River Bottlebrush Tea-tree Wire grass Red-leg Grass Daphne Heath Rock Fern Beard Heath Um Heath Weeping Grass Dusty Miller Nodding Blue-lily Bluebell Grass-tree

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Eringowarrah, Deltroit, Hillas, Jellingro & Oaky



LANDFORM	River & flats	Low to mid slopes	Higher slopes
VEGETATION TYPE	River Red Gum/River Sheoak woodland	Yellow Box & Blakely's Red Gum woodland	White Box & Red Box/Red Stringybark woodland
GEOLOGY & SOILS	Riverine deposits of clay, silt, sand & gravel. Alluvial loams & clays.	Conglomerate, sandstone, quartzite, reddish shale & siltstone. Red & yellow podzolic (duplex) soils & lithosols (earthy loams).	Quartzite, slate, phyllite, greywacke, hornfels & schist. Granite.
LOCATION EXAMPLE	Murrumbidgee River	Mundarlo region	Upper Deltroit
TREES > 8 m	<i>Acacia dealbata</i> <i>A. leucoclada</i> <i>Casuarina cunninghamiana</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i>	<i>Acacia dealbata</i> * <i>A. implexa</i> * <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> * <i>E. gomicalyx</i> <i>E. melliodora</i> * <i>E. polyanthemus</i>	<i>Allocasuarina verticillata</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. dealbata</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. sideroxylon</i>
SHRUBS 1.5 - 8 m	# <i>Callistemon sieberi</i> # <i>Eremophila deserti</i> # not noted in area but suggested for re-planting	<i>Acacia deanei</i> <i>A. decona</i> <i>A. paradoxa</i> # <i>Kunzea parvifolia</i> # not noted in area but suggested for re-planting	<i>Acacia gemistifolia</i> <i>A. paradoxa</i> <i>A. pycnantha</i> <i>Indigofera australis</i> <i>Pultenaea foliolosa</i>
GROUND COVERS	# <i>Carex</i> spp. # <i>Juncus</i> spp. <i>Phragmites australis</i> # <i>Typha</i> spp. # not noted in area but suggested for re-planting	# <i>Austrostipa</i> spp. # <i>Bulbine bulbosa</i> # <i>Danthonia</i> spp. # <i>Dianella revoluta</i> # <i>Themeda triandra</i> # not noted in area but suggested for re-planting	<i>Bracteantha viscosa</i> # <i>Danthonia</i> spp. <i>Dilwynia sericea</i> <i>Synpandra glauca</i> # <i>Themeda triandra</i> # not noted in area but suggested for re-planting

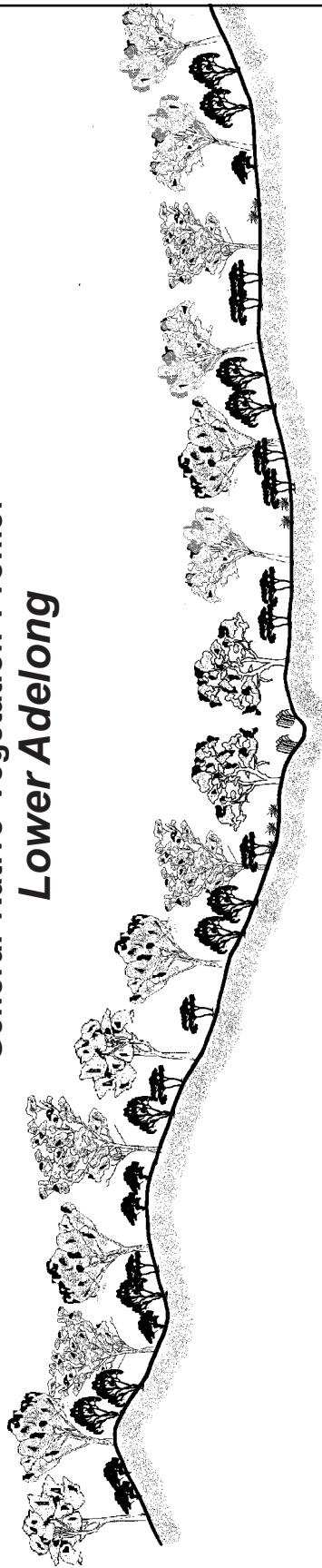
General Native Vegetation Profile: Snowball - Stony

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	River & flood plain	Lower & upper slopes
VEGETATION TYPE	River Red Gum woodland	Yellow Box & Blakely's Red Gum (lower) & White Box woodlands (upper)
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay and gravel (alluvium) Alluvial soils	Conglomerate, sandstone, siltstone. Red & yellow podzolic (duplex) soils & lithosols (earthy loams).
LOCATION EXAMPLE	Murrumbidgee River	Edwardstown & towards Minjary
TREES > 8 m	# <i>Acacia dealbata</i> # <i>Casuarina cunninghamiana</i> # <i>Eucalyptus camaldulensis</i> # not noted in area but suggested for re-planting	<i>Brachychiton populneus</i> <i>Eucalyptus albens</i> + <i>E. blakelyi</i> <i>E. gonocalyx</i> + <i>E. melliodora</i> <i>E. polyanthemus</i> Kurrajong White Box Blakely's Red Gum Long-leaf Box Yellow Box Red Box + lower slopes
SHRUBS 1.5 - 8 m	# <i>Callistemon sieberi</i> # <i>Eremophila deserti</i> # not noted in area but suggested for re-planting	<i>Acacia ulicifolia</i> <i>Daviesia leptophylla</i> <i>Pultenaea procumbens</i> Prickly Moses Slender Bitter-pea Heathy Bush-pea
GROUND COVERS	<i>Carex</i> spp. <i>Juncus</i> spp. <i>Phragmites australis</i> <i>Typha</i> spp.	# <i>Bulbine bulbosa</i> # <i>Dianella revoluta</i> # <i>Glycine clandestina</i> <i>Themeda australis</i> Bulbine Lily Spreading Flax-lily Twining Glycine Kangaroo Grass # not noted in area but suggested for re-planting

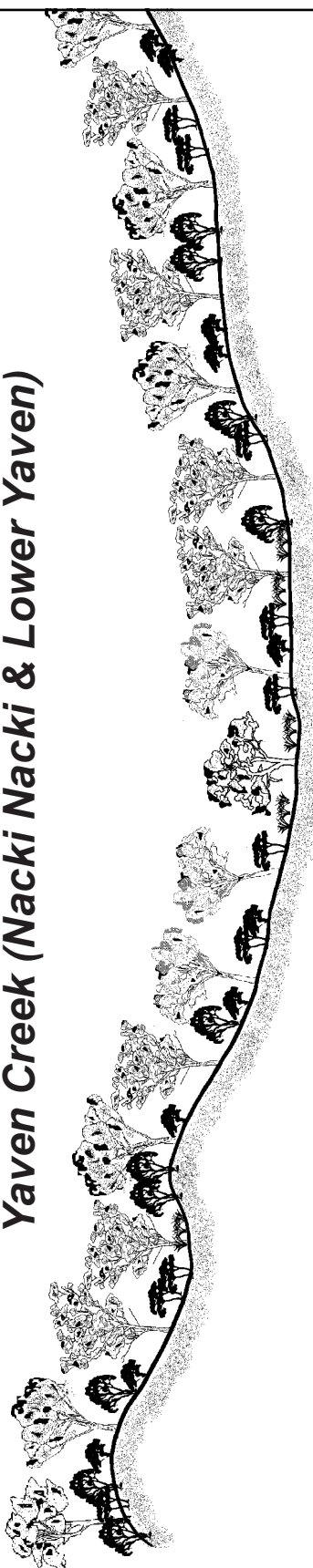
General Native Vegetation Profile: Lower Adelong



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Higher rocky slopes	Creek & flats	Low - mid slopes
VEGETATION TYPE	Box/Stringybark woodland	River Red Gum woodland	Blakely's Red Gum & Yellow Box woodland
GEOLOGY & SOILS	Conglomerate, sandstone, quartzite, reddish shale & siltstone. Lithosols (earthy loams) & red & yellow podzolic (duplex) soils.	Alluvium. Alluvial soils.	Maragle Batholith. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Tumblong State Forest & Minjary Mountain	Adelong Creek	Adelong/Grahamstown/Adelong Falls
TREES > 8 m	<i>Acacia doratoxylon</i> <i>A. implexa</i> <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. gomicalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. rossii</i> <i>E. sideroxylon</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. camaldulensis</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>A. melanoxylon</i> + <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgestana</i> + <i>E. macrorhyncha</i> <i>E. melliodora</i>
SHRUBS 1.5 - 8 m	<i>Acacia buxifolia</i> - Box-leaf Wattle <i>A. paradoxa</i> - Kangaroo Thorn <i>Cassinia longifolia</i> - Shiny Cassinia <i>Dillwynia phylloides</i> - Parrot-pea <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> - Narrow-leaf Hop-bush <i>Indigofera adesmiifolia</i> - Tick / Leafless Indigo <i>I. australis</i> - Austral Indigo <i>Austrostipa densiflora</i> - Spear Grass <i>Brachyoloma daphnoides</i> - Daphne Heath <i>Bulbine bulbosa</i> - Bulbine Lily <i>Burchardia umbellata</i> - Milkmaids <i>Cheilanthes sieberi</i> - Rock Fern <i>Cheiranthra linearis</i> - Finger Flower <i>Dianella revoluta</i> - Spreading Flax-lily <i>Dichopogon strictus</i> - Chocolate Lily <i>Elymus scaber</i> - Common Wheat-grass <i>Glycine clandestina</i> - Twining Glycine <i>Hardenbergia violacea</i> - Purple Coral Pea	<i>Acacia dealbata</i> <i>A. melanoxylon</i> Blakely's Red Gum River Red Gum	<i>Acacia paradoxa</i> <i>Bursaria spinosa</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Leptospermum brevipes</i> Kangaroo Thorn Sweet Bursaria Narrow-leaf Hop-bush Slender Tea-tree
GROUND COVERS	<i>Lissanthe strigosa</i> - Peach Heath <i>Melichmus urceolatus</i> - Urn Heath <i>Spyridium parvifolium</i> - Dusty Miller <i>Shyandra glauca</i> - Nodding Blue-lily <i>Themeda triandra</i> - Kangaroo Grass <i>Xanthorrhoea</i> spp. - Grass-tree	<i>Carax</i> spp. <i>Juncus</i> spp. <i>Phragmites australis</i> <i>Typha</i> spp. Sedge Rush Common Reed Cumbungi	<i>Austrostipa</i> spp. <i>Bulbine bulbosa</i> <i>Burchardia umbellata</i> <i>Dianella longifolia</i> <i>Hibbertia</i> spp. <i>Lomandra</i> spp. <i>Ricinocarpus bowmanii</i> <i>Themeda triandra</i> Spear Grass Bulbine Lily Milkmaids Smooth Flax-lily Gumea-flower Mat-rush Wedding Bush Kangaroo Grass

General Native Vegetation Profile: Yaven Creek (Nacki Nacki & Lower Yaven)



Note: For general re-planting (creeksides: windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate.
Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Rising hills & ridgelines	Flats & lower slopes	Mid to upper slopes
VEGETATION TYPE	Mixed Box woodland	Blakely's Red Gum & Yellow Box woodland	Red Box/Red Stringybark woodland
GEOLOGY & SOILS	Conglomerate, sandstone, siltstone. Red & yellow podzolic (duplex) soils.	Red & yellow podzolic (duplex) soils.	Maragle bathylith.
LOCATION EXAMPLE	Ellerslie State Forest	Snowy Mountains Highway	Yaven Creek Road
TREES > 8 m	<i>Acacia dealbata</i> <i>Brachycton populneus</i> <i>Callitris endlicheri</i> <i>Eucalyptus albens</i> <i>E. bridgesiana</i> <i>E. goniocalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>E. sideroxyylon</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>A. melanoxylon</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. polyanthemos</i>	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>E. rossii</i>
SHRUBS 1.5 - 8 m	<i>Acacia paradoxa</i> <i>Bursaria spinosa</i> + <i>Callistemon sieberi</i> + creeklines <i>Cassinia longifolia</i> <i>Daviesia leptophylla</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera australis</i> <i>Pultenaea procumbens</i>	<i>Acacia dealbata</i> <i>A. implexa</i> <i>A. melanoxylon</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. melliodora</i> <i>E. polyanthemos</i> <i>Acacia paradoxa</i> <i>Bursaria spinosa</i> # + <i>Callistemon sieberi</i> # <i>Daviesia latifolia</i> # <i>Leptospermum brevipes</i> <i>Pultenaea procumbens</i> + creeklines Kangaroo Thorn Hairy Bursaria River Bottlebrush Hop Bitter-pea Slender Tea-tree Heathy Bush-pea + creeklines	<i>Acacia paradoxa</i> <i>Cassinia longifolia</i> <i>Daviesia latifolia</i> <i>D. leptophylla</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera australis</i> <i>Pultenaea procumbens</i>
GROUND COVERS	<i>Bulbine bulbosa</i> <i>Brachyoloma daphnoides</i> <i>Chrysocephalum apiculatum</i> <i>Danthonia eriantha</i> <i>Dillwynia sericea</i> <i>Elymus scaber</i> <i>Glycine clandestina</i> <i>Hardenbergia violacea</i> <i>Poa siebertiana</i> <i>Spyridium parvifolium</i> <i>Sympandra glauca</i> <i>Themeda triandra</i>	<i>Austrostipa</i> spp. <i>Bothriochloa macra</i> + <i>Phragmites australis</i> <i>Themeda triandra</i> + creeklines/drainage lines	<i>Billardiera scandens</i> <i>Cheilanthes cyanea</i> <i>Dianella longifolia</i> <i>D. revoluta</i> <i>Glycine clandestina</i> <i>Hardenbergia violacea</i> <i>Hoera linearis</i> <i>Leucopogon virgatus</i> <i>Melichrus urceolatus</i> <i>Poa</i> spp. <i>Themeda triandra</i>

General Native Vegetation Profile: Oberne - Tarcutta

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



LANDFORM	Creepline & flats	Mid slopes	Upper slopes
VEGETATION TYPE	River Red Gum woodland	Blakely's Red Gum/Yellow box woodland (lower) & Red Stringybark woodland (higher)	Red Stringybark to montane woodland
GEOLOGY & SOILS	Alluvium. Yellow solonchic (mottled-yellow duplex) soils.	Quartzite, slate, phyllite, greywacke, hornfels & schist. Red & yellow podzolic (duplex) soils.	Granite & gneissic granite. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Tarcutta & Umbango Creek junction 'Coolangatta'	Tarcutta South & Oberne area	Westbrook area
TREES > 8 m	<i>Acacia dealbata</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> + creepline only	<i>Acacia dealbata</i> <i>A. implexa</i> <i>Brachychiton populneus</i> Kurrajong <i>Eucalyptus albens</i> * <i>E. blakelyi</i> <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemos</i> <i>E. sideroxyton</i>	<i>Acacia dealbata</i> - Silver Wattle <i>A. implexa</i> - Hickory Wattle/Lightwood <i>A. melanoxyton</i> - Blackwood <i>Brachychiton populneus</i> - Kurrajong <i>E. sideroxyton</i> - Red/Mugga Ironbark <i>Eucalyptus blakelyi</i> - Blakely's Red Gum <i>E. bridgesiana</i> - Apple Box <i>E. dives</i> - Broad-leaved Peppermint <i>E. gomicalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark
SHRUBS 1.5 - 8 m	# <i>Acacia genistifolia</i> # <i>A. paradoxa</i> # <i>Daviesia leptophylla</i> # not noted in area but suggested for re-planting (but not in creepline)	<i>Acacia genistifolia</i> <i>A. paradoxa</i> <i>Bursaria lasiophylla</i> <i>Cassinia arcuata</i> <i>Daviesia leptophylla</i> + <i>Leptospermum continentale</i> + soaks/poorly drained sites	<i>Bursaria lasiophylla</i> <i>Daviesia latifolia</i> <i>Leptospermum obovatum</i> <i>Pultenaea foliolosa</i> Hairy Bursaria Hop Bitter-pea River Tea-tree Bush-pea
GROUND COVERS	# <i>Carex</i> spp. # <i>Juncus</i> spp. <i>Phragmites australis</i> # <i>Typha</i> spp. # not noted in area but suggested for re-planting	<i>Bulbine bulbosa</i> <i>Dianella revoluta</i> <i>Elymus scaber</i> <i>Glycine clandestina</i> <i>Lomandra multiflora</i> + <i>Phragmites australis</i> <i>Styandra glauca</i> <i>Themeda triandra</i> <i>Wahlenbergia stricta</i>	<i>Bulbine bulbosa</i> <i>Burchardia umbellata</i> <i>Dichopogon strictus</i> <i>Dilwynia sericea</i> <i>Glycine clandestina</i> <i>Hibbertia obtusifolia</i> <i>Lomandra multiflora</i> <i>Styandra glauca</i> <i>Themeda triandra</i> Bulbine Lily Milkmaids Chocolate Lily Showy Parrot-pea Twining Glycine Grey Guinea-flower Many-flowered Mat-rush Nodding Blue-lily Kangaroo Grass

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Umbango



LANDFORM	Creeklines & flats	Mid slopes	Upper slopes
VEGETATION TYPE	River Red Gum woodland	Red Stringybark woodland	Montane woodland/forest
GEOLOGY & SOILS	Alluvium. Yellow solonchic (mottled-yellow duplex) soils.	Quartzite, slate, phyllite, hornfels & schists. Red and yellow podzolic (duplex) soils.	
LOCATION EXAMPLE	Umbango Creek	Humula area	Downfall area
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> + creeklines	<i>Acacia implexa</i> - Hickory Wattle <i>Allocasuarina verticillata</i> - Drooping Sheoak <i>Eucalyptus albens</i> - White Box <i>E. blakelyi</i> - Blakely's Red Gum <i>E. bridgesiana</i> - Apple Box <i>E. goniocalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. melliodora</i> - Yellow Box <i>E. nortonii</i> - Silver Bundy	<i>Acacia melanoxylon</i> - Blackwood <i>Eucalyptus campfiora</i> - Mountain Swamp Gum <i>E. dives</i> - Broad-leaved Peppermint <i>E. goniocalyx</i> - Long-leaf Box <i>E. macrorhyncha</i> - Red Stringybark <i>E. mannifera</i> - Brittle Gum <i>E. melliodora</i> - Yellow Box <i>E. polyanthemos</i> - Red Box <i>E. robertsonii</i> - Robertson's Peppermint <i>E. rossii</i> - Scribbly Gum/Snap Gum
SHRUBS 1.5 - 8 m	# <i>Acacia genistifolia</i> # <i>A. paradoxa</i> # <i>Daviesia leptophylla</i> # not noted in area but suggested for re-planting (but not in creekline)	<i>Acacia paradoxa</i> <i>Bursaria lasiophylla</i> <i>Cassinia</i> spp. # <i>Daviesia latifolia</i> <i>D. leptophylla</i> <i>Dilwynia phyllicoides</i> <i>Leptospermum obovatum</i> <i>Platylobium formosum</i> <i>Pomaderris phyllicifolia</i> var. <i>phyllicifolia</i> # not noted in area but suggested for re-planting	<i>Acacia paradoxa</i> - Kangaroo Thorn <i>Bursaria lasiophylla</i> - Hairy Bursaria <i>Cassinia aculeata</i> - Common Cassinia <i>C. longifolia</i> - Shiny Cassinia <i>Daviesia latifolia</i> - Hop Bitter-pea <i>Dilwynia phyllicoides</i> species complex - Small-leaf Parrot-pea + <i>Leptospermum continentale</i> - Prickly Tea-tree * <i>L. obovatum</i> - River Tea-tree * creeklines
GROUND COVERS	#+ <i>Carex</i> spp. #+ <i>Juncus</i> spp. + <i>Phragmites australis</i> + <i>Typha</i> spp. + creeks/drainage lines	Sedge Chocolate Lily Rush Mat-rush Common Reed + drainage lines/damp areas # not noted in area but suggested for re-planting	Red-leg Grass Purple Coral Pea Mat-rush Urn Heath Common Reed Kangaroo Grass Cumbungi + drainage lines/damp areas

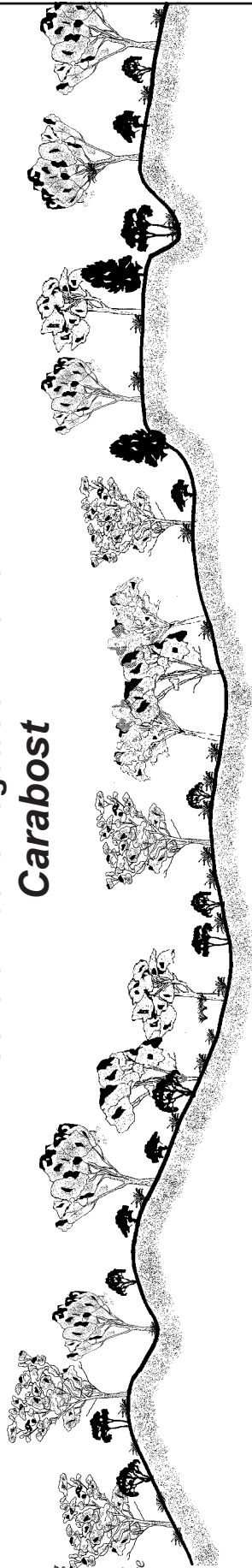
General Native Vegetation Profile: Murruguldrie



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Lower slopes	Upper slopes
VEGETATION TYPE	Red Stringybark/Red Box woodland	Box, Red Stringybark & Mugga/Red Ironbark woodlands
GEOLOGY & SOILS	Maragle bathylith. Red & yellow podzolic (duplex) soils.	Kyeamba ademellite & Maragle bathylith. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Eight Mile Road (Humula-Murruguldrie)	Murruguldrie State Forest
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. implexa</i> <i>Eucalyptus albens</i> <i>E. bridgestiana</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. rossii</i> <i>E. sideroxylon</i> <i>Exocarpos cupressiformis</i></p> <p>Silver Wattle Hickory Wattle/Lightwood White Box Apple Box Red Stringybark Red Box Scribbly Gum/Snap Gum Red/Mugga Ironbark Native Cherry</p>	<p><i>Eucalyptus rossii</i> <i>E. sideroxylon</i> <i>Exocarpos cupressiformis</i> Native Cherry</p> <p>Scribbly Gum/Snap Gum Mugga/Red Ironbark</p> <p>Silver Wattle Currawang Hickory Wattle/Lightwood Drooping Sheoak Kurrajong Black Cypress Pine White Box Blakely's Red Gum Long-leaf Box/Silver Bundy Red Stringybark Yellow Box Red Box</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia paradoxa</i> <i>Cassinia arcuata</i> <i>Daviesia latifolia</i> <i>D. leptophylla</i> <i>Pultenaea foliolosa</i></p> <p>Hedge Wattle Chinese Shrub Hop Bitter-pea Slender Bitter-pea Bush-pea</p>	<p><i>Dodonaea viscosa</i> subsp. <i>angustissima</i> Narrow-leaf Hop-bush Crimson Grevillea <i>Indigofera australis</i> Austral Indigo + <i>Leptospermum continentale</i> Prickly Tea-tree <i>L. multicaule</i> Silver Tea-tree <i>Persoonia rigida</i> Hairy Geebung <i>Platylobium formosum</i> Handsome Flat-pea <i>Pultenaea foliolosa</i> Bush-pea + soaks/poorly drained sites</p> <p>Box-leaf Wattle Ploughshare Wattle Woolly Wattle Kangaroo Thorn Chinese Shrub Shiny Cassinia Hop Bitter-pea Slender Bitter-pea Narrow-leaf Bitter-pea Small-leaf Parrot-pea</p>
GROUND COVERS	<p><i>Brachyloma daphnoides</i> - Daphne Heath <i>Dillwynia sericea</i> - Showy Parrot-pea <i>Hibbertia obtusifolia</i> - Grey Guinea-flower <i>Lomandra</i> spp. - Mat-rush <i>Melichrus urceolatus</i> - Urn Heath <i>Poa sieberiana</i> - Snow/Tussock Grass</p> <p><i>Themeda triandra</i> - Kangaroo Grass + <i>Typha</i> spp. - Cumbungi <i>Xanthorrhoea</i> spp. - Grass tree + drainage lines</p>	<p><i>Hardenbergia violacea</i> Purple Coral Pea <i>Lomandra</i> spp. Mat-rush <i>Melichrus urceolatus</i> Urn Heath <i>Poa sieberiana</i> Snow/Tussock Grass <i>Synandra glauca</i> Nodding Blue-lily <i>Themeda triandra</i> Kangaroo Grass</p> <p>Wire Grass Daphne Heath Hill Wallaby Grass Showy Parrot-pea Common Wheat-grass Twining Glycine</p>

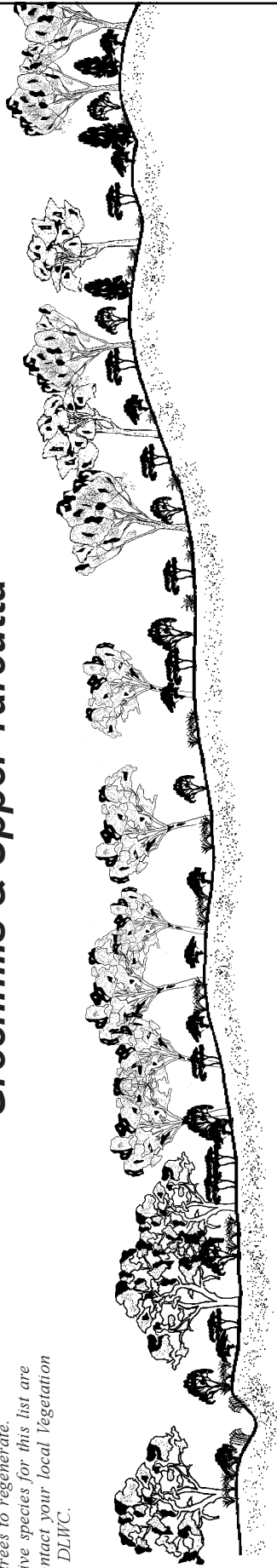
General Native Vegetation Profile: Carabost



Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	High hills	Lower rolling hills	Shaley ridge
VEGETATION TYPE	Dry sclerophyll forest - mixed species	Yellow Box & Blakely's Red Gum dry forest	Red Stringybark/Scribbly Gum or Snap Gum forest
GEOLOGY & SOILS	Quartzite, slate, phyllite, greywacke, hornfels & schist.		
LOCATION EXAMPLE	SW of catchment: Carabost State Forest		
TREES > 8 m	<p>+ <i>Acacia dealbata</i> + <i>A. melanoxylon</i> <i>E. bicostata</i> <i>Eucalyptus blakelyi</i> + <i>E. camphora</i> <i>E. dives</i> <i>E. dealbata</i> + <i>E. bridgestiana</i> <i>E. goniocalyx</i> <i>E. macrorhyncha</i> <i>E. pauciflora</i> <i>E. robertsonii</i> <i>E. rubida</i> + for revegetating drainage lines</p> <p>Silver Wattle Blackwood Eurabbie Blakely's Red Gum Mountain Swamp Gum Broad-leaved Peppermint Tumbledown Gum Apple Box Long-leaf Box Red Stringybark White Sallee/Snow Gum Robertson's Peppermint Candlebark</p>	<p>+ <i>Acacia dealbata</i> <i>A. implexa</i> <i>Eucalyptus blakelyi</i> <i>E. dealbata</i> <i>E. goniocalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> <i>E. rossii</i> <i>Exocarpos cupressiformis</i> Native Cherry/Cherry Ballart + for revegetating drainage lines * particularly on lower easterly aspects</p> <p>Silver Wattle Hickory Wattle/Lightwood Blakely's Red Gum Tumbledown Gum Long-leaf Box Red Stringybark Red Box Scribbly Gum/Snap Gum</p>	<p>Eastern edge of catchment</p>
SHRUBS 1.5 - 8 m	<p><i>Bursaria lasiophylla</i> <i>Cassinia aculeata</i> <i>C. arcuata</i> <i>Daviesia latifolia</i> <i>D. leptophylla</i> <i>Grevillea polybractea</i> + for revegetating drainage lines</p> <p>Hairy Bursaria Common Cassinia Chinese Shrub Hop Bitter-pea Slender Bitter-pea Crimson Grevillea</p>	<p>+ <i>Acacia dealbata</i> + <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> + <i>E. bridgestiana</i> <i>E. goniocalyx</i> + <i>E. camphora</i> <i>E. macrorhyncha</i> <i>E. polyanthemus</i> + for revegetating drainage lines</p> <p>Silver Wattle Blackwood Blakely's Red Gum Apple Box Long-leaf Box Mountain Swamp Gum Red Stringybark Red Box</p> <p><i>Kunzea ericoides</i> <i>K. parvifolia</i> + <i>Leptospermum continentale</i> + soaks/poorly drained sites</p>	<p>Burgan Violet Kunzea Prickly Tea-tree</p>
GROUND COVERS	<p><i>Billardiera scandens</i> + <i>Carex</i> spp. <i>Hardenbergia violacea</i> + <i>Juncus</i> spp. <i>Microlaena stipoides</i> <i>Poa</i> spp. <i>Rubus parvifolius</i></p>	<p>Common Apple-berry Sedge Purple Coral Pea/ Sarsaparilla Rush Weeping Grass Tussock Grass Native Bramble</p>	<p>Kangaroo Grass</p> <p>Soaks/drainage lines/poorly drained sites</p>

General Native Vegetation Profile: Greenhills & Upper Tarcutta



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creekline	Mid to upper slopes	Upper slopes
VEGETATION TYPE	Swamp Gum woodland		Montane woodland
GEOLOGY & SOILS	Maragle Bathylith Red and yellow podzolic (duplex) soils		
LOCATION EXAMPLE	Tarcuttia Creek (upper reaches)	Lower Bago	Courabyra
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus blakelyi</i> <i>E. bridgesiana</i> + <i>E. camphora</i> <i>E. robertsonii</i></p> <p>+ drainage lines/soaks</p>	<p>Silver Wattle Blackwood Broad-leaved Peppermint Red Stringybark Brittle Gum Yellow Box Red Box Robertson's Peppermint Manna Gum Native Cherry</p>	<p>Silver Wattle Blackwood Mountain Swamp Gum Broad-leaved Peppermint Robertson's Peppermint Candlebark Black Sallee Native Cherry</p>
SHRUBS 1.5 - 8 m	<p># <i>Bursaria lasiophylla</i> + <i>Leptospermum continentale</i> + <i>L. obovatum</i> <i>Pomaderris lanigera</i></p> <p># not noted in area but suggested for re-planting + damp / poorly drained sites</p>	<p><i>Bursaria lasiophylla</i> <i>Cassia aculeata</i> <i>Daviesia latifolia</i> <i>Mirbella oxylobioides</i> <i>Pomaderris phyllifolia</i> var. <i>Phyllifolia</i> <i>Platylobium formosum</i></p>	<p>Shiny Cassinia Hop Bitter-pea Goose Bitter-pea Drumstick Heath Austral Indigo Prickly Tea-tree Mountain Tea-tree</p> <p>+ damp areas/drainage lines</p> <p><i>Mirbella oxylobioides</i> - Mountain <i>Mirbella</i> <i>Platylobium formosum</i> - Handsome Flat-pea + <i>Prostanthera lasiantha</i> - Mint Bush + creeks & drainage lines</p>
GROUND COVERS	<p># <i>Carex</i> spp. # <i>Juncus</i> spp. <i>Phragmites australis</i> # <i>Typha</i> spp.</p> <p># not noted in area but suggested for re-planting</p>	<p>Red-leg Grass Purple Coral Pea Snow/Tussock Grass Kangaroo Grass</p>	<p><i>Glycine clandestina</i> <i>Hibbertia obtusifolia</i> <i>Lomandra</i> spp. <i>Melicurus urceolatus</i> <i>Poa sieberiana</i> <i>Tetratheca ciliata</i> <i>Themeda triandra</i></p> <p>Twining Glycine Grey Guinea-flower Mat-rush Um Heath Snow / Tussock Grass Pink Bells / Pink Eye Kangaroo Grass</p>

General Native Vegetation Profile: Upper Adelong & Upper Yaven



Note: For general re-planting (creeksides, windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Creepline & low slopes	Mid slopes	Upper slopes
VEGETATION TYPE	Apple Box/Candlebark woodland	Red Stringybark woodland	Montane woodland/forest
GEOLOGY & SOILS	Maragle bathylith. Red & yellow podzolic (duplex) soils.	Amphibolite, diorite. Red earths.	Maragle bathylith. Red earths.
LOCATION EXAMPLE	Hindmarsh Creek (Tomkins Bridge area)	Green Hills area	Ardrossan/White Gate area
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgestiana</i> <i>E. rubida</i> <i>E. viminalis</i> <i>Exocarpos cupressiformis</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgestiana</i> <i>E. dalympleana</i> <i>E. macrohyncha</i> <i>E. pauciflora</i> <i>E. robertsonii</i> <i>E. rubida</i> <i>E. viminalis</i> <i>Exocarpos cupressiformis</i>	<i>Acacia dealbata</i> <i>A. melanoxylon</i> + <i>Eucalyptus camphora</i> <i>E. dalympleana</i> <i>E. pauciflora</i> <i>E. robertsonii</i> <i>E. rubida</i> <i>E. viminalis</i> <i>Exocarpos cupressiformis</i> + drainage lines/damp areas
SHRUBS 1.5 - 8 m	<i>Bursaria lasiophylla</i> <i>Cassinia aculeata</i> # <i>C. longifolia</i> <i>Daviesia latifolia</i> <i>Leptospermum obovatum</i>	<i>Bursaria lasiophylla</i> <i>Cassinia longifolia</i> # <i>Daviesia latifolia</i> <i>Platylobium formosum</i> # <i>Pultenaea cunninghamii</i>	Shiny Cassinia Rough Coprosma Hop Bitter-pea Gorse Bitter-pea Austral Indigo + <i>Leptospermum continentale</i> <i>Platylobium formosum</i> + soaks/poorly drained sites
GROUND COVERS	<i>Dianella longifolia</i> <i>Hibbertia obtusifolia</i> + <i>Phragmites australis</i> <i>Poa sieberiana</i> <i>Themeda triandra</i> + watercourses/wet areas	<i>Dianella revoluta</i> <i>Hardenbergia violacea</i> <i>Lomandra</i> spp. <i>Themeda triandra</i>	Common Apple-berry Old Man's Beard Twining Glycine Grey Guinea-flower <i>Hibbertia obtusifolia</i> <i>Tetratheca ciliata</i> <i>Themeda triandra</i> Kangaroo Grass

General Native Vegetation Profile: Upper Gilmore



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Lower slopes	Mountains
VEGETATION TYPE	Sub-montane woodland	Montane forest
GEOLOGY & SOILS	Amphibolite, diorite - Maragle bathylith. Red earths.	Maragle bathylith Red earths
LOCATION EXAMPLE	Batlow area	Bago State Forest
TREES > 8 m	<p><i>Acacia dealbata</i> <i>A. kettlewelliae</i> <i>A. melanoxylon</i> <i>Eucalyptus bridgestana</i> + <i>E. camphora</i> <i>E. robertsonii</i> <i>E. rubida</i> <i>E. viminalis</i> <i>Exocarpos cupressiformis</i></p> <p>+ drainage lines</p>	<p><i>E. robertsonii</i> Robertson's Peppermint <i>E. rubida</i> Candlebark <i>E. stellulata</i> Black Sallee <i>E. viminalis</i> Manna Gum <i>Exocarpos cupressiformis</i> Native Cherry</p>
SHRUBS 1.5 - 8 m	<p><i>Acacia pravissima</i> <i>Bursaria lasiophylla</i> <i>Cassinia aculeata</i> <i>C. longifolia</i> <i>Daviesia latifolia</i> + <i>Epacris brevifolia</i> + <i>Hakea microcarpa</i> <i>Leptospermum continentale</i> <i>Platylobium formosum</i></p> <p>+ drainage lines</p>	<p>Golden Wattle Hairy Bursaria Common Fringe-myrtle Cassinia Coprosma/Currant Bush Hop Bitter-pea Drumstick Heath Small-fruited Hakea Prickly Tea-tree Handsome Flat-pea</p>
GROUND COVERS	<p><i>Billardiera scandens</i> - Common Apple-berry <i>Bulbine bulbosa</i> - Bulbine Lily <i>Clematis aristata</i> - Old Man's Beard <i>Dianella revoluta</i> - Spreading Flax-lily <i>Geranium solanderi</i> - Austral Cranesbill <i>Gompholobium heugelii</i> - Pale Wedge-pea <i>Hardenbergia violacea</i> - Purple Coral Pea</p> <p>+ drainage lines</p> <p>+ <i>Phragmites australis</i> - Common Reed <i>Tetradlea ciliata</i> - Pink Bells <i>Themeda triandra</i> - Kangaroo Grass + <i>Typha</i> spp. - Cumbungi</p>	<p><i>Eriostemon myoporoides</i> <i>Hakea microcarpa</i> <i>Hymenanthera dentata</i> <i>Indigofera australis</i> <i>Kunzea parvifolia</i> <i>Leptospermum lamigerum</i> <i>L. myrtillosum</i> <i>Mirabella oxylaboides</i> <i>Persoonia rigida</i> <i>Prostanthera lasiantha</i> <i>Pultenaea foliolosa</i></p> <p>Long-leaf Wax-flower Small-fruited Hakea Tree violet Austral Indigo Violet Kunzea Woolly Tea-tree Swamp Tea-tree Mountain Mirabella Hairy Geebung Mint-bush Bush-pea</p>

General Native Vegetation Profile: Lower Gilmore & Sandy



Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

LANDFORM	Lower slopes & valleys	Mid to upper slopes
VEGETATION TYPE	Blakely's Red Gum woodland	Red Stringybark woodland
GEOLOGY & SOILS	Maragle batholith & riverine deposits of sand, silt, clay and gravel Red and yellow podzolic (duplex) soils	Conglomerate, sandstone, quartzite, reddish shale, siltstone & Maragle batholith Red and yellow podzolic (duplex) soils
LOCATION EXAMPLE	Gilmore Creek area	Tumut State Forest & Gilmore Valley ridges
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> + <i>E. camaldulensis</i> <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i> + creeklines/watercourses	<i>Acacia dealbata</i> <i>A. implexa</i> <i>A. melanoxylon</i> <i>A. penninervis</i> <i>Brachychiton populneus</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> * <i>E. dives</i> <i>E. gomocalyx</i>
SHRUBS 1.5 - 8 m	<i>Acacia ulicifolia</i> <i>Bursaria spinosa</i> <i>Cassinia aculeata</i> <i>Daviesia leptophylla</i> <i>Kunzea parvifolia</i> <i>Pultenaea cunninghamii</i> <i>P. procumbens</i>	Silver Wattle Hickory Wattle/Lightwood Blackwood Mountain Hickory Kurrajong White Box Blakely's Red Gum Apple Box Broad-leaved Peppermint Long-leaf Box
GROUND COVERS	<i>Boerhiochloa macra</i> + <i>Phragmites australis</i> <i>Themeda triandra</i> + creeklines/watercourses	Box-leaf Wattle Ploughshare Wattle Cinnamon Wattle Red-stemmed Wattle Sweet Bursaria Common Cassinia Shiny Cassinia Common Correa Hop Bitter-pea Common Apple-berry Daphne Heath Finger Flower Old Man's Beard Austral Cranesbill Twining Glycine Pale Wedge Pea Purple Coral Pea
	<i>Acacia buxifolia</i> <i>A. gunnii</i> <i>A. leptosa</i> <i>A. rubida</i> <i>Bursaria spinosa</i> <i>Cassinia aculeata</i> <i>C. longifolia</i> <i>Correa reflexa</i> <i>Daviesia latifolia</i> <i>Billardiera scandens</i> <i>Brachyoloma daphnoides</i> <i>Cheiranthera cyanea</i> <i>Clematis aristata</i> <i>Geranium solanderi</i> <i>Glycine clandestina</i> <i>Gompholobium heugelii</i> <i>Hardenbergia violacea</i>	<i>Dillwynia retorta</i> <i>Grevillea lanigera</i> <i>G. ramosissima</i> <i>Gynatrix pulchella</i> <i>Indigofera adesmiifolia</i> <i>I. australis</i> <i>Persoonia rigida</i> <i>Platylobium formosum</i> <i>Pultenaea cunninghamii</i> <i>Hibbertia obtusifolia</i> <i>Hovea linearis</i> <i>Lomandra</i> spp. <i>Melicchus urceolatus</i> <i>Pimelea limifolia</i> <i>Stackhousia monogyna</i> <i>Spyrandra glauca</i> <i>Spyridium parvifolium</i> <i>Tetratheca ciliata</i>
	Prickly Moses Sweet Bursaria Common Cassinia Slender Bitter-pea Violet Kunzea Grey Bush-pea Heathy Bush-pea	Red Stringybark Brittle Gum Red Box Robertson's Peppermint Scribbly Gum/Snap Gum Mugga/Red Ironbark Manna Gum Native Cherry
	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Eucalyptus albens</i> <i>E. bridgesiana</i> <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i> + creeklines/watercourses	* higher, moister areas
	<i>Acacia ulicifolia</i> <i>Bursaria spinosa</i> <i>Cassinia aculeata</i> <i>Daviesia leptophylla</i> <i>Kunzea parvifolia</i> <i>Pultenaea cunninghamii</i> <i>P. procumbens</i>	Small-leaf Parrot-pea Woolly Grevillea Fan Grevillea Hemp-bush Tick / Leafless Indigo Austral Indigo Hairy Geebung Handsome Flat-pea Grey Bush-pea
	<i>Boerhiochloa macra</i> + <i>Phragmites australis</i> <i>Themeda triandra</i> + creeklines/watercourses	Grey Guinea-flower Common Hovea Mat-rush Urn Heath Slender Rice-flower Creamy Candles Nodding Blue-lily Dusty Miller Pink Bells/Pink Eye

General Native Vegetation Profile: Gocup

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.



	River & flats	Low to mid slopes	Higher slopes
LANDFORM	River Red Gum woodland	Yellow Box & Blakely's Red Gum woodland	Red Stringybark woodland
VEGETATION TYPE			
GEOLOGY & SOILS	Alluvium. Alluvial soils.	Conglomerate, sandstone & siltstone. Red & yellow podzolic (duplex) soils.	Basalt. Lithosols (earthy loams) & red podzolic (duplex) soils.
LOCATION EXAMPLE	Tumut River	Halfway Hill/Gocup area	Minjary Mountain
TREES > 8 m	# <i>Acacia dealbata</i> <i>Casuarina cunninghamiana</i> <i>Eucalyptus camaldulensis</i> # not noted in area but suggested for re-planting	+ <i>A. melanoxylon</i> <i>Eucalyptus albens</i> <i>E. blakelyi</i> <i>E. bridgesiana</i> <i>E. macrorhyncha</i> <i>E. meliadora</i> <i>E. polyanthemos</i> + lower areas	<i>A. implexa</i> <i>Brachychiton populneus</i> <i>Eucalyptus goniotocalyx</i> <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>Exocarpos cupressiformis</i> Hickory Wattle/Lightwood Kurrajong Long-leaf Box Red Stringybark Red Box Native Cherry
SHRUBS 1.5 - 8 m	# <i>Callistemon sieberi</i> River Bottlebrush <i>Hymenanthera dentata</i> Tree Violet <i>Leptospermum brevipes</i> Slender Tea-tree # not noted in area but suggested for re-planting	<i>Acacia ulicifolia</i> <i>Leptospermum brevipes</i> <i>Pultenaea foliolosa</i> <i>P. procumbens</i> Prickly Moses Slender Tea-tree Bush-pea Heathy Bush-pea	<i>Acacia ulicifolia</i> <i>A. verniciflua</i> <i>Cassinia longifolia</i> <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> <i>Indigofera australis</i> <i>Santalum acuminatum</i> Prickly Moses Varnish Wattle Shiny Cassinia Narrow-leaf Hop-bush Austral Indigo Quandong
GROUND COVERS	<i>Carex</i> spp. <i>Juncus</i> spp. <i>Phragmites australis</i> # <i>Typha</i> spp. # not noted in area but suggested for re-planting	<i>Dillwynia sericea</i> <i>Hardenbergia violacea</i> <i>Hibbertia obtusifolia</i> <i>Lomandra</i> spp. <i>Melichrus urceolatus</i> <i>Stypandra glauca</i> <i>Themeda triandra</i> <i>Xanthorrhoea</i> spp. Showy Parrot-pea Purple Coral Pea Grey Guinea-flower Mat-rush Urn Heath Nodding Blue-lily Kangaroo Grass Grass tree	<i>Brachyoloma daphnoides</i> <i>Bulbine bulbosa</i> <i>Cheilanthes</i> spp. <i>Hibbertia obtusifolia</i> <i>Stypandra glauca</i> Daphne Heath Bulbine Lily Rock Fern Grey Guinea-flower Nodding Blue-lily

Note: For general re-planting (creeksides; windbreaks etc.), select 50% trees and at least 50% shrubs. If enhancing sites with remnant trees, select shrubs only and allow trees to regenerate. Additions of locally native species for this list are gratefully accepted. Contact your local Vegetation Management Officer at DLWC.

General Native Vegetation Profile: Brungle Bridge - Gundagai Region

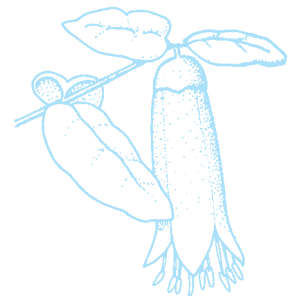


LANDFORM	River & flood plain	Lower & upper slopes
VEGETATION TYPE	River Red Gum woodland	Yellow Box & Blakely's Red Gum woodland (lower) & White Box woodland (upper)
GEOLOGY & SOILS	Riverine deposits of sand, silt, clay & gravel (alluvium). Alluvial soils.	Conglomerate, sandstone, quartzite, reddish shale & siltstone. Red & yellow podzolic (duplex) soils.
LOCATION EXAMPLE	Tumut River	Tarrabandra area
TREES > 8 m	<i>Acacia dealbata</i> <i>A. melanoxylon</i> <i>Casuarina cunninghamiana</i> <i>Eucalyptus camaldulensis</i>	Hickory Wattle/Lightwood Kurrajong White Box Blakely's Red Gum (lower & upper) Apple Box Yellow Box Red Box
SHRUBS 1.5 - 8 m	<i>Callistemon sieberi</i> <i>Hymenanthera dentata</i> # not noted in area but suggested for re-planting	Hedge Wattle Varnish Wattle Prickly Moses Sweet Bursaria Parrot-pea Narrow-leaf Hop-bush Austral Indigo Heathy Bush-pea Northern Sandalwood # not noted in area but suggested for re-planting
GROUND COVERS	<i>Carex</i> spp. <i>Juncus</i> spp. # <i>Phragmites australis</i> # <i>Typha</i> spp. # not noted in area but suggested for re-planting	Wallaby Grass Spreading Flax-lily Purple Coral Pea Grey Guinea-flower Kangaroo Grass # not noted in area but suggested for re-planting

* lower slopes

Part Three

Plant Descriptions



introduction to plant descriptions

The information following is presented as:

1. Plant Information Checklist,
2. Plant Descriptions, and
3. Plant Identification Sheets.

Plant characteristics such as size and frost tolerance depend on the plant's provenance, or locality. For example River Red Gum (*E. camaldulensis*) from Alice Springs is quite different from the River Red Gum at Melbourne, as the two provenances have adapted to very different conditions. Similar variation occurs across the region. The information that follows has been compiled from several texts, and local knowledge has been added where possible so the information is locally appropriate. However, due to provenance variation, it should be taken as a guide only.

Key texts used to compile the information were:

- *The Flora of New South Wales, Vols 1–4*, G. Harden, New South Wales University Press, Kensington.
- *Plants of Western New South Wales*, 1992, G.M. Cunningham, W.E. Mulham, P.L. Milthorpe, & J.H. Leigh, Inkata Press, Melbourne.
- *Native Trees and Shrubs of South Eastern Australia*, 1981, L. Costermans, Rigby, Melbourne.
- *Encyclopaedia of Australian Plants Suitable for Cultivation, Vols 1–7*, W.R. Elliot & D.L. Jones, Lothian, Melbourne.
- *Seed Collection of Australian Native Plants*, 1994, 2nd edn., M. Ralph, Murray Ralph, Melbourne.
- *Growing Australian Native Plants from Seed*, 1997, M. Ralph, Murray Ralph/ Bushland Horticulture, Melbourne.

Botanical names are taken from *The Flora of New South Wales*. However, due to several changes to botanical names since *The Flora of New South Wales* was published, updated names have been taken from the *Census for Victorian Plants* (1996) and the *Flora of Australia*, and checked by staff at the Canberra Botanic Gardens.

PLANT INFORMATION CHECKLIST

The checklist consists of summarised points for: trees >8 m; shrubs 1.5–8m, and small shrubs and groundcovers (ie. Categories 1–3 below in **Plant Categories**). The checklist format is as follows:

- **botanical name** the scientific name.
- **common name/s** includes local names and those recognised in texts.
- **site/preferred habitat** where the plant occurs naturally, or its preferred planting site.
- **rainfall** average minimum rainfall in species original distribution (in mm), or the rainfall range.
- **growth rate** from slow to very fast.
- **tolerates** conditions the plant should tolerate, such as frost.
- **resents** unsuitable site conditions, such as poor drainage.
- **uses and comments** uses for farm & garden; and comments, including availability, or special features.

PLANT DESCRIPTIONS

Information in the **Plant Description** section is presented under the following categories:

1. Trees 8 m and over;
2. Small trees and shrubs 1.5 m–8 m;
3. Small Shrubs and Groundcovers 1.5 m or less;
4. Climbers;
5. Non Woody Herbs;
6. Ferns;
7. Grasses; and
8. Water Plants, Sedges and Rushes.

Categories 1 and 2 are covered in more detail than the other categories, because they are generally considered to have more revegetation application on the farm or broad landscape scale.

PLANT DESCRIPTIONS FORMAT: CATEGORIES 1 & 2

syn.	Previous botanical name/s.
Also:	Other common names.
Family:	Plant family.
Name Origin:	Origin of botanical and/or common name.

OCCURRENCE:

Regional:	Where the plant occurs in the area covered by the guide.
Australia:	Where the plant occurs in Australia.
Habitat:	Typical vegetation community/ soil type or geographic area where the species grows.
Habit:	General description of the plant, including growth habit, height, bark, and foliage etc.
Similar Species:	Explains how to distinguish plant from similar species in the region.

Site Preference: Preferred site including soils, moisture levels, sunlight levels etc. Covers other conditions the species can tolerate including wind, frost, snow, waterlogging etc.

Characteristics: Includes growth rate, features such as fire retarder or prone to damage from insects, palatability, longevity etc.

Flowering: Flower colour, flowering time, abundance, perfume etc.

Seed Collection: Time, requirements, abundance of seed crops etc.

Propagation: Method eg. seed/cuttings/division; viable seed per gram; timing; special treatment etc.

Regeneration: Plant regeneration strategy e.g. seed/suckers/coppice; and direct seeding suitability.

VALUES:

Shade & Shelter: Suitability for windbreaks or shade.

Land Protection: Suitability for erosion control; recharge control; discharge planting; improving soil fertility etc.

Fuel: Suitability, including features of splitting and burning.

Timber: Wood characteristics and uses e.g. furniture/fencing; potential for farm forestry.

Wildlife: Habitat value for native fauna.

Koori: Value of plant parts to the Kooris.

Ornamental: Uses such as specimen, groundcover, shade, screening, containers, rockeries; cultivation recommendations such as pruning/ summer watering etc.

Other: Other values, including dyeing, tannin production etc.

PLANT DESCRIPTIONS FORMAT: CATEGORIES 3–8

syn. Previous botanical name/s.

Also: Other common names.

Family: Plant family.

Name Origin: Origin of botanical and/or common name.

Occurrence: Where the plant occurs in the guide area.

Habitat: Typical vegetation community/soil type or geographic area where the species grows.

Habit: General description of the plant, including growth habit, height, bark, foliage, and flower colour and time etc.

Seed Collection: Time, requirements, abundance of seed crops etc.

Propagation: Method eg. seed/cuttings/division; viable seed per gram; timing; special treatment etc.

Values/ Uses: Such as windbreak, erosion control etc and brief cultivation notes.

Comments: Site preference, conditions tolerant of etc.

PLANT IDENTIFICATION SHEETS

The Plant Identification Sheets are designed for photocopying and using in the field to aid in plant identification. The illustrations are taken from *The Flora of New South Wales*. The sheets consist of illustrations of:

- eucalypts (buds and fruits),
- acacias,
- leptospermums (Tea-trees),
- callistemons, kunzeas and baeckeas, and
- grevilleas.



plant information checklist: trees > 8m

Note: The information presented is only a guide, as plant characteristics vary depending on provenance (the plant's locality).

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Acacia dealbata</i>	Silver Wattle	creekbanks; slopes	650	fast	strong wind; frost; snow	poor drainage	windbreak; erosion control; fixes nitrogen; woodwork; wildlife habitat; tannin; dyes; ornamental
<i>A. doratoxylon</i>	Currawang	well-drained soil, rocky areas	300	slow	frost; drought		fuel; fixes nitrogen; furniture timber; windbreak; recharge control; wildlife; ornamental
<i>A. implexa</i>	Hickory Wattle/ Lightwood	slopes; ridges	500	moderate	frost; drought; strong wind	poor drainage	windbreak; recharge control; erosion control; fixes nitrogen; fuel; woodwork; tannin; wildlife habitat.
<i>A. kettlewelliae</i>	Buffalo Wattle	moist, well-drained soils; full sun	900+		frost		windbreak; fixes nitrogen; soil stabilisation; wildlife habitat.
<i>A. leucoclada</i>	Northern Silver Wattle	creekbanks & lower slopes	400-900	fast (when young)	frost; drought		Windbreak; erosion control; fixes nitrogen;
<i>A. melanoxylon</i>	Blackwood	moist soils on slopes & creeklines	500	moderate/ fast	cold conditions; wind; shade; fire	frost when young	windbreak; erosion control; fixes nitrogen; timber; wildlife habitat; tannin; dyes; ornamental.
<i>A. pendula</i>	Boree/Myall	floodplains/ flats	250	slow	frost		windbreak; fuel, fixes nitrogen; timber; fodder. Hosts Bag Shelter Moth.
<i>A. penninervis</i>	Mountain Hickory	Partial/ full sun; well-drained soil	400-900		moderate frost		windbreak; fixes nitrogen
<i>A. salicina</i>	Cooba	creekbanks/ flats	300	moderate	salt; drought	frost when young	windbreak; fuel; timber; fixes nitrogen; wildlife
<i>A. stenophylla</i>	River Cooba	watercourses, swamp edges & depressions	400	moderate	waterlogging; poor drainage; frost; salt		windbreak; timber; fixes nitrogen; wildlife; ornamental.
<i>Allocasuarina luehmannii</i>	Bulloak	sandy soils on flats; also heavier soils	350	moderate	drought; frost; wind; salt; seasonal flooding	fire	windbreak; erosion control; fixes nitrogen; fuel; timber; wildlife. Readily grazed - seedlings highly palatable to stock.
<i>Allocasuarina verticillata</i>	Drooping Sheoak	dry ridges	500	slow/ moderate	fire; frost; drought		windbreak; erosion control; fuel; timber; wildlife. Readily grazed - seedlings highly palatable to stock.

plant information checklist continued...

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Banksia marginata</i>	Silver Banksia	many soils, including sandy soils	500	moderate/fast	fire; waterlogging; frost		windbreak; wildlife; fire retarder
<i>Brachychiton populneus</i>	Kurrajong	well-drained soils	350	slow/moderate	drought; wind; alkaline soil	frost when young	shade; windbreak; wildlife; drought fodder
<i>Callitris endlicheri</i>	Black Cypress Pine	stony hills & ridges	500-750	slow	frost; drought; poor soils	poor drainage	windbreak; timber; wildlife
<i>Callitris glaucophylla</i>	White Cypress Pine	sandy rises; slopes; ridges	350	slow	dryness; frost	fire; poor drainage; high watertables	windbreak; fuel; timber; wildlife; bees
<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	River Sheoak	riverbanks - Murrumbidgee River only (in region)	550	very fast	frost; cold; slight salinity; waterlogging		windbreak; erosion control; fuel; timber; fodder; ornamental
<i>Eucalyptus albens</i>	White Box	fertile slopes; ridges	400	moderate	drought; moderate frost		windbreak; recharge; erosion control; fuel; timber; wildlife; honey
<i>E. bicostata</i>	Eurabbie	fertile soils, sheltered areas	700-1200	fast	poor drainage	frost when young	windbreak; gully erosion control; timber; wildlife
<i>E. blakelyi</i>	Blakley's Red Gum	loamy moderately fertile soil	450	moderate	frost; drought; waterlogging	lerps (if large numbers)	windbreak; firebreak; erosion control; fuel; timber; wildlife
<i>E. bridgesiana</i>	Apple Box	well-drained heavy soils	500-1000	moderate	moderate frost; drought		windbreak; shade; erosion control; wildlife
<i>E. camaldulensis</i>	River Red Gum	low-lying sites, occasionally flooded	500	fast	wind; waterlogging (some provenances tolerate salinity & drought).	well-drained hill sites; lerps (if large numbers)	windbreak; erosion control; fuel; timber; wildlife
<i>E. camphora</i> subsp. <i>humeana</i>	Mountain Swamp Gum	moist soil	600	very fast	cold; heavy soils	dry soils	windbreak; erosion control; drainage improvement; wildlife
<i>E. cinerea</i>	Argyle Apple	poor soils, lower slopes	500		most frost; drought	poor drainage	windbreak; erosion control; wildlife; ornamental
<i>E. dalrympleana</i>	Mountain Grey Gum	moist, well-drained soil	800-1900	fast	frost		timber; wildlife

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>E. dealbata</i>	Tumbledown Gum	well-drained hills	400		frost; dry skeletal soil	poor drainage	windbreak; wildlife; bees
<i>E. delegatensis</i>	Alpine Ash	well-drained, deep soils	1100-1500				windbreak; timber; wildlife
<i>E. dives</i>	Broad-leaved Peppermint	well-drained poor soils, slopes & ridges	600	fast	moderate frost; dry periods; wind		windbreak; wildlife; coppicing for oil production; ornamental
<i>E. dwyeri</i>	Dwyer's Red Gum	well-drained soil	400			poor drainage	windbreak; recharge control; timber; wildlife
<i>E. goniocalyx</i>	Long-leaf Box	dry rocky slopes	500	moderate	moderate frost; drought	poor drainage	windbreak; recharge control; fuel; wildlife
<i>E. nortonii</i>	Silver Bundy	dry rocky slopes	600-700	moderate	moderate frost; drought	poor drainage	windbreak; recharge control; fuel; wildlife; ornamental
<i>E. macrorhyncha</i>	Red Stringybark	well-drained moderately fertile soil	600	moderate	most frost; hot dry conditions	ringbarking	windbreak; recharge control; fuel; timber; wildlife
<i>E. mannifera</i>	Brittle Gum	well-drained soil	500		frost; moderate snow; drought		windbreak; wildlife; ornamental
<i>E. melliodora</i>	Yellow Box	well-drained, moderately fertile soil; generally lower slopes	400	slow-moderate	moderate frost; wind	poorly-drained, infertile soils; cold; high waterables; lerps (if large numbers)	windbreak; soil stabilisation; fuel; timber; wildlife; honey; ornamental
<i>E. microcarpa</i>	Grey Box	heavy soil on flats, slopes and some low ridges	450	moderate	infrequent flooding; moderately alkaline soil; frost; wind; dryness		windbreak; erosion control; fuel; timber; wildlife
<i>E. pauciflora</i>	White Sallee/Snow Gum	shallow well-drained soils, cold exposed areas	650	fast when young	frost; strong wind; heavy snow; poorly-drained soil	drought	fuel; timber; windbreak; erosion control; wildlife; ornamental; emergency stock feed
<i>E. polyanthemus</i>	Red Box	well-drained soil	500	moderate	frost; wind; some dryness	poor drainage	windbreak; recharge control; fuel; timber; wildlife

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>E. robertsonii</i>	Robertson's Peppermint	moist deep soils	650-1100	fast	moderate frost; moderate snow; poor drainage		windbreak; fuel; timber; wildlife; ornamental
<i>E. rossii</i>	Scribbly Gum/ Snap Gum	ridges and low ridge country	900+		frost	poor drainage	windbreak; fuel; wildlife; ornamental
<i>E. rubida</i>	Candlebark	moderately fertile, well-drained soils	700	moderate		cold; frost; wind; moderately drought tolerant	timber; fuel; windbreak; wildlife; ornamental
<i>E. sideroxyylon</i>	Mugga/ Red Ironbark	poor, shallow soil	500	moderate	frost; moderately drought tolerant	poor drainage	fuel; timber; windbreak; honey; wildlife; ornamental
<i>E. stellulata</i>	Black Sallee	high altitude cold flats	800-1700		poorly-drained soils; frost; snow; wind		windbreak; soil drainage improvement; fuel; wildlife; ornamental
<i>E. viminalis</i>	Manna Gum	moist, well-drained soils	650	fast	frost; snow; moderate flooding	poor drainage	windbreak; groundwater control; landslip stabilisation; fuel; timber; wildlife
<i>Exocarpos cupressiformis</i>	Native Cherry/ Cherry Ballart	shallow, poor soils	400+	moderate to slow	shallow soil	fire; poor drainage	wood turning; windbreak; wildlife; ornamental; difficult to propagate or purchase. try transplanting root suckers
<i>Geijera parviflora</i>	Wilga	sandy well- drained plains/ low rises	400	slow to moderate	drought	poor drainage	windbreak; wildlife; emergency fodder; difficult to propagate or purchase
<i>Hakea tephrosperma</i>	Hooked Needlewood	coarse soils	300	slow	moderate frost		timber; wildlife; ornamental
<i>Lomatia fraseri</i>	Silky Lomatia	moist, well-drained soil	900+		wetness; frost; limited dry periods; most soils & aspects		ornamental
<i>Myoporum montanum</i>	Water Bush/ Western Boobialla	well-drained soil	400-700	moderate	severe drought		windbreak; wildlife; ornamental; low flammability
<i>Pittosporum angustifolium</i>	Butterbush/ Weeping Pittosporum	sandy soil	300	slow	drought; frost	waterlogging	windbreak; bank stabilisation; wood turning; wildlife; ornamental; emergency drought fodder

plant information checklist: shrubs 1.5 – 8m

Note: The information presented is only a guide, as plant characteristics vary depending on provenance (the plant's locality).

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Acacia acinacea</i>	Gold-dust Wattle	well-drained soil	350	fast	frost; drought; moderate flooding		windbreak; fixes nitrogen; wildlife; ornamental
<i>A. brachybotrya</i>	Grey Wattle/ Grey Mulga	sandy, well-drained soil	400	moderate		poor drainage & waterlogging	windbreak; fixes nitrogen; ornamental
<i>A. buxifolia</i>	Box-leaf Wattle	well-drained soil	600	moderate	frost; dry periods	poor drainage	windbreak; fixes nitrogen; erosion control; wildlife; ornamental
<i>A. deanei</i>	Deane's Wattle/ Green Wattle	well-drained soil	550	fast	frost; drought	poor drainage	windbreak; fixes nitrogen; erosion control; wildlife; ornamental. Poisonous if heavily grazed
<i>A. decora</i>	Western Golden Wattle	well-drained soil, full sun	350	moderate	frost; drought	poor drainage	windbreak; fixes nitrogen; wildlife; ornamental; suckers
<i>A. difformis</i>	Drooping Wattle	sandy, well-drained soil	400-700	moderate	drought		windbreak; fixes nitrogen; soil stabilisation; wildlife; ornamental; suckers
<i>A. flexifolia</i>	Bent-leaf Wattle	well-drained soil	400-700	moderate	frost; dryness		windbreak; fixes nitrogen; ornamental.
<i>A. genistifolia</i>	Spreading Wattle/ Early Wattle	well-drained soils	400-700	fast	frost; wetness; dryness		windbreak; fixes nitrogen; wildlife; ornamental
<i>A. gunnii</i>	Ploughshare Wattle	well-drained soils	500-900		frost & dryness once established	poor drainage	windbreak; erosion control; fixes nitrogen; wildlife; ornamental
<i>A. hakeoides</i>	Hakea Wattle/ Western Black Wattle	poorly-moderately drained soils	350	moderate	frost; dryness		windbreak; erosion control; fixes nitrogen; wildlife; ornamental
<i>A. lanigera</i>	Woolly Wattle	poor, well-drained soils	400-700		wetness for short periods		windbreak; controlling erosion; fixes nitrogen; wildlife; ornamental
<i>A. leprosa</i>	Cinnamon Wattle	moist, well-drained soils	900+	fast	frost; dryness for short periods	poor drainage	windbreak; fixes nitrogen; woodwork; ornamental
<i>A. linearifolia</i>	Stringybark Wattle	well-drained rocky sites or slopes	400-700		dry conditions	frost when young	windbreak; fixes nitrogen; ornamental
<i>A. lineata</i>	Streaked Wattle	sandy, well-drained soil	400-700	moderate	frost; drought	poor drainage	windbreak; fixes nitrogen; ornamental

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>A. montana</i>	Mallee Wattle	well-drained light to heavy soils	400-700	fast	frost	poor drainage	windbreak; fixes nitrogen; ornamental; wildlife. Could be used more for farm planting
<i>A. oswaldii</i>	Miljee/Oswald's Wattle	well-drained light to medium soil	200	moderate	frost; drought		windbreak; fuel; fixes nitrogen; timber; fodder; ornamental
<i>A. paradoxa</i>	Kangaroo Thorn/ Wild Irishman/ Hedge Wattle	dry shallow soils in high rainfall areas; heavier soils in lower rainfall areas	300	fast	moderate flooding; dryness; acid & alkaline soils	frost when young	windbreak; fixes nitrogen; erosion control; excellent wildlife habitat
<i>A. praevisissima</i>	Tumut Wattle/ Wedge-leaved Wattle/ Ovens Wattle	light to medium soils	500	fast	frost; seasonal waterlogging; drought		windbreak; streambank erosion control; fixes nitrogen; wildlife; ornamental
<i>A. pycnantha</i>	Golden Wattle	Fairly well- drained soils	400	fast	drought; frost; shade; brief waterlogging	frost when young; fire	windbreak; soil stabilisation; fixes nitrogen; wildlife; tannin; dyes; ornamental
<i>A. rubida</i>	Red-stemmed Wattle	riverbanks; swamp edges; elevated rocky areas	650	fast	frost; drought; limited waterlogging		windbreak; erosion control; fixes nitrogen; wildlife; ornamental
<i>A. sicutiformis</i>	Dagger Wattle	well-drained rocky or sandy sites	700	frost; snow	poor drainage		windbreak; erosion control; fixes nitrogen; wildlife; ornamental
<i>A. ulicifolia</i>	Prickly Moses	moist, well- drained soil	400+	fast	frost		windbreak; stabilising soil; fixes nitrogen; wildlife; garden barrier or screen
<i>A. verniciflua</i>	Varnish Wattle	well-drained shallow soils	400	fast	frost; dryness		windbreak; stabilising soil; fixes nitrogen; wildlife; ornamental
<i>Baeckea utilis</i>	Mountain Baeckea	wet areas, semi-shade	1100-1500		frost	dry soils	windbreak; ornamental
<i>Bursaria lasiophylla</i>	Hairy Bursaria/ Blackthorn/ Wild Irishman/ Snow in Summer	well-drained soil	500+	slow	frost; wind	poor drainage	windbreak; erosion control; timber; wildlife; natural pest control; ornamental; excellent long-lived hardy shrub for general planting

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Bursaria spinosa</i>	Sweet Bursaria/ Blackthorn/ Wild Irishman/ Snow in Summer	moderate to well- drained soil	400	slow	frost; wind	poor drainage	windbreak; erosion control; timber; wildlife; natural pest control; pharmaceuticals; ornamental; excellent long-lived hardy shrub for general planting
<i>Callistemon pityoides</i>	Alpine Bottlebrush	boggy areas	1000+		frost	drought	windbreak; erosion control; wildlife; ornamental
<i>Callistemon sieberi</i>	River Bottlebrush	watercourses	650	slow/moderate	seasonal waterlogging; flooding; poor soils; wind; fire; frost		windbreak; erosion control; wildlife; ornamental
<i>Calytrix tetragona</i>	Common Fringe-myrtle	well-drained soils; full sun	400	moderate	frost; periodic waterlogging; dry spells		windbreak; wildlife; ornamental; flammable
<i>Cassinia aculeata</i>	Common Cassinia	moist, well- drained soils; dappled shade	700+	fast	drought; frost		windbreak; wildlife; ornamental; cut flowers
<i>Cassinia arcuata</i>	Chinese Shrub	well-drained soils	400+	fast	drought; frost	poor drainage	coloniser - 'nurse plant'; mine site reclamation; ornamental
<i>Cassinia laevis</i>	Cough Bush		400-900				
<i>Cassinia longifolia</i>	Shiny Cassinia	moist, well- drained soils; dappled shade	700+	fast	frost; drought.		wildlife; windbreak; ornamental
<i>Coprosma hirtella</i>	Rough Coprosma	damp slopes at higher altitudes	950+	fast	frost		wildlife; fire retardant; ornamental
<i>Coprosma quadrifida</i>	Prickly Currant Bush	creekbanks or damp sites	900+	slow-moderate	poor-drainage; seasonal waterlogging; salt	drought	wildlife; ornamental
<i>Correa glabra</i>	Rock Correa	well-drained soils, in rocky areas	500	fast	drought; frost	poor-drainage	wildlife; ornamental
<i>Correa reflexa</i> var. <i>reflexa</i>	Common Correa	well-drained soils	500	moderate	full sun; dry soils; frost	poor-drainage	wildlife; ornamental; cut flowers
<i>Daviesia latifolia</i>	Hop Bitter-pea	well-drained soils	500	fast	frost; full sun	poor drainage	windbreak; recharge control; fixes nitrogen; wildlife; ornamental

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Daviesia leptophylla</i>	Slender Bitter-pea	well-drained soils	500	fast	frost;	poor drainage	windbreak; recharge control; fixes nitrogen; wildlife; ornamental
<i>Daviesia mimosoides</i> subsp. <i>Leafy</i>	Narrow-leaf Bitter-pea/ Bitter-pea	well-drained soils	700	fast	frost;	poor drainage	windbreak; recharge control; fixes nitrogen; wildlife; ornamental
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea	dry, well-drained soils; partial sun	400-900	fast	frost; drought	poor drainage	windbreak; recharge control; fixes nitrogen; wildlife; ornamental
<i>Dillwynia juniperina</i>	Prickly Parrot-pea	well-drained soils	400+	moderate	frost	poor drainage	wildlife; fixes nitrogen; ornamental; locally rare.
<i>Dillwynia phyllicoides</i> species complex	Parrot-pea	well-drained soils	400+	moderate	frost	poor drainage	wildlife; fixes nitrogen; ornamental
<i>Dillwynia retorta</i> species complex	Small-leaf Parrot-pea	well-drained soils	400+	moderate	frost	poor drainage	wildlife; fixes nitrogen; ornamental
<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	Narrow-leaf Hop-bush	well-drained soils	250	fast	frost; drought		windbreak; recharge control; land reclamation; wildlife; ornamental.
<i>Dodonaea viscosa</i> subsp. <i>cuneata</i>	Wedge-leaf Hop-bush	moderate to well-drained soils	250	fast	frost; drought		windbreak; recharge control; land reclamation; wildlife; ornamental.
<i>Epacris breviflora</i>	Drumstick Heath	swamps & damp sites, 350 to 1500 m elevation	1100-1500		frost		ornamental
<i>Eremophila deserti</i>	Turkey-bush	various: light to heavy soils					wildlife
<i>Eremophila longifolia</i>	Berrigan/ Long-leaf Emu-bush	well-drained soil, full sun	250-500	moderate		frost; poor drainage	windbreak; erosion control; wildlife; ornamental
<i>Eriostemon myoporoides</i> subsp. <i>acutus</i>	Long-leaf Wax flower	well-drained neutral to acid soils	900	moderate	frost; dry periods; semi-shade & full sun		ornamental
<i>Eutaxia microphylla</i> var. <i>microphylla</i> (prostrate) & <i>E. microphylla</i> var. <i>diffusa</i> (erect shrub)	Mallee Bush-pea/ Common Eutaxia	dry, well-drained soils, full sun	300	moderate	drought; wet winter soils; full shade; moderate frost	poor drainage	erosion control; ornamental
<i>Exocarpos strictus</i>	Dwarf Cherry	high banks of rivers & streams	400+				erosion control; ornamental

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Goodenia ovata</i>	Hop Goodenia	moist, sheltered sites in semi-shade	400	fast	drought; moderate frost; dry soil; poor drainage		windbreak; coloniser; wildlife; ornamental
<i>Grevillea alpina</i>	Cat's Claws Grevillea	well-drained soil	400+	moderate	frost; dry periods	poor drainage	windbreak; wildlife; ornamental
<i>G. floribunda</i>	Seven Dwarfs Grevillea	well-drained soil, full sun or partial shade	400		dry periods; moderate frost	poor drainage	wildlife; ornamental
<i>G. lanigera</i>	Woolly Grevillea	moist, well-drained rocky sites	400+		frost; drought	poor drainage	windbreak; wildlife; ornamental
<i>G. polybractea</i>	Crimson Grevillea	well-drained soil, slightly sheltered areas	400+		full sun; moderate frost.	root-rot fungus	ornamental; wildlife
<i>G. ramosissima</i>	Fan Grevillea/ Branching Grevillea	semi-shade	400+		moderate frost & snow		ornamental; wildlife
<i>G. rosmarinifolia</i>	Rosemary Grevillea	well-drained soil	550+	moderate/fast	frost; dry periods	poor drainage	windbreak; wildlife; ornamental
<i>Gynatrix pulchella</i>	Hemp-bush	moist, well-drained soil; semi-shade	400+		poor-drainage; full sun; moderate frost		creek stabilisation.
<i>Hakea leucoptera</i>	Needlewood	coarse soils	250	slow	moderate frost		woodwork; wildlife; ornamental
<i>Hakea microcarpa</i>	Small-fruited Hakea	creekbanks & swamps at higher altitudes	900		frost		windbreak; drainage improvement; wildlife; ornamental
<i>Hymenanthera dentata</i>	Tree Violet	rocky, well-drained soils	550	slow/moderate	frost	poor drainage	windbreak; wildlife; ornamental
<i>Indigofera adesmitifolia</i>	Tick Indigo	rocky or well-drained soils in semi-shade	300+	fast	moderate frost	poor drainage	windbreak; fixes nitrogen; wildlife; ornamental; not readily available - collect your own seed.
<i>Indigofera australis</i>	Austral Indigo	poor, shallow soils in semi-shade	300+	fast	moderate frost & wet periods		windbreak; fixes nitrogen; wildlife; ornamental
<i>Kunzea ericoides</i>	Burgan	streambanks, slopes & ridges	550	fast	frost; wet & dry periods; waterlogging		windbreak; erosion control; wildlife; ornamental
<i>Kunzea parvifolia</i>	Violet Kunzea	rocky slopes	400		very hardy		windbreak; wildlife; ornamental

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Leptospermum brevipes</i>	Slender Tea-tree	rocky soils near streams	400+	fast	limited dry periods	heavy frost when young	windbreak; streambank erosion control; wildlife; ornamental
<i>L. continentale</i>	Prickly Tea-tree	swampy areas or soaks	500	moderate	frost; dry periods		windbreak; erosion control; drainage improvement; wildlife; ornamental (when mass planted)
<i>L. grandifolium</i>	Mountain Tea-tree	swamps & creek banks at higher altitudes	750+	moderate/fast	moderate frost		windbreak; erosion control; wood turning; wildlife; ornamental
<i>L. lanigerum</i>	Woolly Tea-tree	sandy swamps & watercourses	550	moderate or fast with water	moderate frost; poor-drainage		windbreak; creekbank erosion control; wildlife; ornamental
<i>L. multicaule</i>	Silver Tea-tree	dry hills	900		most frost		ornamental; wildlife
<i>L. obovatum</i>	River Tea-tree	swamps & streambanks	600	moderate with moisture	inundation; frost; dry periods		windbreak; creekbank erosion control; wildlife; ornamental
<i>L. polygalifolium</i>	Lemon-scented Tea-tree	rocky watercourses	900	fast	frost		windbreak; creekbank erosion control; ornamental
<i>Lomatia myricoides</i>	River Lomatia	shaded watercourses	900+		frost; short periods of inundation; dry periods once established		windbreak; creekbank erosion control; wildlife; ornamental
<i>Mirbelia oxylobioides</i>	Mountain Mirbelia	well-drained soil	750+	moderate	drought; frost		windbreak; fixes nitrogen; wildlife; ornamental
<i>Muehlenbeckia florulenta</i>	Lignum; Tangled Lignum	swamps & river flats, western regions	200-400	moderate	inundation; waterlogging; frost; drought		wildlife; stock shelter
<i>Persoonia rigida</i>	Hairy Geebung	well-drained sandy/ rocky soil	400-900		frost	poor drainage	windbreak; wildlife; ornamental; potential cut foliage; difficult to propagate & purchase
<i>Platylobium formosum</i>	Handsome Flat-pea	moist, well-drained soil	600+	fast	frost; drought	poor drainage	windbreak; fixes nitrogen; wildlife; ornamental
<i>Polyscias sambucifolia</i>	Elderberry Panax	well-drained soil	900	fast	extended wet periods		ornamental

plant information checklist continued. . .

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Pomaderris</i> species	Pomaderris	mostly well- drained soil along streams & gullies	900+		frost		wildlife; soil stabilisation; ornamental
<i>Prostanthera</i> <i>lasianthos</i>	Mint-bush	watercourses & gullies	800+	fast	frost	poor drainage	wildlife; ornamental
<i>Pultenaea</i> <i>cunninghamii</i>	Grey Bush-pea	well-drained soil	600	moderate	drought; frost	poor drainage	windbreak; fixes nitrogen; wildlife; ornamental
<i>Pultenaea</i> <i>daphnoides</i>		well-drained soil	400+	moderate/fast	frost; dryness once established		ornamental; fixes nitrogen; wildlife
<i>Pultenaea</i> <i>foliolosa</i>	Bush-pea	well-drained soil	400	moderate		poor drainage	windbreak; fixes nitrogen; wildlife; ornamental
<i>Pultenaea</i> <i>largiflorens</i>	Twiggy Bush-pea	light soils	400	slow			windbreak; fixes nitrogen; wildlife; ornamental
<i>Pultenaea</i> <i>procumbens</i>	Heathy Bush-pea	stony soils	400			poor drainage	windbreak; fixes nitrogen; wildlife; ornamental
<i>Santalum</i> <i>acuminatum</i>	Quandong	sandy, gravelly sites, western areas	200-500	moderate			windbreak; wood turning; fodder; bush tucker; root parasite - requires host when young
<i>Santalum</i> <i>lanceolatum</i>	Northern Sandalwood	sandy sites to rocky hillsides	200-500	moderate			fodder
<i>Senna</i> <i>artemisioides</i> varieties	Punty/ Cassia	well-drained soil	200	fast	drought; frost		windbreak; fixes nitrogen; wildlife; ornamental
<i>Solanum simile</i>	Oondoroo	well-drained soil	< 650 mm	fast			site rehabilitation; wildlife habitat; shelter.
<i>Styphelia triflora</i>	Pink Five Corners	sandy or loamy soils	400				ornamental

plant information checklist: small shrubs & groundcovers

Note: The information presented is only a guide, as plant characteristics vary depending on provenance (the plant's locality).

NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Astroloma humifusum</i>	Native Cranberry	well-drained soil		slow	frost; extended dry periods	poor drainage	ornamental; wildlife
<i>Brachyloma daphnoides</i>	Daphne Heath	well-drained soil	600+	slow	frost	poor drainage	wildlife; ornamental
<i>Cheiranthera linearis</i>	Finger Flower	well-drained soil	400+			poor drainage	ornamental
<i>Cryptandra amara</i> var. <i>longifolia</i>	Cryptandra	well-drained soil	400	slow		poor drainage	wildlife; ornamental; cut flowers
<i>Daviesia genistifolia</i>	Broom Bitter-pea	well-drained soil	400		frost; extended dry periods	poor drainage	wildlife (particularly birds); fixes nitrogen
<i>Dillwynia sericea</i>	Showy Parrot-pea	well-drained soils	600+	moderate	drought; frost; shade	poor drainage	wildlife; ornamental
<i>Gompholobium huegelii</i>	Pale Wedge-pea	sandy/gravelly soils	700			poor drainage	wildlife; recharge control; fixes nitrogen; ornamental
<i>Hibbertia obtusifolia</i>	Grey Guinea-flower	well-drained sandy/gravelly soils	500	fast	moderate frost; dry shady sites once established		wildlife; ornamental
<i>Hibbertia riparia</i>	Erect Guinea-flower	well-drained sandy/gravelly soils	400+	moderate	moderate frost; dry shady sites once established		wildlife; ornamental
<i>Hibbertia sericea</i>	Silky Guinea-flower	well-drained sandy/gravelly soils	400+		moderate frost; dry shady sites once established		wildlife; ornamental
<i>Hovea linearis</i>	Common Hovea	moist, well-drained soil	400+				fixes nitrogen; ornamental
<i>Hovea rosmarinifolia</i>	Mountain Beauty	poor sandy soils	900+		light to moderate frost & extended dry periods		fixes nitrogen; ornamental (useful screen).
<i>Leucopogon attenuatus</i>	Beard-heath	well-drained soil	400+		most frost		ornamental
<i>Leucopogon virgatus</i>	Beard-heath	well-drained soil	400+		most frost		ornamental

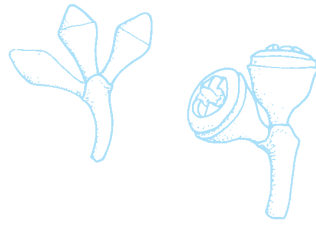
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NAME		SITE/ PREFERRED HABITAT	RAIN- FALL (mm)	GROWTH RATE	TOLERATES	RESENTS	USES & COMMENTS
Botanical	Common						
<i>Lissanthe strigosa</i>	Peach-heath	well-drained soil	400		frost; extended dry periods		wildlife; ornamental
<i>Maireana</i> species	Cottonbush/ Bluebush	poorer, heavier soils, western areas	200	moderate	drought; frost; minor flooding		colonises and stabilises disturbed sites
<i>Micromyrtus ciliata</i>	Heath-myrtle	well-drained soil	400-900		most frost		ornamental
<i>Melichrus urceolatus</i>	Urn-heath	well-drained soil	400				wildlife; ornamental
<i>Pimelea</i> species	Rice-flower	well-drained soil	400+	slow			wildlife; ornamental
<i>Rubus parvifolius</i>	Native Raspberry	moist, well-drained soil	900		drought		wildlife
<i>Sclerolaena muricata</i> var. <i>semiglabra</i>	Black Roly-poly	low-lying areas, western region	200				colonises and controls erosion in disturbed sites
<i>Spyridium parvifolium</i>	Dusty Miller	well-drained soils	400+		dry shady sites		wildlife; ornamental
<i>Stypandra glauca</i>	Nodding Blue-lily	moist, well-drained soil	400+		drought		coloniser; ornamental; wildlife
<i>Templetonia stenophylla</i>	Templetonia/ Leafy Templetonia	often on riverbanks	400+				fixes nitrogen, wildlife
<i>Tetratheca ciliata</i>	Pink Bells	well-drained soil	900				ornamental

Plant Descriptions

Trees > 8m

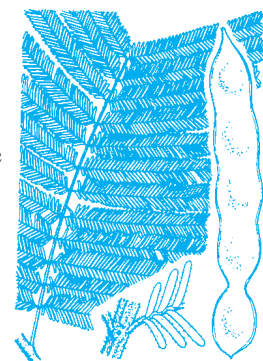




trees > 8m

COMMON NAME	BOTANICAL NAME	PAGE
Alpine Ash	<i>Eucalyptus delegatensis</i>	238
Apple Box	<i>Eucalyptus bridgesiana</i>	232
Argyle Apple	<i>Eucalyptus cinerea</i>	236
Black Cypress Pine	<i>Callitris endlicheri</i>	225
Black Sallee	<i>Eucalyptus stellulata</i>	252
Blackwood	<i>Acacia melanoxylon</i>	214
Blakely's Red Gum	<i>Eucalyptus blakelyi</i>	231
Boree	<i>Acacia pendula</i>	216
Brittle Gum	<i>Eucalyptus mannifera</i>	243
Broad-leaved Peppermint	<i>Eucalyptus dives</i>	239
Buffalo Wattle	<i>Acacia kettlewelliae</i>	213
Bulloak	<i>Allocasuarina luehmannii</i>	219
Butter Bush/Weeping Pittosporum	<i>Pittosporum angustifolium</i>	258
Candlebark	<i>Eucalyptus rubida</i>	250
Cooba	<i>Acacia salicina</i>	217
Currawang	<i>Acacia doratoxylon</i>	210
Drooping Sheoak	<i>Allocasuarina verticillata</i>	221
Dwyer's Red Gum	<i>Eucalyptus dwyeri</i>	240
Eurabbie	<i>Eucalyptus bicostata</i>	230
Grey Box	<i>Eucalyptus microcarpa</i>	245
Hickory Wattle/Lightwood	<i>Acacia implexa</i>	211
Hooked Needlewood	<i>Hakea tephrosperma</i>	256
Kurrajong	<i>Brachychiton populneus</i>	223
Long-leaf Box	<i>Eucalyptus gonicalyx</i>	241
Manna Gum	<i>Eucalyptus viminalis</i>	253
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Acacia dealbata — Silver Wattle



Family: Mimosaceae — Mimosa Family

Name Origin: From Latin *dealbatus*, white-washed, referring to the young white shoots and leaves.

OCCURRENCE:

Regional: Widespread, in all catchments and districts.

Australia: Vic, NSW, Tas.

Habitat: Usually dry sclerophyll forest on a variety of soils, often on slopes and creek banks.

Habit: Erect tree, 6-15 m high with smooth to deeply fissured dark grey to almost black bark, and silvery grey to greenish feathery foliage.

Similar Species: Distinguished from Black Wattle (*A. mearnsii*) by its lighter foliage and trunk, and earlier flowering (Jul-Nov), while Black Wattle flowers around Oct-Dec. Silver Wattle has glands at the base of each pinna, while Black Wattle and Northern Silver Wattle (*A. leucoxyla*) have glands all along the leaf stem.

Site Preference: Soils moist for part of year but not waterlogged, especially stream sides. Tolerates drier soils such as granite slopes. Tolerates strong wind, moderate frost and snow. Resents poorly drained or permanently wet soil.

Characteristics: Very fast growing. Lifespan up to several decades. Matures early, setting seed at 4-5 years of age. Prone to gall rusts, caterpillar and borer activity. Seeds persist in soil for around 50 years. Fire retarder.

Flowering: Golden-yellow, Jul-Nov. Prolific and perfumed.

Seed Collection: Nov-Jan, depending on season. Produces large seed crops every 2-3 years. Monitor closely, as seeds dropped soon after maturity.

Propagation: From scarified seed (45-84 viable seeds per gram). Pour boiling water over seeds and soak for several hours before sowing.

Regeneration: From seed or suckers, particularly after fire, ploughing or ripping. Often forms fire-induced thickets. Regenerates well from cut stumps and coppices from dormant buds under bark after cutting or burning. Establishes well when direct-seeded. Palatable to stock.

VALUES:

Shade & Shelter: Useful fast-growing species for medium-level cover in windbreaks. Suckering ensures cover beyond the life of individual plants. Fast growth and ability to improve soil fertility make it an ideal 'nurse crop', and suitable to be used with slow-growing eucalypts or other long-lived species in mixed woodlots.

Land Protection: Excellent for controlling gully erosion. Provides fast cover through its growth and suckering. Legume — improves soil fertility through 'fixing' nitrogen.

- Fuel:** Fast-burning, but poor compared to other wattles.
- Timber:** Light brown to pinkish, suitable for glueing and pulping. Density about 710 kg/m³. Small quantities used for producing pulp in Vic and Tas. Easily split and relatively tough, it was used for furniture, clothes pegs, shoe heels, wood wool and producing gum arabic. Valuable for turning or small furniture items, and is used for cabinet work in Tas. Tan bark has moderate levels of tannin for hide or fabric tanning; grown in South Africa for this purpose.
- Wildlife:** Excellent habitat. Attracts seed-eating birds including rosellas and cockatoos, and insect-eating birds including the Scrubwren. Many species of beetles and their larvae feed on the foliage. Ants seek the funicles (ovule or seed stalks) of fallen seed. Crimson Rosellas eat the half-ripe seed pods. The White-plumed Honeyeater sometimes nests in the foliage. Critical habitat for gliders and possums, and the gum is a favoured food of the Sugar Glider and Squirrel Glider. Provides structural diversity for nesting and foraging, and is a critical component of streamside vegetation in the region.
- Koori:** Wood used for stone axe handles, and gum used to fasten head to handle. Also used for boomerangs. Gum eaten, or dissolved in water with nectar to make sweet drink. Bark infusions in hot water drunk as remedy for indigestion.
- Ornamental:** Silvery foliage and prolific flowers make ideal specimen for parks and gardens. Suckering may cause problems in smaller gardens. Resents pruning and suckers if cut back severely. Useful shade and screening.
- Other:** Leaves produce yellow-fawn dye with alum as mordant, and green dye with chrome and copper. Widely grown overseas. In Europe its flowers sold as 'mimosa'. Gum highly soluble in water, and was reputedly dissolved in boiling milk and taken for dysentery and diarrhoea, with good results, by European settlers.

Acacia doratoxylon — Currawang

Also: Spearwood, Lancewood, Myall.

- Family:** Mimosaceae — Mimosa family
- Name Origin:** From Greek *doratos*, spear, and *xylon*, wood, because the Kooris made spears from the wood.

OCCURRENCE:

- Regional:** Rocky outcrops of the following areas: Urana-Rand-Corowa; Narrandera-Morundah-Galore-Collingullie; Burrumbuttock-West Hume; Bowna-Jindera; Walla Walla; Yambla; Holbrook; Upper Back & Upper Jerra Jerra; Ten Mile; The Rock-Henty-Milbrulong; Brookong; Upper Sandy; Buckaringah; Burkes-Graveyard; Lower Kyeamba & Main; O'Briens South & McLeods; Upper Kyeamba and Keajura.

- Australia:** All mainland states and territories, but mainly NSW (western slopes - plains region) and eastern Vic.

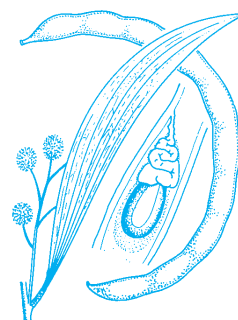


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- Habitat:** Eucalypt and *Callitris* woodland on rocky ridges and mallee on red sand.
- Habit:** Erect or spreading tree or shrub, 3-8 m high. Dense crown of olive-green narrow 'leaves'.
- Site Preference:** Well-drained soil in open situations. Frost and drought tolerant. Semi-shade to full sun.
- Characteristics:** Stock occasionally eat the foliage. Slow-growing but long-lived.
- Flowering:** Bright yellow, usually Aug-Nov.
- Seed Collection:** Early Dec-late Jan. Monitor closely, as seeds dropped soon after maturity.
- Propagation:** From scarified seed (\pm 100 viable seeds per gram). Pour boiling or very hot water over seed and soak for several hours before drying and sowing.
- Regeneration:** From seed, particularly after fire.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Good growth in rocky erodible soil and on recharge areas. Legume — improves soil fertility through 'fixing' nitrogen.
- Fuel:** Excellent, produces a hot fire.
- Timber:** Dark brown, very hard and heavy. Pleasantly perfumed when freshly cut. Resembles Blackwood (*A. melanoxylon*) timber, but is heavier and less-grained. Tends to split, but still valuable for furniture.
- Wildlife:** Good habitat. Provides pollen for native moths, butterflies and other insects, which attract insect-eating birds. Appears to be the most prolific pollen producer of all wattles. Birds including parrots and native pigeons eat seeds.
- Koori:** Spears reputedly made from the wood.
- Ornamental:** Attractive specimen for gardens.

Acacia implexa — Hickory Wattle

Also: Lightwood, Broad-leaf Wattle

- Family:** Mimosaceae — Mimosa family
- Name Origin:** Meaning entangled, referring to the pods.
- OCCURRENCE:**
- Regional:** Widespread, in most catchments and districts.
- Australia:** Qld, NSW, Vic.
- Habitat:** Various vegetation communities.
- Habit:** Erect or spreading tree, 5-12 m high. Greyish bark and sickle-shaped 'leaves'.



-
- Similar Species:** Distinguished from Blackwood (*A. melanoxyton*) by its longer, sickle-shaped 'leaves', different flowering time and habitat (although they occasionally grow together). Funicle (ovule or seed stalk) is cream and folded under the seed in Lightwood, and red, encircling the seed in Blackwood.
- Site Preference:** Well-drained soil including shallow dry soil in hill country. Open situations. Resists frosts. Tolerates fire, most droughts, and strong wind (although form may be affected). Resents poorly-drained soil.
- Characteristics:** Very long-lived. Moderate growth rate. Wasps form galls on flower buds in some areas. Conspicuous woody galls also caused by a fungus.
- Flowering:** Pale yellow to almost white, usually Dec-Apr.
- Seed Collection:** Mid-spring to autumn. Seed may take 11 months to form. Monitor regularly, as seeds dropped soon after maturity. Dust from pods and other debris can irritate.
- Propagation:** From scarified seed (\pm 28 viable seeds per gram). Pour boiling water over seed and soak for several hours before drying and sowing.
- Regeneration:** By root suckering, from soil-stored seed after disturbance, such as fire, ripping and ploughing, and from cut stumps. Disturbance reduces competition for moisture and light, and enhances germination. Establishes well when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover, long-lived plant in windbreaks. Fair shade, resistant to de-barking by livestock, and tolerant of open paddock conditions and stock camps. Fencing remnants recommended to preserve and regenerate trees.
- Land Protection:** Excellent recharge control on rocky hills. Erosion control through spreading root system. Legume — improves soil fertility through 'fixing' nitrogen.
- Fuel:** Very good fuel, but often too small.
- Timber:** Hard, close-grained, dark-brown with yellowish lines. Similar quality to Blackwood (*A. melanoxyton*) timber. Takes a high polish, and is interesting for turning and cabinet work. Bark useful for tanning.
- Wildlife:** Excellent habitat. Insects, such as ants, and birds, including parrots and native pigeons eat seed. King Parrot eats half-ripe seed pods. Because it flowers when other flowers are scarce, provides valuable pollen for many insects, including wasps which parasitize pasture grubs. Insect-eating birds also attracted. Galls, formed by wasps, provide habitat for other insects. Grubs in bark provide valuable food for birds including the Black-faced Cuckoo-shrike. Excellent roost sites for birds.
- Koori:** Fibre made into string. Leaves used as a fish poison. Bark used medicinally to treat skin diseases. Timber used for woomeras.

Ornamental: Attractive summer-flowering ornamental and shade for gardens and rockeries. Shallow roots do not interfere with utilities or raise footpaths. Suckers if cut back severely or if roots are damaged. Susceptible to snails when young.

Other: Leaves produce yellow dye with alum, and brown dye when copper is used as mordant.

Acacia kettlewelliae — Buffalo Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: *kettlewelliae* — after Agnes Kettlewell, 1866-1936, an early official of the Wattle Day League.

OCCURRENCE:

Regional: Chiefly south of Tumut, and east of Hume Highway. Noted in the areas: Paddy's River-Burra Valley; Tooma and Gilmore 'upper reaches'.

Australia: NSW, Vic.

Habitat: Dry sclerophyll forest on granite hillsides and in gullies, 700-1000 m elevation.

Habit: Erect or spreading shrub or small tree, 2-9 m high. Flattened or angled branchlets.

Similar Species: May be confused with Western Golden Wattle (*A. decora*), which has golden pubescent peduncles (hairy flower stalks).

Site Preference: Well-drained medium to heavy soils in partial or full sun. Tolerates frost.

Flowering: Golden-yellow, Sep-Dec.

Propagation: From scarified seed.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks. Useful shade.

Land Protection: Legume — improves soil fertility through 'fixing' nitrogen.

Ornamental: Attractive. Should be useful for cool-area gardens. Good foliage.



Acacia leuoclada — Northern Silver Wattle

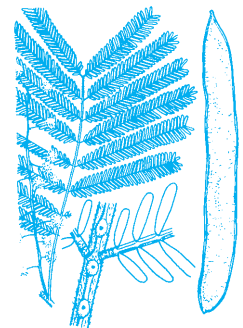
(syn. *Racosperma leuocladum*)

Family: Mimosaceae — Mimosa family

Name Origin: From Greek *leucos*, white, and *clados*, young branch or shoot, referring to the whitish young shoots.

OCCURRENCE:

Regional: Noted in the areas: Lower Sandy, Yerong Creek and The Rock-Henty-Milbrulong.

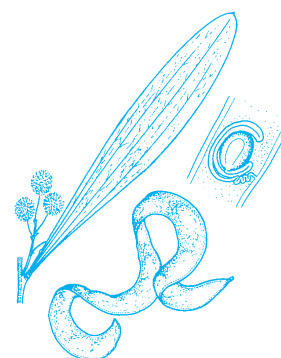


- Australia:** Qld and NSW.
- Habitat:** Various soils, usually in sclerophyll communities.
- Habit:** Erect tree, 4-18 m high. Dark brown to black bark and silvery feathery foliage.
- Similar Species:** Distinguish from Silver Wattle (*A. dealbata*) by glands *between* pinnae pairs. Silver Wattle has glands *at* each pinnae pair.
- Site Preference:** Well-drained soil. Frost hardy.
- Characteristics:** Fast-growing when young.
- Flowering:** Golden-yellow, Jul-Oct.
- Seed Collection:** Early summer, depending on season. Monitor closely, as seeds dropped soon after maturity.
- Propagation:** From scarified seed. Pour boiling water over seed and soak for several hours before sowing.
- Regeneration:** From seed or suckers, particularly after fire, ploughing or ripping. Often forms fire-induced thickets.
- VALUES:**
- Shade & Shelter:** Useful fast-growing species for low to medium-level cover in windbreaks. Suckering ensures cover beyond the life of individual plants. Fast growth and ability to improve soil fertility make it an ideal ‘nurse crop’, and suitable for use with slow growing eucalypts or other long-lived species in mixed woodlots.
- Land Protection:** Excellent for gully erosion control. Provides fast cover through its growth and suckering. Legume — improves soil fertility through ‘fixing’ nitrogen.
- Wildlife:** Excellent habitat. Attracts seed-eating birds including rosellas and cockatoos, and insect-eating birds including the Scrubwren. Many species of beetle and their larvae feed on foliage. Ants seek funicles (ovule or seed stalks) of fallen seed. Crimson Rosellas eat half-ripe seed pods. White-plumed Honeyeater sometimes nests in foliage. Critical habitat for gliders and possums, and gum a favoured food of the Sugar Glider and Squirrel Glider. Provides structural diversity for nesting and foraging.
- Ornamental:** Responds to water during dry periods.

Acacia melanoxylon — Blackwood

Also: Mootchung, Burn-na-look (Koori names).

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** From Greek *melanos*, black, and *xylon*, wood, referring to the dark timber.
- OCCURRENCE:**
- Regional:** Widespread to the east of Hume Highway, in higher rainfall areas.



Australia:	Tas, Vic, NSW, Qld , SA. Distribution closely linked to rainfall.
Habitat:	Various habitats, chiefly wet sclerophyll forest and in or near cooler rainforest.
Habit:	Erect or spreading tree, 6-30 m high. Deeply fissured, dark grey to black bark. Dense foliage.
Similar Species:	Distinguished from Hickory Wattle/Lightwood (<i>A. implexa</i>) by its 'leaves' which are not sickle-shaped, its flowering time and habitat (although they occasionally occur together). Also, the Blackwood funicle (ovule or seed stalk) is red and completely encircles the seed while the Lightwood funicle is cream and folded under the seed.
Site Preference:	Moist, well-drained fertile soil and cool climatic conditions. Tolerates a range of sites, including drier soil in exposed situations. Tolerates cold conditions and wind. Young plants may suffer frost damage.
Characteristics:	Long-lived. Young plants very shade-tolerant. Fire tolerant. Generally resistant to insect activity.
Flowering:	Pale yellow to whitish, usually Jul-Dec.
Seed Collection:	Around Dec-Mar. Frequently produces large crops. A large proportion of seed may be retained as late as Aug-Sep, although seed-eating insects may consume large amounts.
Propagation:	From scarified seed (\pm 58 viable seeds per gram). Pour boiling water over seed and soak for several hours before drying and sowing.
Regeneration:	From suckers or seed after disturbance such as fire, ripping or ploughing. Suckers freely from stumps and exposed roots. Palatable to livestock, hence fencing recommended to encourage regeneration. Establishes well when direct seeded.
VALUES:	
Shade & Shelter:	Useful medium-level cover in windbreaks. In relatively open situations tends to grow quite bushy, retaining branches to ground level (useful in windbreaks). Useful paddock tree, as grass grows to trunk if light adequate, and resistant to livestock damage to the bark. Fencing recommended to preserve and regenerate trees.
Land Protection:	Useful in controlling erosion due to vigorous spreading roots and suckering. Legume — improves soil fertility through 'fixing' nitrogen.
Fuel:	Moderate value.
Timber:	Highly regarded as cabinet and furniture timber. Used widely for veneers. One of the most decorative Australian timbers when polished. Timber golden-brown to dark-brown, sometimes with reddish tints or streaks with distinct growth rings, tough, hard and close-grained. Grain usually straight, but also wavy. Density about 650 kg/m ³ . Selected provenances have potential for commercial production of specialty high-value timber, on fertile high rainfall sites.
Wildlife:	Provides pollen for native moths, butterflies and other insects, which attract insect-eating birds. Seeds eaten by insects and birds such as parrots and native pigeons. Furrows and cracks in bark provide habitat for various insects and spiders. Used for perching by hawking species, including birds of prey.

- Koori:** Spearthrowers and shields made from fine hard wood. Fishing lines made from inner bark fibre. An infusion of bark used to bathe rheumatic joints. Edible gum soaked in water to form jelly. Bark and twigs reputedly used to stupefy fish, enabling easy capture.
- Ornamental:** Specimen or shade. Useful for screening. Dense crown and good form make it useful for parks and large gardens.
- Other:** Edible gum. 'Leaves' produce lemon-fawn dye with the mordant alum.

Acacia pendula — Boree

Also: Weeping Myall, Myall.

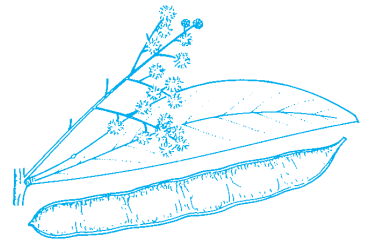
- Family:** Mimosaceae — Mimosa family.
- Name Origin:** From Latin *pendulus*, pendulous or hanging, referring to habit.
- OCCURRENCE:**
- Regional:** Mainly west of Olympic Highway on lower country and plains.
- Australia:** Qld, NSW, Vic.
- Habitat:** Major river floodplains, and the Riverine Plain, sometimes as dominant species on heavy clay soils. Often in large stands.
- Habit:** Erect or spreading tree, 5-13 m high. Rounded grey-green crown of conspicuously drooping 'leaves' and branchlets. Fissured grey bark.
- Site Preference:** Good soils — rich alluvial, clays or black soils with adequate ground water. Frost resistant.
- Characteristics:** Relatively slow-growing. Relatively palatable to livestock. During drought trees lopped for fodder. Coppices, although very old trees damaged by lopping and may die. Prone to use by the Bag-shelter moth, which occasionally kills trees. Suitable for fire-prone areas.
- Flowering:** Golden-yellow, mainly summer to autumn. Irregular, depending on season.
- Seed Collection:** Early Oct to Jan.
- Propagation:** From seed (6-28 viable seeds per gram). Immerse seeds in hot water at 90°C for about one minute, before drying and sowing.
- Regeneration:** From seed if livestock fenced out. Coppices after fire.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility through 'fixing' nitrogen.
- Fuel:** Excellent. Was used extensively.
- Timber:** Reasonable quality. Hard, heavy, dark and attractively marked, with violet-like fragrance. Used for fence posts and manufacturing trinket boxes and similar items.



- Wildlife:** Excellent habitat. Provides useful supplies of pollen. Often eaten by Procession caterpillars. Seeds eaten by parrots.
- Koori:** Boomerangs made from wood.
- Ornamental:** Very attractive ornamental, due to weeping grey foliage.
- Other:** Valuable drought fodder.

Acacia penninervis — Mountain Hickory

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *penninervis* — from Latin *penna*, feather, and *nervus*, sinew or nerve, referring to pinnate venation of 'leaves'.

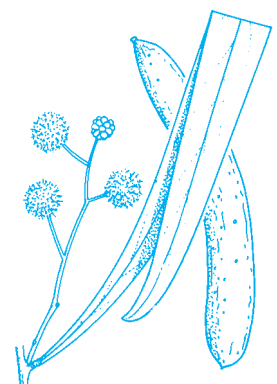


- OCCURRENCE:**
- Regional:** Isolated occurrences in Simmons Creek-NW Culcairn district and Urana-Rand-Corowa region.
- Australia:** Qld, NSW, Vic.
- Habitat:** Moist and dry sclerophyll forest and woodland.
- Habit:** Erect or spreading small tree, 2-8 m high. Dark grey, finely or deeply fissured bark, cylindrical branchlets and large sickle-shaped or straight 'leaves' 4-15 cm long. Large globular flowers.
- Site Preference:** Most soils. Partial or full sun. Moderately frost tolerant.
- Characteristics:** Hardy and adaptable.
- Flowering:** Pale yellow to ± white, any time.
- Propagation:** From scarified seed.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility through 'fixing' nitrogen.
- Ornamental:** Ideal screen for parks and large landscaped areas.

Acacia salicina — Cooba

Also: Native Willow, Willow, Broughton, Doolan, Willow Wattle.

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** From Latin *salicis*, referring to pendulous, willow-like habit.
- OCCURRENCE:**
- Regional:** Becomes more common west of Olympic Highway.
- Australia:** Qld, NSW, Vic, SA.



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- Habitat:** Dry sclerophyll forest, shrubland and woodland in semi-arid regions. Mostly creek banks, and flat alluvial plains and floodplains.
- Habit:** Erect or spreading shrub or tree, 3-10 m high. Brownish, finely fissured bark and deep-green foliage on willow-like drooping branches. Often in dense clumps.
- Site Preference:** Heavy clay soils to sands. May withstand some inundation. Full sun. Salt tolerant. Drought resistant. Resents frost when young.
- Characteristics:** Long-lived. Wind-firm. 'Leaves' contain large amounts of tannin.
- Flowering:** Pale yellow to almost white, usually Feb-Jun.
- Seed Collection:** Dec-Jan. Good crops every few years.
- Propagation:** From seed (\pm 8 viable seeds per gram).
- Regeneration:** Often seeds, and suckers freely from the roots. Highly palatable to stock, hence fencing recommended for regeneration. Encourage suckering by root ripping or disturbance.
- VALUES:**
- Shade & Shelter:** Excellent low to medium-level cover in windbreaks, due to bushiness and suckering.
- Land Protection:** Valuable in maintaining riverbank stability and for general erosion control, where its suckering is an advantage. Legume — improves soil fertility through 'fixing' nitrogen.
- Fuel:** Good.
- Timber:** Close-grained, tough, heavy, dark-brown and attractively marked. Used in furniture joinery and craft, and said to rival Blackwood (*Acacia melanoxylon*) timber. Takes a high polish. Used for making bullock yokes and cart shafts in pioneering days.
- Wildlife:** Excellent habitat. Native birds and insects eat seed appendages.
- Koori:** Tannin-rich bark used to poison fish. 'Leaves' reputedly burnt and ash smoked to produce a narcotizing effect. Seeds eaten in some areas.
- Ornamental:** Useful attractive species for gardens and parks, particularly in dry areas. Responds to water during dry periods.
- Other:** Excellent drought fodder for sheep and cattle.

Acacia stenophylla — River Cooba

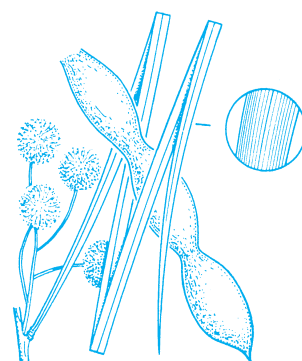
(syn. *Racosperma stenophyllum*) **Also:** Eumong.

Family: Mimosaceae — Mimosa family.

Name Origin: Meaning narrow leaves.

OCCURRENCE:

Regional: Probably western reaches of Urana-Rand-Corowa region.



- Australia:** Qld, NSW, Vic, SA, WA, NT.
- Habitat:** Heavy clay soils adjacent to watercourses or margins of swamps or depressions.
- Habit:** Erect or spreading tree 4-10 m high. Fissured, dark grey-brown bark and angled or flattened branchlets. Open crown of long thin drooping ‘leaves’.
- Site Preference:** Well-drained soil. Tolerates poor drainage, inundation and waterlogging for short periods. Tolerates frost.
- Characteristics:** Hardy. Long-lived. Highly salt tolerant.
- Flowering:** Creamy yellow, Mar-Jul. Also sporadic.
- Seed Collection:** Oct-Dec. prolific woody pods.
- Propagation:** From scarified seed, cuttings or transplanting suckers.
- Regeneration:** Seeds spread during flood and can germinate and persist above normal river heights. Suckers freely.
- VALUES:**
- Shade & Shelter:** Good low to medium level cover in windbreaks.
- Land Protection:** Useful for stabilising soil, where its suckering is an advantage. Legume — improves soil fertility through ‘fixing’ nitrogen.
- Timber:** Timber beautiful, high quality, very hard and close-grained. Takes fine polish and useful for furniture.
- Wildlife:** Useful habitat. Native birds and insects eat seed appendages.
- Ornamental:** Some trees ornamental for gardens and parks.

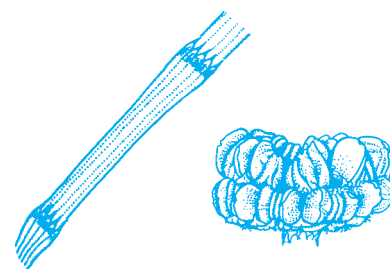
Allocasuarina luehmannii — Bulloak

(syn. *Casuarina luehmannii*)

Also: Buloke

Family: Casuarinaceae — Sheoak family.

Name Origin: *Allocasuarina* — meaning different from *Casuarina*. *Allocasuarinas* are distinguished from *Casuarinas* by the cones. *luehmannii* — after J.G. Luehmann (1843 - 1904), past Director of Melbourne Botanic Gardens.



OCCURRENCE:

Regional: West of Hume Highway. Noted in districts of Bowna-Jindera; Yambla; Yerong Creek-Wattle Creek, and drier country.

Australia: Qld, NSW, Vic, SA.

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- Habitat:** Woodland on non-calcareous soil, often with White Cypress Pine (*Callitris glaucophylla*) and Grey Box (*Eucalyptus microcarpa*) and on plains, gently undulating slopes and in drier areas, around edges of swamps and depressions. More common on sandy soils.
- Habit:** Tree 5-15 m high with rough, deeply fissured bark and ascending branches.
- Similar Species:** Distinguished from Drooping Sheoak (*Allocasuarina verticillata*) mainly by its cones, which are much shorter, and by its more upright habit.
- Site Preference:** Sandy clays. Tolerates brief seasonal inundation, and adapts to a wide range of heavy soils. Tolerates drought, frost, strong wind and saline soil.
- Characteristics:** Moderate growth rate. Long lived. Sensitive to fire. Nitrogen-fixing. Not prone to damage from insect activity. Dioecious (trees are male or female).
- Flowering:** Yellowish (male flower spikes), Oct-Nov.
- Seed Collection:** Mid-Dec to mid-May. Seeds shed annually in early autumn. Collect cones by hand or knock down with poles. Seeds rapidly lose viability unless stored in refrigerator, or sown fresh.
- Propagation:** From untreated seed (84-119 viable seeds per gram), which should germinate in 2-5 weeks. Some growers recommend stratifying seeds in freezer for 2 weeks, and sowing in cooler months.
- Regeneration:** Suckers from roots, and regenerates from cut stumps. Seeds germinate late summer - early autumn and early to mid spring, in warm wet conditions. Seedlings highly palatable to livestock and rabbits, and require protection for 5-7 years to establish. Permanent fencing recommended to ensure long-term health and regeneration of existing trees.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks. Provides partial shade. Fine foliage restricts summer sun and filters winter sun.
- Land Protection:** Useful in land reclamation where suckering is an advantage. 'Leaf' litter stabilises soil surface. Improves soil fertility through 'fixing' nitrogen.
- Fuel:** Excellent. Burns quietly and generates strong heat.
- Timber:** Dark red, very hard, strong and heavy. Moderately durable but unsuitable for in-ground use. Tends to split when nailed and does not season readily. Used for fencing and wood turning. Was used to make shingles, farm buildings and tool handles. Sawdust is irritating.
- Wildlife:** Excellent habitat. Seeds eaten by birds including parrots, cockatoos and finches. Valuable roost and nest sites for birds on plains country, including the Grey-crowned Babbler. Good foraging for the Apostlebird. Important for small insect-eating birds such as sittellas and thornbills.
- Ornamental:** Useful amenity species for parks and gardens.
- Other:** Potential for planting for firewood under coppice regime, although slow-growing. Tolerates lopping, hence smaller branches of crown can be cut for drought fodder (palatable, but very low-value feed).

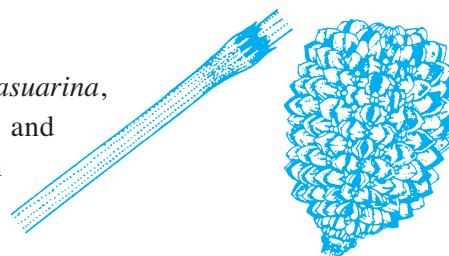
Allocasuarina verticillata — Drooping Sheoak

(syn. *Casuarina stricta*)

Also: Drooping Sheoke

Family: Casuarinaceae — Sheoak family.

Name Origin: *Allocasuarina* — from Greek *allo*, other, and *casuarina*, referring to differences between *Casuarina* and *Allocasuarina* species. *verticillata* — from Latin *verto*, I turn, in reference to leaves arranged in whorls, or seemingly so. Sheoak — named because wood is tough, durable and attractively grained, like European Oak.



OCCURRENCE:

Regional: Quite widespread through most areas on the drier hill/rocky outcrops.

Australia: NSW, Vic, Tas, SA.

Habitat: Grassy woodland, forming pure stands, or amongst eucalypts. Also on dry ridges on poor soils.

Habit: Small tree with rounded crown, 4-10 m high.

Similar Species: Distinguished from Bulloak (*A. luehmannii*) mainly by its larger cones, drooping habit and different habitat.

Site Preference: Well-drained soil. Tolerates frost, drought, wind and some wetness.

Characteristics: Long-lived (50-100 years). Moderately slow-growing, although quick-growing when young. Moderately fire tolerant. Not prone to damaging insect activity. Produces large root nodules - habitat for micro-organisms that 'fix' nitrogen. Dioecious (trees are male or female, with female trees producing cones).

Flowering: Yellow-brown male flower spikes. Red female flowers, Mar-Dec.

Seed Collection: Generally throughout the year, as seeds retained in cones on trees for long periods. Collect cones when brown and full-sized, with valves still closed. Dry cones in paper bag to facilitate seed release. Sieve to separate from cones. Store seed in refrigerator to maintain viability, or sow fresh.

Propagation: From untreated seed (120-270 viable seeds per gram), which should germinate in 2-5 weeks at hot temperatures (up to 50°C). Pale foliage and poor growth may result unless seedlings inoculated with soil bacterium (*Frankia* spp.) that can be obtained from the roots of parent trees. The bacterium occurs in fleshy and coral-like root nodules just beneath soil surface. Dig up small quantity of nodules and grind using mortar and pestle. Dilute in watering can and water seedlings.

Regeneration: From root suckers and seed. Also coppices to some extent. Highly palatable to livestock and rabbits, generally requiring protection to establish. Root suckers can be transplanted during winter when soil is moist. After fire, trees with burnt tops coppice, shoot from roots, or produce new crown shoots if damage is not severe. Establishes well when direct seeded.

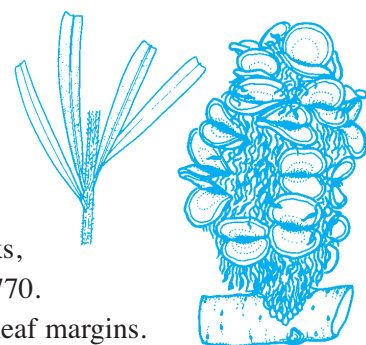
VALUES:

- Shade & Shelter:** Useful medium-level cover in windbreaks. The abundant, highly-branched twigs are excellent for absorbing wind. Open-grown trees provide good shade.
- Land Protection:** Useful for erosion control due to suckering. Improves soil fertility through 'fixing' nitrogen. Fallen leaves stabilise soil surface and decompose into rich humus. Useful in recharge plantings in hill country to reduce water entering watertable.
- Fuel:** Excellent. Produces glowing charcoal fire with little flame.
- Timber:** Reddish, heavy and easily split, machined and polished. Used as firewood and in turning. Was used for wheel spokes, bullock yokes, axe handles, staves, shingles, cabinet work and mine props. Durability in the ground is reduced under alternating wet and dry conditions.
- Wildlife:** Seeds eaten by birds such as cockatoos (including threatened Glossy Black cockatoo). Important for insect-eating birds. Older trees perching sites for birds of prey.
- Koori:** Boomerangs and digging sticks made from wood. Young shoots and cones were occasionally chewed or eaten.
- Ornamental:** Attractive foliage and bronze-coloured male flowers make this a useful specimen, particularly attractive in groups. Furrowed bark excellent for growing orchids on. Do not plant within 3 m of plumbing to avoid clogged drains.
- Other:** Useful fodder. Withstands lopping well.

Banksia marginata — Silver Banksia

Also: Honeysuckle, Woorike (Koori name).

- Family:** Proteaceae — Protea family.
- Name Origin:** *Banksia* — named after wife of naturalist Sir Joseph Banks, who collected first *Banksia* specimens for classification in 1770.
marginata — from Latin *marginatus*, bordered, referring to leaf margins.

**OCCURRENCE:**

- Regional:** Not widespread. Noted in Munderoo district and Bringenbrong-Khancoban district. Historical records indicate it once existed around Narrandera.
- Australia:** NSW, Vic, Tas, SA.
- Habitat:** Dry sclerophyll forest.
- Habit:** Compact shrub or small tree to 12 m high.
- Site Preference:** Most soils in cultivation, tolerating some waterlogging, frost and wind. Full sun or partial shade. Grows more spindly in shady sites.

- Characteristics:** Fast-growing compared to other banksias, and long-lived. Fire retarder. Attributes strongly influenced by provenance (locality), including presence or absence of lignotuber. Tolerates frost, and short periods of waterlogging.
- Flowering:** Pale yellow, Feb-Jul. Profuse and honey-scented.
- Seed Collection:** Early Feb to late Apr. Seed released 3-8 weeks after maturity.
- Propagation:** From fresh seed (\pm 125 viable seeds per gram) or cuttings of firm young growth. Fresh seeds firm and white when cut in two. Old seeds pliable or brittle and cream-coloured. Enhance germination by stratifying seeds in moist paper or sand in refrigerator for 6-10 weeks. Sow Oct to Feb. Seedlings susceptible to fungal damage. Prick out as soon as first true leaves appear.
- Regeneration:** After fire, from seed or re-shooting from lignotuber, if present. Can be direct-sown, but establishes better from tubestock.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks.
- Fuel:** Not generally used. Records from mid-nineteenth century note its 'uselessness' as a fuel.
- Timber:** Soft, spongy and red. Weighs little when dry. Generally unsuitable for commercial timber production due to inadequate size and spongy wood. Tends to warp severely upon drying, but can be turned if seasoned carefully.
- Wildlife:** Seeds eaten by cockatoos (particularly Yellow-tailed Black-cockatoo). All banksias produce copious nectar, favoured by honeyeaters and lorikeets. Birds are main pollinators, and banksias provide excellent means of maintaining bird populations during flowering. Native moths, butterflies and pygmy possums are attracted to flowers as a food source.
- Koori:** Flower cones soaked in water in wooden vessels to extract sweet nectar for a drink, or sucked directly. Dry cones used as strainers.
- Ornamental:** Attractive specimen for parks and gardens. Decorative seed cones used in floral arrangements. Used in bonsai. Excess phosphorous damages or kills plants. Iron deficiency is common and shows as yellow leaves with green veins. Feed with iron chelate to rectify. Resents pruning.
- Other:** Leaves produce yellow dye, with alum as a mordant. Cut flowers or foliage.

Brachychiton populneus — Kurrajong

(syn. *Sterculia diversifolia*)

- Family:** Sterculiaceae — Sterculia family.
- Name Origin:** Brachychiton — from Greek *brachys*, short, and *chiton*, undergarment or outer covering, referring to loose outer covering of seeds. *populneus* — from Latin *populus*, poplar-like, referring to similarity of adult leaves to those of European poplar.



OCCURRENCE:

Regional: Widespread through entire area, although possibly not indigenous in western areas.

Australia: Qld, NSW, Vic.

Habitat: Forest and woodland.

Habit: Evergreen tree to 20 m high. Strongly tapering trunk and dense crown.

Site Preference: Well-drained soil. Drought tolerant. Sensitive to frost when young. Tolerates alkaline soil.

Characteristics: Slow-growing until 3 years, after which tends to grow more rapidly. Very long-lived.

Flowering: Creamy-white and speckled with dark red, usually Mar-Dec.

Seed Collection: Early Jul to late Jan. Seeds released 3-14 days after maturity. Hairs in pods can irritate.

Propagation: From seed (\pm 8 viable seeds per gram). Enhance germination by soaking seeds in hot water for 12 hours before sowing. Sow into large pots or 1 litre milk cartons, or in beds of loamy soil in spring. These will be large enough to transplant to temporary beds the following winter. Plant seedlings 15 cm apart in rows 60 cm apart. By the next winter, seedlings should be over 60 cm high, and can be transplanted to final site. Seedlings to over 2m high transplant readily.

Regeneration: From seed dispersed by birds.

VALUES:

Shade & Shelter: Excellent shade. Can be planted in clumps for this purpose. Useful medium-level cover in windbreaks.

Land Protection: Suitable for recharge control.

Timber: Light, soft and creamy-hued, with open texture and interweaving definite ray-grain, giving a silken sheen. Not strong or durable. Density about 450 kg/m³. Rarely utilised, although has been used for lattice construction and interior furnishings.

Wildlife: Nectar-feeding birds and insects attracted to flowers.

Koori: String and fishing nets made from fibrous bark. Water extracted from roots. Seed roasted and eaten (after removing irritating hairs), or eaten raw. Uniquely flavoured, highly palatable flour produced by roasting and milling cleaned seed. Yam-like tuberous roots of young plants were eaten. Grubs eaten.

Ornamental: Attractive shapely tree for gardens, parks and avenues. Forms larger crowns if pruned when young.

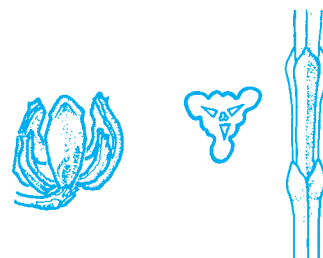
Other: Excellent drought fodder for sheep and cattle. Responds well to occasional moderate lopping. Foliage highly palatable and nutritious, and trees have high ratio of leaf to wood. Due to deep tap roots, Kurrajongs do not compete with crops or pastures, and are not damaged by cultivation close to trunk. Seeds can be roasted, ground and briefly boiled as coffee substitute. Can be grown for edible seed crop, planted at 275 trees per hectare (at 6 m spacing). Leaves produce orange, gold and lemon coloured dyes depending on mordant used.

Callitris endlicheri — Black Cypress Pine

(syn. *C. calcarata*) **Also:** Black Cypress, Black Pine, Black Callitris.

Family: Cupressaceae — Callitris family.

Name Origin: *endlicheri* — after S.L. Endlicher (1805-1849), Viennese botanist.



OCCURRENCE:

Regional: Quite common across entire area, becoming less so to the west. Not noted in areas west of Bowna-Jindera and Walla Walla districts.

Australia: Qld, NSW, Vic.

Habitat: Generally stony hills and ridges.

Habit: Tree with mostly erect and sometimes spreading branches and mostly dark green foliage. Deeply furrowed tough bark.

Similar Species: Distinguished from White Cypress Pine (*C. glaucophylla*) by its cones and generally greener foliage, compared to the generally grey-blue foliage of White Cypress Pine.

Site Preference: Well-drained soil. Tolerates frost (including temperatures to -8°C) and poor soils. Moderately drought resistant.

Characteristics: Hardy. Young plants are susceptible to grass fires. Larger trees not seriously affected by grass fires although may die from hot fires.

Seed Collection: Early Dec to late Jun. Monitor closely, as seeds released 3-8 weeks after maturity. Store seeds at 3-5°C in airtight container.

Propagation: From seed (\pm 281 viable seeds per gram), sown around Oct, as germination and seedling growth slow. Optimum germination temperature is \pm 20°C.

Regeneration: From seed after fire or other soil disturbance.

VALUES:

Shade & Shelter: Excellent medium-level cover in windbreaks. Useful shelter as foliage maintained to near ground-level.

Land Protection: Useful for catchment protection and erosion control.

Fuel: Suitable. High calorific value per unit weight.

Timber: Comparable to White Cypress Pine (*Callitris glaucophylla*), although not durable. Sapwood pale yellow and heartwood brown. Fine-textured and straight-grained, except around the many knots. Termite resistant. Air density about 710 kg/m³. Sapwood and heartwood difficult to impregnate with preservatives. Requires slow initial drying to avoid surface checking. While works well, it splits easily, and pre-boring for nails is necessary. Used for fencing, small poles, flooring, indoor furnishing, paneling, coachwork furniture and general construction. Bark yields about 30% tannin.

- Wildlife:** Seeds eaten by parrots and cockatoos. Foliage good refuge for small birds. Deep fibrous bark habitat for grubs and other insects, which are food for birds. Excellent habitat for thornbills.
- Ornamental:** Attractive specimen for gardens, parks and avenues.
- Other:** Resinous exudate from cut trunk sold overseas as 'Australian sandarac' in varnishes. Antihelmintic for horses (drug which destroys or expels intestinal worms). Twigs used with fodder for this purpose.

Callitris glaucophylla — White Cypress Pine

(syn. *C. columellaris*)

Also: Murray Pine



- Family:** Cupressaceae — Callitris family.
- Name Origin:** *glaucophylla* — from Greek *glaucos*, silvery or bluish-green, and *phyllon*, leaf, referring to bluish foliage.
- OCCURRENCE:**
- Regional:** Widespread in drier country west of Hume Highway. Also noted in Mullengandra, Four Mile and Livingstone areas.
- Australia:** Mainland states.
- Habitat:** Mostly sandy soils. From isolated individuals to extensive forests, especially in inland districts.
- Habit:** Tree to 20 m high, with single trunk. Bluish-grey foliage and rough, deeply furrowed bark.
- Similar Species:** Distinguished from Black Cypress Pine (*C. endlicheri*) by its cones and bluish foliage (Black Cypress Pine typically has greener foliage). Triangular pyramid or single column emerging from base of inside of fruit, while Black Cypress Pine has three segments in fruit.
- Site Preference:** Well-drained soil. Tolerates extended dry periods and frost.
- Characteristics:** Hardy. Young plants sensitive to fire, although older trees more tolerant. Relatively slow to mature, but long-lived.
- Seed Collection:** Late Nov to late Apr. Requires close monitoring as seeds released 3-8 weeks after maturity. Cones easily collected from outer foliage using secateurs (each cone contains about 20 seeds). Good seed crops generally produced every 3 years on trees over 40 years old. Refrigerate stored seeds.
- Propagation:** From seed (\pm 20 viable seeds per gram) sown around Sep for intended autumn planting, or during summer for autumn planting the following year, if better developed trees are preferred. Cover seeds with about 5 mm potting mix. Some growers recommend stratifying seeds in freezer for 2 weeks prior sowing.
- Regeneration:** From seed. Seedlings extremely palatable to livestock and rabbits, hence fencing required to encourage regeneration. Establishes reasonably well when direct seeded.

VALUES:

- Shade & Shelter:** Useful long-lived medium-level cover in windbreaks, providing shelter virtually to ground-level.
- Fuel:** Good fuel. Splits and ignites readily. Fragrant when burned.
- Timber:** Highly valued for resistance to decay in ground, termite resistance and very small shrinkage on seasoning. Saws and nails well when freshly felled. Largely used for building scantlings, flooring, linings and weatherboards, with small-diameter round material used for fencing and small poles. Useful timber for bottom boards of beehives in contact with ground. Timber usually light coloured, although sometimes dark brown, of moderate weight. Tends to be brittle. Finely and evenly textured, straight-grained, aromatic and often knotty. Knots tightly held, and sometimes regarded as feature in polished surfaces.
- Wildlife:** Mature trees, particularly when growing with Bulloak (*Allocasuarina luehmannii*) and Grey Box (*Eucalyptus microcarpa*), important habitat for Grey-crowned Babbler and Apostlebird, which forage in foliage and on ground nearby. Thick fibrous bark supports abundant supply of grubs and insects not found in such quantities in eucalypts. Wide range of other insect-eating birds forage in trees. Parrots and cockatoos feed on seed-bearing cones.
- Koori:** Along Murray River, resin provided waterproof adhesive, and wood used for making implements including woomeras, canoe poles and spear shafts. Leaves contain pinene, an antiseptic oil. Leaves smoked over fire or soaked to make a wash, or mixed with fat to make ointment for colds.
- Ornamental:** Attractive for parks, gardens and avenues, and tubs.
- Other:** Pollen yielded in useful quantities, and benefits bees.

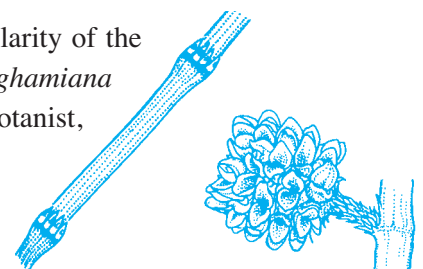
Casuarina cunninghamiana subsp. *cunninghamiana* — River Sheoak

Also: River Oak, Creek Oak, Fire Oak.

- Family:** Casuarinaceae — Casuarina family.
- Name Origin:** *Casuarina* — from Malay *Kasuari*, from the fancied similarity of the foliage to the drooping feathers of Cassowary bird. *cunninghamiana* — after Allan Cunningham (1791-1839), pioneering botanist, inland NSW.

OCCURRENCE:

- Regional:** Along Murrumbidgee River.
- Australia:** Qld, NSW, as far south as Murrumbidgee River.
- Habitat:** Permanent freshwater streambanks, with roots in or close to water. May be dominant feature of river vegetation.



Habit:	Medium sized tree, 15-35 m high, branchlets drooping in vigorous specimens, or erect in poorer specimens.
Similar Species:	Closely related to <i>C. glauca</i> , which has larger cones and coarser foliage (not in region).
Site Preference:	Frost resistant and cold tolerant. Tolerates slight salinity.
Characteristics:	Very fast-growing. Long-lived. Improves soil fertility by ‘fixing’ nitrogen. Name is shortened to <i>C. cunninghamiana</i> in General Native Vegetation Profiles.
Flowering:	Possibly any time of year.
Seed Collection:	Early autumn, before seeds shed. Collect cones by hand, or knock from the trees with poles. Refrigerate stored seed to retain viability.
Propagation:	From untreated seed which should germinate easily in 2-5 weeks. Optimum germination temperature 30°C. Can be direct sown into pots. Seedlings fast-growing and can be pricked out soon after germination. Easily handled. Inoculate seedlings with solution of crushed root nodules from beneath parent trees.
Regeneration:	From seed, root suckers and coppice after fire. Seedlings highly palatable to livestock, hence fencing recommended to encourage regeneration. Young trees often grow in neat rank downstream from parent trees. Direct seeding at rates of 20-40 grams per km gives natural effect.
VALUES:	
Shade & Shelter:	Excellent windbreak tree for medium to high-level cover.
Land Protection:	Very useful for protecting streambanks from erosion by binding banks. May sucker from roots to form colonies, desirable for erosion control.
Fuel:	Excellent, burning hot and evenly. Ashes retain heat for long periods. Was used in bakers’ ovens.
Timber:	Decorative, pale-reddish or purplish-brown and fairly light and tough. Used in ornamental turnery and takes a good polish, although may be difficult to work. Straight-grained and fine-textured. Density about 900 kg/m ³ . Sawn timber may warp and twist excessively during seasoning. May last 15-25 years in ground. Was used to make shingles and staves.
Wildlife:	Excellent habitat. Parrots extract seeds from cones. Finches eat seed before it is blown from cones. A range of birds nest in the foliage. Good pollen source.
Koori:	Canoes made from large trees. Shelters made from branches.
Ornamental:	Attractive graceful ornamental. Orchids can be grown on the bark.
Other:	Useful drought fodder. A range of dyes produced from foliage depending on mordants used.

Eucalyptus albens — White Box

Family: Myrtaceae — Myrtle family.

Name Origin: *albens* — from Latin *alba*, white, referring to general whitish appearance.

OCCURRENCE:

Regional: Widespread in most catchments west of Hume Highway. Also noted in areas east of the Hume Highway: Yarra Yarra; Four Mile; Lunts Sugarloaf; Snowball Stony; Yaven Creek; Murraguldrie; Lower Gilmore-Sandy and Brungle Bridge-Gundagai.

Australia: Qld, NSW, Vic, SA.

Habitat: Grassy or sclerophyll woodland on range of soils, usually of higher fertility. Often dominant tree species.

Habit: Tree to 25 m high with grey bark with whitish patches. Large crown of dull, grey-green leaves.

Similar Species: Distinguished from Grey Box (*E. microcarpa*) by its blue-grey adult leaves, which are generally wider, and its larger glaucous (white-waxy) buds and fruit. Grey Box has greener leaves and smaller buds and fruit, both of different shape to those of White Box.

Site Preference: Relatively fertile, well-drained soil. Tolerates short periods of inundation and drought. Moderately frost tolerant.

Characteristics: Moderate growth rate.

Flowering: Creamy-white, May-Sep. Heavy flowering usually every 2-3 years.

Seed Collection: Throughout year, although summer and autumn best.

Propagation: From seed (\pm 235 viable seeds per gram), which germinates best at 25°C.

Regeneration: From seed, during favourable seasons such as wet summers, particularly in absence of competitive exotic grasses. Establishes reasonably well when direct seeded.

VALUES:

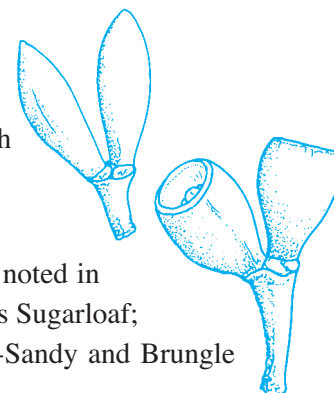
Shade & Shelter: Useful medium to high-level cover in windbreaks. Excellent shade for livestock and dwellings.

Land Protection: Useful for recharge control plantings as uses large amounts of ground water. Useful in erosion control due to large spreading roots.

Fuel: Excellent. Burns very well, for long periods due to its density.

Timber: Hard, heavy, durable and pale coloured. Similar quality to Grey Box, with similar properties. Density about 1100 kg/m³. Used for fencing and farm constructions.

Wildlife: Excellent habitat. Flowers important nectar source for birds such as honeyeaters, including the Regent Honeyeater, and parrots, including the Swift Parrot, over winter when other nectar sources are scarce. Food source for gliders, native moths, butterflies and other insects, which



provide food for insect-eating birds. Hollows provide refuge and nesting sites for many birds and mammals, including the Sugar Glider and Squirrel Glider, which obtain sap from trunks.

Ornamental: Very attractive for larger gardens and parks.

Eucalyptus bicostata — Eurabbie

(syn. *E. globulus* subsp. *bicostata*) *Also:* Blue Gum.

Family: Myrtaceae — Myrtle family.

Name Origin: *bicostata* — from the Latin *bi*, two, plus *costatus*, ribbed, referring to the two ridges commonly on the buds and fruits.

OCCURRENCE:

Regional: Primarily in wetter areas east of Hume Highway and south of Murrumbidgee catchments.

Australia: NSW, Vic.

Habitat: Fertile soils in sheltered areas, in wet forest.

Habit: Tree to 40 m high with smooth white or grey bark, shedding in ribbons, and long narrow glossy green adult leaves.

Site Preference: Moist, relatively heavy, fertile soil. Tolerates poorly-drained and boggy soil. Seedlings are susceptible to frost.

Characteristics: Grows very rapidly when young. Uses large volumes of water, and if grown outside its natural range, summer water shortages may lead to tree death. Responds to fertiliser.

Flowering: White-cream, Sep-Jan.

Seed Collection: Early Jan to late May.

Propagation: From seed (\pm 109 viable seeds per gram). Optimum germination temperature 27°C.

Regeneration: From seed, under during favourable seasons such as wet summers, particularly in absence of competitive exotic grasses. Coppices after fire or cutting.

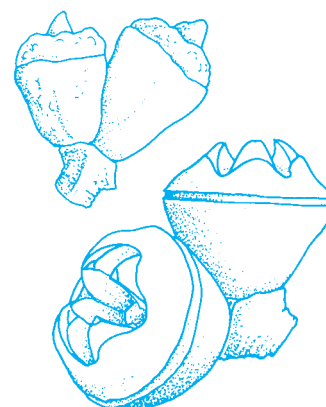
VALUES:

Shade & Shelter: Useful high-level cover in windbreaks. Casts heavy shade which suppresses most other vegetation.

Land Protection: Useful in gully erosion control, behind fibrous-rooted understorey plants.

Fuel: Moderate. Forms good coals and few sparks. Rates fair in splitting and ignitability.

Timber: Strong, moderately durable, with light-yellow or brown heartwood. Usually has interlocked grain with distinct growth rings. Density about 900 kg/m³. Mainly used in general construction, for making tool handles, and in bridges. Was used for cross-arms in electricity poles. Increasingly used as feature timber. Sapwood susceptible to damage by *Lyctus* borers. Can be



grown for hardwood pulp or sawlogs. Useful as quick-growing ‘nurse’ crop for Blackwood (*Acacia melanoxylon*) which benefits from shelter.

- Wildlife:** Nectar-rich flowers food for various insects and nectar-feeding birds. Fruit and seeds eaten by lorikeets, parrots and rosellas. Foliage important koala food. Hollows nesting sites for many birds and mammals. Important food source for the Yellow-bellied Glider.
- Ornamental:** Useful in parklands where a dense stand required quickly. Generally unsuitable for smaller gardens. Sometimes seen as untidy because its fallen leaves and twigs are slow to decompose. Suppresses most other vegetation.
- Other:** Leaves were used in a range of treatments including croup, asthma and colds as a vapour inhalation, and as an insecticide powder or spray. Leaves produce orange-tan dye with mordant alum.

Eucalyptus blakelyi — Blakely’s Red Gum

Family: Myrtaceae — Myrtle family.

Name Origin: *blakelyi* — after W.F. Blakely (1875-1941), author of *A Key to the Eucalypt*, 1934.

OCCURRENCE:

Regional: Widespread, in most catchments and districts on the drier hills and slopes.

Australia: Qld, NSW, Vic.

Habitat: Grassy woodlands on various soils. Commonly moderately fertile soils.

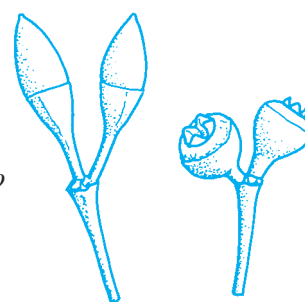
Habit: Tree to 20 m high with smooth, patchy white bark with grey to brown or red patches, shedding in large plates or flakes. Dull green or grey-green leaves.

Similar Species: Distinguished from Tumbledown Gum (*E. dealbata*) and Dwyer’s Gum (*E. dwyeri*) by fruit and form. It has more or less raised fruit disc whereas Tumbledown Gum and Dwyer’s Gum have flat or sunken discs. Distinguished from River Red Gum (*E. camaldulensis*) by buds, which are cone-shaped, and not beak-shaped, as on River Red Gum. Refer to Practical Information Note — The Red Gum Story.

Site Preference: Compact loams, below 800 m elevation. Tolerates frost, winter waterlogging and drought.

Characteristics: Hardy. Moderate growth rate. Prone to damage by psyllids (‘lerps’) in some areas, thought to be due to an imbalanced environment, lacking in understorey and predatory birds. Refer to Practical Information Note — The Red Gum Story. Hybridises with Tumbledown Gum, Dwyer’s Gum and River Red Gum.

Flowering: Usually white, mainly summer, but also late spring (generally just prior River Red Gum flowering). Heavy flowering may occur every 2-3 years, depending on season.

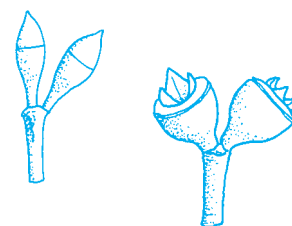


- Seed Collection:** Early Feb to late May, and possibly throughout year. Monitoring required as seeds shed after maturity.
- Propagation:** From seed (\pm 687 viable seeds per gram). 25-30°C is optimum germination temperature.
- Regeneration:** From seed, during favourable season such as wet summers, particularly in absence of competitive exotic grasses. Recovers well after fire.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks if interspersed with understorey and other eucalypts to reduce psyllid activity. Provides protection from fire as is relatively slow-burning, has high water content with low quantities of oils or resins, high salt level in leaves, and smooth bark.
- Land Protection:** Useful in gully erosion control, behind more fibrous-rooted understorey plants.
- Fuel:** Burns well.
- Timber:** Similar to other Red Gums. Used for fence posts, sleepers, garden edges and in furniture. Hard, red, strong and reasonably durable timber. Density about 980 kg/m³. Uniform texture and interlocked grain.
- Wildlife:** Good habitat. Flowers food for nectar-feeding birds and many insects, at a critical breeding time for many species. Insect-eating birds attracted. Hollows are nesting and refuge sites for many birds such as parrots, the Australian Owlet-nightjar, mammals such as *Antichinus* species, and reptiles such as goannas. Foliage-gleaning and scale-feeding birds attracted.
- Ornamental:** Attractive for parks and gardens, probably best interplanted with local native understorey shrubs and other trees to minimise damage from leaf psyllids or ‘lerps’.
- Other:** Leaves produce dyes ranging in colour depending on mordants used.

Eucalyptus bridgesiana — Apple Box

Also: But But.

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *bridgesiana* — after F. Bridges, the Chief Inspector of Education in NSW during the nineteenth century. The common name refers to its similarity to the Rough-barked Apple (*Angophora floribunda*).



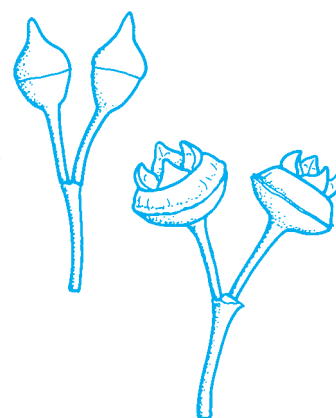
OCCURRENCE:

- Regional:** Widespread, in most areas on drier flats and lower slopes. Found in hills of higher rainfall areas.
- Australia:** Qld, NSW, Vic.
- Habitat:** Grassy woodland on drier sites, often shallower soils on slopes, and creeklines in lower rainfall areas.
- Habit:** Tree to 20 m high with fibrous-flaky bark persistent on trunk and larger branches. Large crown of heavy green semi-glossy leaves.

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- Similar Species:** Distinguished from Long-leaf Box (*E. goniocalyx*) and Silver Bundy (*E. nortonii*) by its fruit, which are smaller and not as ‘blocky’, its habit and habitat.
- Site Preference:** Well-drained heavy soils. Tolerates moderate frost and drought.
- Characteristics:** Moderate growth rate.
- Flowering:** White, late summer-autumn. Regular and profuse. Buds appear in summer and are carried for about a year.
- Seed Collection:** Generally winter-spring. Monitor seed-bearing capsules. Store seeds at room temperature.
- Propagation:** From seed (\pm 366 viable seeds per gram). 25°C is optimum germination temperature.
- Regeneration:** Regenerates well from seed. Can regenerate in weedy areas or those dominated by competitive exotic grasses.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks. Excellent shade due to large spreading crown. Seems to tolerate pressure from stock camps compacting the soil and raising soil fertility. Nonetheless, fencing recommended to preserve trees and encourage regeneration.
- Land Protection:** Useful in gully erosion control as back-up to fibrous-rooted understorey shrubs.
- Fuel:** Burns readily, but generally not regarded highly as fuel.
- Timber:** Too soft and brittle to be useful.
- Wildlife:** Excellent habitat. Flowers a food source for many insects, which attract insect-eating birds. Good nectar flows, favoured by bees. Yellow-bellied Gliders occasionally gouge through bark on trunk to obtain sap, and search for large wood-boring insect larvae. Squirrel Gliders and Sugar Gliders may obtain sap and insect larvae. Wombats occasionally dig down and chew roots. Refuge and nesting sites for many hollow-dependent birds and mammals.
- Ornamental:** Ornamental for larger gardens and parks, particularly in juvenile foliage stage.
- Other:** Leaves produce red dye with alum as mordant.

Eucalyptus camaldulensis — River Red Gum

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *camaldulensis* — River Red Gum first described from cultivated tree in garden of Camalduli religious order in Naples, Italy.
- OCCURRENCE:**
- Regional:** Locally common along flats and watercourses in most districts. East of Hume Highway, mainly restricted to major watercourses such as the rivers Murray, Tumut and Murrumbidgee.
- Australia:** Mainland states and territories.



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- Habitat:** Dominant species in grassy woodlands or forests on deep rich alluvial soils adjacent to large permanent water bodies.
- Habit:** Tree to 30 m high (occasionally taller) with smooth bark shedding in short ribbons or flakes. Large spreading crown with often heavy twisting branches and dull green or grey-green leaves.
- Similar Species:** Distinguished from Blakely's Red Gum (*E. blakelyi*) by its buds which are beak-shaped rather than cone-shaped. Refer to Practical Information Note — The Red Gum Story.
- Site Preference:** Low country, inundated occasionally, or where underground water is generally available. Tolerates wind. Tolerance characteristics strongly related to provenance (locality). Some provenances tolerate salinity, drought, flood and fire (regenerating from a lignotuber).
- Characteristics:** Fast growing when young, and very long-lived.
- Flowering:** White, generally Dec-Feb. Flowers heavily every two or three years depending on season.
- Seed Collection:** Mar-Sep, although collection times may vary. Monitor closely, as seeds dropped soon after maturity.
- Propagation:** From seed (\pm 700 seeds per gram). 35°C is optimum germination temperature.
- Regeneration:** From seed. Seedlings establish well as they take advantage of summer rains after weed growth has declined. Establishes particularly well along roadsides in sites which receive extra moisture.
- VALUES:**
- Shade & Shelter:** Useful high-level cover in windbreaks. Grass grows up to trunk.
- Land Protection:** Useful in controlling gully erosion. Can be planted in the bed of the gully, or further back behind fibrous-rooted understorey plants. Useful in controlling underground seepage, due to deep rooting. Water use in winter reduces waterlogging. Salt-tolerant provenances planted in salt discharge sites assist rehabilitation.
- Fuel:** Very good. Commercially used in producing charcoal.
- Timber:** Red, moderately hard, heavy and very durable. Density about 900 kg/m³. Resists decay and termites. Was used as railway sleepers, in flooring (especially parquetry), heavy construction, framing, decking, bridges, roadside markers, fencing, plywood, veneer, furniture and in turning.
- Wildlife:** Excellent habitat. The basis of many creek and river habitats. Excellent hollows, important nesting sites for many mammals and birds. Prolific pollen and nectar for wide range of insects and birds. Insect-eating birds attracted. Foliage important food for koalas, and nesting sites for many birds. Important for fish habitat, providing shade, an insect source, and fallen branches for snags that are egg-laying sites for fish such as the Murray Cod.
- Koori:** Canoes made from large sheets of bark, and scars remain on old trees. Smaller scars show where bark dishes were cut. Water containers made from large gnarled burls which were cut and hollowed out. Sweet drink was made from gum blossom which was soaked. Burns and diarrhoea treated with sap or gum, high in tannin. Seeds reputedly eaten.
- Ornamental:** Specimen and shade for large gardens and parks, useful in bog gardens and pond edges. Do not plant within 20 m of plumbing to avoid clogging.

Other: Excellent honey tree. Dyes of varying colours produced from leaves, depending on mordants used. Gum was used in pharmaceutical preparations to treat diarrhoea and dysentery. Infusion of leaves and twigs was used to bathe the head for colds and fevers.

Eucalyptus camphora subsp. *humeana* — Mountain Swamp Gum

Also: Broad-leaved Sally

Family: Myrtaceae — Myrtle family.

Name Origin: *camphora* — meaning camphor-like in scent.

OCCURRENCE:

Regional: Primarily in wetter sites and upper reaches of catchments and districts east of Hume Highway. Name is shortened to *E. camphora* in General Native Vegetation Profiles.

Australia: NSW, Vic.

Habitat: Open swampy flats and creeklines.

Habit: Tree or mallee to 20 m high, with smooth bark shedding in ribbons. Rounded green adult leaves.

Site Preference: Moist to wet soils. Tolerates very cold conditions and heavy soils.

Characteristics: Very vigorous.

Flowering: White, Mar-Apr.

Seed Collection: Around autumn. Monitor capsules, as seeds shed after maturity.

Propagation: From seed. 25°C is optimum germination temperature.

Regeneration: From seed.

VALUES:

Shade & Shelter: Useful medium-level cover in windbreaks.

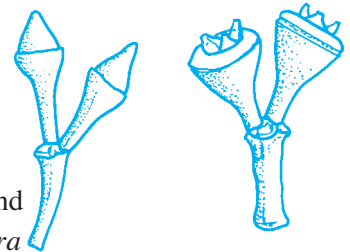
Land Protection: Useful for controlling gully erosion, behind more fibrous-rooted understorey plants. Useful for improving drainage in boggy areas.

Fuel: Little value, although produces good charcoal.

Timber: Little value.

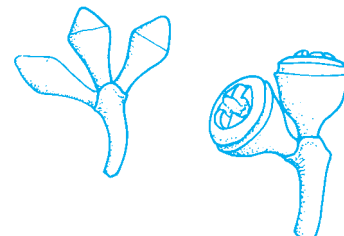
Wildlife: Excellent habitat. Hollows are nesting sites for many birds, including the Sooty Owl, and mammals including the Mountain Brushtail Possum. Flowers a food source for many insects. Insect-eating birds attracted.

Ornamental: Very vigorous and attractive for parks and gardens.



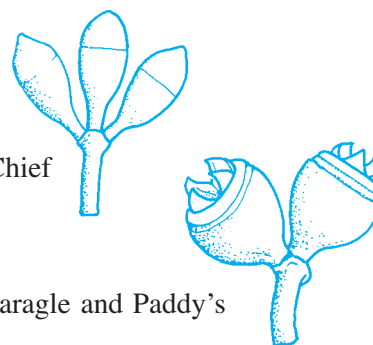
Eucalyptus cinerea — Argyle Apple

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *cinerea* — meaning ashen, referring to leaf colour.
- OCCURRENCE:**
- Regional:** Tumut region.
- Australia:** NSW.
- Habitat:** Grassy or sclerophyll woodland, on shallow relatively infertile soils.
- Habit:** Tree to 15 m high, with red-brown to grey-brown fibrous or stringy bark. Distinctive dull grey-green adult leaves.
- Site Preference:** Poorer soils on lower slopes of hill country. Tolerates most frost. Drought resistant.
- Characteristics:** Adaptable to most well-drained soils.
- Seed Collection:** Monitoring required as seeds shed after maturity.
- Propagation:** From seed (\pm 500 viable seeds per gram).
- Regeneration:** Coppices after fire.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks.
- Timber:** Not valuable.
- Wildlife:** Attracts foliage-gleaning and scale-feeding birds such as thornbills and pardalotes. Flowers a food source for various insects. Insect-eating birds attracted. Favoured by treecreepers and sittellas. Fruits and seeds a food source for a range of native birds.
- Ornamental:** Very attractive for gardens and parks, due to dense blue-grey foliage,
- Other:** Silvery foliage used in floral industry.



Eucalyptus dalrympleana — Mountain Gum

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *dalrympleana* — after Richard Dalrymple Hay, former Chief Commissioner of NSW Forests.
- OCCURRENCE:**
- Regional:** Mostly in upper reaches of catchments including Tooma, Maragle and Paddy's River-Burra Valley.
- Australia:** Qld, NSW, Vic, Tas.
- Habitat:** Grassy or sclerophyll woodland or forest on loamy or sandy soils at higher elevations.

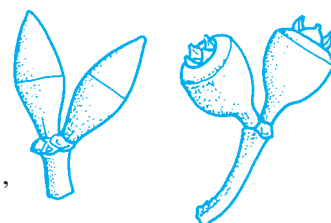


- Habit:** Tree to 40 m high with smooth bark on lower trunk shedding in long ribbons. Large crown of glossy green leaves.
- Similar Species:** Distinguished from Candlebark (*E. rubida*) mainly by its glaucous juvenile and intermediate leaves.
- Site Preference:** Moist, well-drained deep soils. Tolerates frost.
- Characteristics:** Fast-growing. Develops spreading habit in open situations. Hybridises with Candlebark on Northern Tablelands.
- Seed Collection:** Early Dec to late May. Monitor closely, as seeds released 3-8 weeks after maturity. Trees fallen for timber are ideal seed source.
- Propagation:** From seed (\pm 250 viable seeds per gram).
- Regeneration:** From seed after fire.
- VALUES:**
- Shade & Shelter:** Could be included in wide windbreaks as high-level cover.
- Timber:** Straight-grained, moderately coarse and hard, but not durable. Density about 740 kg/m³. Similar but superior to Candlebark timber. Used in framing, paneling, flooring, joinery and tool handles. Useful timber for farm forestry planting on sheltered sites.
- Wildlife:** Important hollow source for birds, including the Sooty Owl, and mammals, including the Yellow-bellied Glider.
- Other:** Leaves produce red-orange dye with alum as mordant.

Eucalyptus dealbata — Tumbledown Gum

Also: Tumbledown Red Gum, Hill Red Gum, Silver Gum.

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *dealbata* — meaning white-ashed, referring to hue on leaves, particularly in autumn.



OCCURRENCE:

- Regional:** Usually on dry rocky hills. Noted in the following areas: Urana-Rand-Corowa; Long Plain-West Hume; Majors Creek; Burrumbuttock-West Hume; Deadmans-Bungowannah-Long Flat; Albury district; Yambla; Mountain Creek-Native Dog-Sandy Creek; Sawyers-Forest-Four Post & Little Billabong; Boree; Narrandera-Morundah-Galore-Collingullie; Coreinbob & Carabost.
- Australia:** Qld, NSW, Vic.
- Habitat:** Grassy woodland on skeletal soils, usually on basic rocks. Also with White Cypress Pine (*Callitris glaucophylla*).

- Habit:** Straggly tree to 15 m high with smooth bark shedding in large plates or flakes. Narrow grey-green adult leaves. Varies in form depending on site quality. More mallee-like on poorer sites.
- Similar Species:** Resembles Blakely's Red Gum (*E. blakelyi*), particularly on better sites. Distinguished from Dwyer's Red Gum (*E. dwyeri*) by its wider leaves, especially in seedlings. See Practical Information Note — The Red Gum Story.
- Site Preference:** Tolerates most frost and dryness once established.
- Flowering:** White, winter to early summer.
- Propagation:** From seed.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks.
- Land Protection:** Useful for recharge plantings.
- Timber:** Durable in ground. Suitable for fencing and heavy construction, although trees often crooked. Potential for woodlot planting.
- Wildlife:** Birds attracted to good supplies of nectar and pollen. Hollows are nesting and refuge sites for many native birds and mammals.
- Ornamental:** Decorative specimen for larger gardens and parks. Saplings develop crown of attractive broad silvery leaves.
- Other:** Very important in NSW due to pollen production for apiculture.

Eucalyptus delegatensis — Alpine Ash

Also: Woollybutt.

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *delegatensis* — after NSW town Delegate.

OCCURRENCE:

- Regional:** Restricted to upper areas such as upper reaches of Gilmore and Paddy's River-Burra Valley.

Australia: NSW, ACT, Vic.

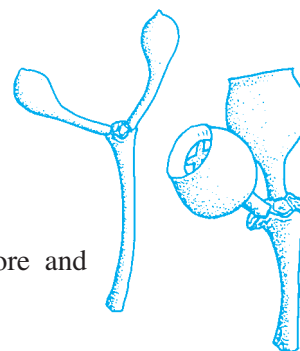
Habitat: Grassy or wet sclerophyll subalpine forest on deep fertile, often sloping soil.

Habit: Tree to 50 m high (sometimes higher) with fibrous to stringy bark on lower trunk, shedding in long ribbons above. Dark-green glossy adult leaves.

Site Preference: Well-drained deep soils on moderately steep slopes.

Flowering: Dec-Mar.

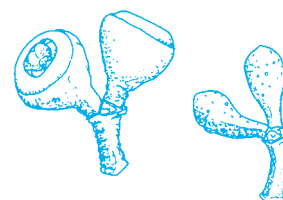
Seed Collection: Early Jan to late Feb, although seed usually available throughout year. Heavy crops infrequent.



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- Propagation:** From seed (\pm 104 viable seeds per gram). Stratify for 6-10 weeks to enhance germination.
- Regeneration:** After fire, from seed.
- VALUES:**
- Shade & Shelter:** Useful high-level cover in windbreaks.
- Timber:** One of the most important Australian timber species. Timber yellow-brown to pink-brown and easily worked. Used widely in building trades and for producing paper and hardboard.
- Wildlife:** Bees, birds and other insects attracted to abundant pollen and nectar.
- Ornamental:** Specimen and shade for large parks, gardens and roadsides where sufficient space.

Eucalyptus dives — Broad-leaved Peppermint

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *dives* — Latin for rich or plentiful, referring to oil in leaves.
- OCCURRENCE:**
- Regional:** Widespread in higher rainfall catchments predominantly east of the Hume Highway.
- Australia:** NSW, Vic.
- Habitat:** Dry sclerophyll woodland on poor shallow stony soils, on rises.
- Habit:** Tree to 20 m high, with shortly fibrous bark shedding in ribbons above. Glossy green adult leaves.
- Similar Species:** Sometimes similar to Red Stringybark (*E. macrorhyncha*), but distinguished by its smaller fruit and distinct juvenile foliage.
- Site Preference:** Well-drained, relatively poor soils on gentle slopes and ridges. Tolerates moderate frost, extended dry periods and wind.
- Characteristics:** Fast-growing.
- Flowering:** White-cream, mainly Nov-Dec.
- Seed Collection:** Throughout year, particularly Nov-Dec.
- Propagation:** From seed (\pm 750 seeds per gram). Optimum germination temperature is 15°C. Seed stratification for 4 weeks, although not essential, enhances germination. Seedlings may not survive in sterile potting mix. Adding local soil or leaf litter to mix should overcome problems.
- Regeneration:** From seed, particularly in absence of exotic grasses and weeds, and during wet summers. Coppices vigorously from waist-high stumps.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks. Useful shade due to large crown and low branches. For tree health and regeneration, fencing to exclude livestock recommended.



- Timber:** Moderately hard and strong, but not durable. Subject to numerous gum veins. Generally not used.
- Wildlife:** Valuable habitat. Flowers are a food source for nectar-feeding birds, mammals and insects. Insect-eating birds attracted. Seeds and fruits food for native birds. Hollows are nesting and refuge sites for a range of birds and mammals.
- Koori:** People with fever exposed to smoke from burning leaves to bring relief. Heat was thought to go from suffering person into fire.
- Ornamental:** Attractive specimen for gardens.
- Other:** Can be grown and coppiced for foliage useful for cut foliage market, and for distilling for cineole and piperitone oils. Oils used in mineral flotation or as solvents. Piperitone oils used in menthol (liniments and mouth washes) and thymol, a fungicide. Can be continuously cut for years, suckering vigorously. Leaves produce yellow dye with alum as mordant.

Eucalyptus dwyeri — Dwyer's Red Gum

Also: Dwyer's Mallee Gum

Family: Myrtaceae — Myrtle family.

Name Origin: *dwyeri* — after Mr Dwyer, a keen botanist from Temora district.

OCCURRENCE:

Regional: Found on dry, rocky hills mainly west of the Hume Highway. Noted in the areas: Burrumbuttock-West Hume; Bowna-Jindera; Walla Walla; Yambla; Sawyers-Forest-Four Post-Little Billabong; Holbrook; Mullengandra; Fowlers Swamp-Wagra; Yarra Yarra; Binni; Yerong Creek-Wattle Creek; Buckaringah; Coreinbob and Eringowarra-Deltrout-Hillas-Jellingro & Oaky.

Australia: Qld, NSW, Vic.

Habitat: Sclerophyll mallee shrubland. Well-drained shallow soils on siliceous ridges.

Habit: Mallee or tree to 15 m high with dull-green leaves and smooth bark shedding in plates or flakes.

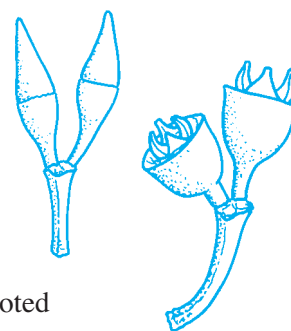
Similar Species: Distinguished from Tumbledown Gum (*E. dealbata*) by its narrower leaves, particularly in seedlings. Distinguished from Blakely's Red Gum (*E. blakelyi*) by its narrower leaves and flat or sunken fruit disc, while Blakely's Red Gum has more or less raised disc. Refer to Practical Information Note — The Red Gum Story.

Site Preference: Well-drained soil in full sun.

Characteristics: Hybridises with Tumbledown Gum and Blakely's Red Gum.

Flowering: Creamy white, winter-spring. Flowers regularly.

Propagation: From seed.



VALUES:

Shade & Shelter: Useful low to medium-level cover in windbreaks in hill country.

Land Protection: Useful in recharge revegetation.

Timber: Red, reasonably hard.

Wildlife: Good supplies of nectar and pollen used by various native insects and birds.

Ornamental: Attractive ornamental for gardens.

Other: Significant tree in apiculture.

***Eucalyptus goniocalyx* — Long-leaf Box or Bundy**

***Eucalyptus nortonii* — Silver Bundy or Large-flowered Bundy**

(syn. *E. goniocalyx*: *E. elaeophora*. *E. nortonii*: *E. cordieri* var. *nortonii*)

Family: Myrtaceae — Myrtle family.

Name Origin: *goniocalyx* — from Greek *gonia*, angle or corner, and *calyx*, sepals collectively, referring to bud shape.

OCCURRENCE:

Regional: In most of the region except in the far west and north-west.

Australia: NSW, Vic, SA.

Habitat: Open grassy or sclerophyll woodland. Dry shallow soils on sloping sites.

Habit: Trees to 15 m high with fibrous flaky grey bark with whitish patches, shedding in short ribbons above. Narrow green adult leaves.

Similar Species: Long-leaf Box and Silver Bundy are virtually identical except that Silver Bundy has glaucous (white-waxy) buds, fruit and branchlets whereas Long-leaf Box does not. Both are distinguished from Apple Box (*E. bridgesiana*) by their larger fruits and buds.

Site Preference: Infertile soil on dry and rocky areas. Tolerates drought and moderate frost.

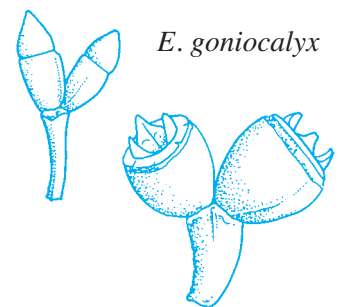
Characteristics: Moderate growth rate. Foliage high in cineole, useful in medicine.

Flowering: White-cream, Mar-May.

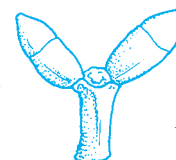
Seed Collection: Throughout year, particularly summer-autumn. Seeds generally retained.

Propagation: From seed (\pm 127 viable seeds per gram). 25°C is optimum germination temperature.

Regeneration: From seed, particularly in absence of competitive exotic grasses or weeds, and during wet summers. Often regenerates on infertile sites due to lack of weed competition. Establishes very well when direct seeded.



E. goniocalyx



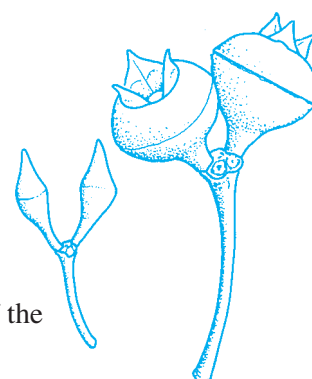
E. nortonii

VALUES:

- Shade & Shelter:** Useful medium-level cover in windbreaks. Useful shade due to dense canopy and suitability for harsh exposed hilltops.
- Land Protection:** Useful for revegetating unproductive, rocky recharge hills.
- Fuel:** Fair. Easily split and burns fast.
- Timber:** Little value. Timber yellow-grey, coarse-grained and not durable. Sapwood decays rapidly.
- Wildlife:** Excellent habitat. Foliage is koala forage. Nectar-feeding birds attracted to flowers, which are pollen-rich. Insect-eating birds such as thornbills find insects amongst foliage. White-throated Treecreepers and sittellas glean bark. Fruits and seeds eaten by native birds, particularly parrots. Hollows are nesting and refuge sites for native birds and mammals.
- Ornamental:** Juvenile foliage particularly attractive.
- Other:** Leaves produce range of dyes depending on mordants used.

Eucalyptus macrorhyncha — Red Stringybark

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *macrorhyncha* — from Greek *macros*, large, and *rhynchos*, beak, referring to operculum or cap, especially on buds. Common name refers to bark and probably inner-bark colour.

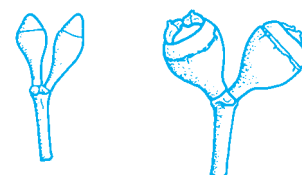
**OCCURRENCE:**

- Regional:** Widespread in many catchments and districts, particularly east of the Olympic Highway.
- Australia:** NSW, Vic, SA.
- Habitat:** Dry sclerophyll forest or woodland. Shallow poor soils on rises.
- Habit:** Upright tree to 30 m high (and often less) with grey to red-brown stringy bark. Green adult leaves.
- Similar Species:** Distinguished from Broad-leaved Peppermint (*E. dives*) mainly by its larger fruit of different shape, and juvenile foliage.
- Site Preference:** Well-drained, moderately fertile soil. Tolerates frost, hot dry conditions and harsh sites.
- Characteristics:** Moderate growth rate.
- Flowering:** White-cream, Jan-Apr. Profuse and conspicuous.
- Seed Collection:** Mainly summer, although seeds held for many years. Extract seeds from old woody capsules by heating in oven at 200°C for 15 minutes.
- Propagation:** From seed (\pm 68 viable seeds per gram). 16°C is optimum germination temperature. Seedlings may not survive in sterile potting mix; adding local soil or leaf litter should overcome problems.

- Regeneration:** From seed, particularly in absence of competitive exotic grasses and weeds, during wet, cool summers. Establishes well when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks. Good shade due to dense compact crown. Allows grass to grow to its base. Requires fencing to prevent ringbarking from stock, particularly cattle seeking roughage and rutin. Stock camps and trampling damage the surface roots.
- Land Protection:** Useful to revegetate hilly recharge sites.
- Fuel:** Fair. Easily split and ignited. Produces few sparks.
- Timber:** Pale red-brown, moderately fine-textured, often with interlocked grain. Slow to dry, moderately durable and decorative. Density about 900 kg/m³. Used in flooring, as polishes well. Potential for use in furniture, veneers and shingles. Used for above-ground fencing such as rails, and for general construction. Becoming popular as feature timber.
- Wildlife:** Good habitat. Flowers are a nectar source for many native insects, birds and mammals. Insect-eating birds such as pardalotes attracted. Native birds including flycatchers, fantails, wrens, thornbills, honeyeaters and whistlers use bark for nesting material. Hollows close to ground-level are important nesting sites for Turquoise Parrot.
- Ornamental:** Shade for large gardens, although perhaps not particularly ornamental.
- Other:** Leaves produce lemon dye, with mordant alum, or brown-green dye with chrome. Kino exuded from bark is astringent — substance that checks the discharge of mucus, serum etc. by causing tissue shrinkage. Leaves are a rutin source, which strengthens small blood vessel and capillary walls, and hence prevents nose bleeds etc.

Eucalyptus mannifera — Brittle Gum

Also: Snap Gum, White Gum, Snappy Gum



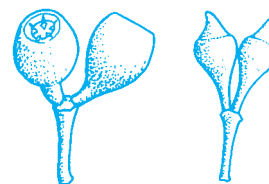
- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *mannifera* — bearing manna (sugary substance exuded from injured stems).
- OCCURRENCE:**
- Regional:** Widespread in the easterly catchments and higher rainfall areas. Predominantly east of the Hume Highway, and southern areas.
- Australia:** NSW, Vic.
- Habitat:** Open dry sclerophyll woodland. Typically on shallow, rocky, relatively infertile soils.
- Habit:** Tree to 20 m high with smooth powdery white, grey or red bark in patches, shedding in short ribbons, plates or flakes. Open crown of dull narrow green to grey-green leaves.
- Similar Species:** Distinguished from Candlebark (*E. rubida*) by its juvenile leaves and fruit.

- Site Preference:** Well-drained soils. Tolerates frost, moderate snowfalls and drought.
- Characteristics:** Tends to lose branches on still, warm days, which produces many hollows.
- Flowering:** White, spring-autumn (mainly Feb-Mar).
- Propagation:** From seed (\pm 425 seeds per gram). 25°C is optimum germination temperature.
- Regeneration:** From seed, particularly in absence of competitive exotic grasses or weeds, during wet summers.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in wide windbreaks.
- Land Protection:** Useful to revegetate recharge sites to reduce water entering watertable.
- Fuel:** Fair.
- Timber:** Little value. Pink, soft, brittle timber.
- Wildlife:** Excellent habitat. Particularly valuable for hollows, important nesting sites for many native birds and mammals, including the Greater Glider and Yellow-bellied Glider. Flowers are a food source for many native insects. Insect-eating birds attracted.
- Ornamental:** Highly ornamental. Responds well to coppicing to obtain multi-stemmed plants.
- Other:** Manna (sugary substance) exuded from injured stems was used as sweet-tasting laxative. Leaves produce range of dyes depending on mordants used.

Eucalyptus melliodora — Yellow Box

Also: Honey Box, Yellow Ironbark (both used in Qld).

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *melliodora* — from Latin *melleus*, honey, and *odora*, sweet or pleasant smell, referring to nectar.



OCCURRENCE:

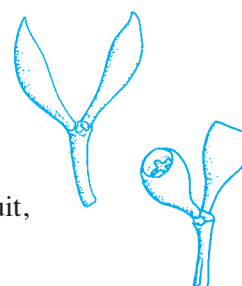
- Regional:** Widespread on the lower slopes and rises of most catchments and districts.
- Australia:** Qld, NSW, Vic.
- Habitat:** Grassy woodland. Moderately fertile, often sandy or alluvial soil.
- Habit:** Tree to 30 m high. Spreading dense crown of fine grey-green foliage and fibrous-flaky 'box' bark varying from dark to light brown-yellow, shedding in short ribbons from above.
- Site Preference:** Light to heavy well-drained moist soils. Tolerates moderate frost and wind. Grows poorly on poorly-drained, infertile or strongly alkaline soil, or in particularly cold districts. Resents high water tables.
- Characteristics:** Long-lived. Slow to moderate growth rate. Bright-yellow inner bark is a feature.

- Flowering:** White-cream, Sep-Feb (mainly Nov). Profuse and honey-scented.
- Seed Collection:** Usually throughout year.
- Propagation:** From seed (\pm 530 viable seeds per gram). Optimum germination temperature is 27°C.
- Regeneration:** From seed, particularly in absence of competitive exotic grasses or weeds, during wet summers. Seedlings relatively palatable to livestock. Regenerates well after fire and coppices readily.
- VALUES:**
- Shade & Shelter:** Useful medium to high-level cover in windbreaks. Useful shade.
- Land Protection:** Helps stabilise areas prone to landslips and slumping due to high water usage.
- Fuel:** Excellent. Produces few sparks. May be difficult to split and ignite.
- Timber:** Light pink or yellowish-brown, fine-textured with an interlocked grain. Very hard, heavy, strong and extremely durable. Density about 1100 kg/m³. Used for heavy construction, poles, sleepers and fencing. Becoming popular as furniture timber. Useful in woodlots for firewood and specialty timber. Foliage palatable to livestock and can be used in emergencies, although other species preferred.
- Wildlife:** Excellent habitat. Hollows are nesting and refuge sites for a range of native birds, including owls, and mammals, including possums and bats. Nectar-rich flowers are a food source for many native birds, mammals and insects including butterflies and caterpillars. Insect-eating birds attracted. A range of birds feed on seeds and fruits. Foliage is occasional koala forage.
- Ornamental:** Magnificent specimen for parks, roadsides and larger gardens, due to attractive fine foliage and form.
- Other:** Leaves produce a range of dyes depending on mordants used. Excellent honey tree.

Eucalyptus microcarpa — Grey Box

Also: Western Grey Box, Gum-topped Box.

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *microcarpa* — from Greek *micros*, small, and *carpos*, fruit, referring to small fruit.



- OCCURRENCE:**
- Regional:** Widespread west of the Hume Highway on lower slopes and plains country.
- Australia:** Qld, NSW, Vic, SA.
- Habitat:** Grassy woodland on moderately fertile loamy soils.
- Habit:** Tree to 25 m high. Open crown of dull olive-green leaves. Grey, fibrous-flaky 'box' bark with whitish patches, upper branches smooth-barked.

- Similar Species:** Often confused with White Box (*E. albens*). Grey Box has greener and narrower leaves than White Box, and smaller buds and fruit.
- Site Preference:** Heavy loamy soils. Tolerates moderately alkaline soil, frost, wind, infrequent flooding and extended dry periods.
- Characteristics:** Long-lived. Moderate growth rate.
- Flowering:** White, Feb-Jun. Flowers freely each year.
- Seed Collection:** Throughout year, as seeds generally retained. Good crops may be irregular.
- Propagation:** From seed (± 729 seeds per gram).
- Regeneration:** From seed, particularly in absence of competitive exotic grasses or weeds, during wet summers. Coppices vigorously from low stumps, and regrowth is long-lived. Establishes well when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks. Good shade due to spreading crown.
- Land Protection:** Useful in gully erosion control behind fibrous-rooted understorey species.
- Fuel:** Very good.
- Timber:** Pale, very durable, tough and strong. Density about 1100 kg/m³. Used for posts, poles, fencing and heavy construction. Interesting furniture timber, although difficult to work.
- Wildlife:** Excellent habitat. Flowers are a food source for Sugar Gliders, Squirrel Gliders, native birds and insects. Insect-eating birds attracted. Hollows are nesting and refuge sites for native birds and mammals. Critical habitat for the Grey-crowned Babbler, Stone Curlew and goannas.
- Ornamental:** No outstanding features, although may be suitable for larger gardens and parks.
- Other:** Leaves produce a range of dyes depending on mordants used.

Eucalyptus pauciflora — White Sallee

Also: Snow Gum, Cabbage Gum, Weeping Gum

Family: Myrtaceae — Myrtle family

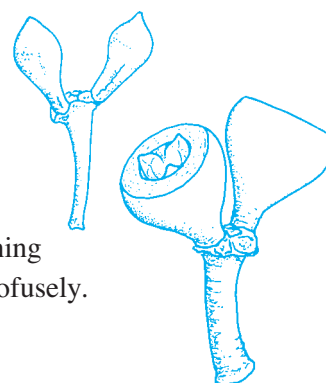
Name Origin: *pauciflora* — from Latin *paucus*, few, and *florus*, flowered, meaning few-flowered, although this is inappropriate as it often flowers profusely.

OCCURRENCE:

Regional: East of the Hume Highway at higher elevations.

Australia: NSW, Vic, Tas, SA.

Habitat: Grassy or dry sclerophyll woodland in flat cold sites above about 700 m elevation, on deeper soils.



- Habit:** Tree to 20 m high (and sometimes 30 m), with white, grey or yellow smooth bark with scribbles.
- Site Preference:** Mountain slopes, exposed ridgetops and tablelands in shallow rocky or alluvial well-drained soil. Tolerates frost, strong wind and long periods of heavy snow.
- Characteristics:** Fast-growing when young.
- Flowering:** White-cream, Oct-Jan. Prolific.
- Seed Collection:** Summer, although seeds generally retained for long periods.
- Propagation:** From stratified seed (\pm 500 viable seeds per gram). Combine seed with moist sand and refrigerate for 4-6 weeks at 15°C. Optimum germination temperature 15°C. Seedlings may not survive in sterile potting mix. Adding local soil should overcome problems.
- Regeneration:** From seed and lignotubers.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks.
- Land Protection:** Valuable in highland areas for controlling erosion and intercepting snow drift.
- Fuel:** Moderate value. Used where it occurs.
- Timber:** Light pink-brown, relatively soft, light and moderately strong, with gum veins. Density about 690 kg/m³.
- Wildlife:** Valuable habitat. Hollows used for nesting. Nectar source for native birds and insects. Insect-eating birds attracted.
- Ornamental:** Attractive due to pendulous foliage and colourful pink bark during summer.
- Other:** Leaves produce yellow dye with mordant alum.

Eucalyptus polyanthemos — Red Box

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *polyanthemos* — from Greek *poly*, many, and *antheon*, flower, referring to the many flower buds in each panicle.

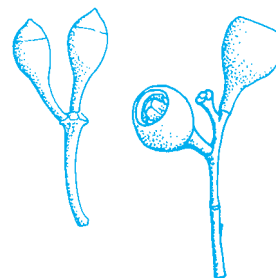
OCCURRENCE:

- Regional:** Widespread in most catchments and districts on slopes and rises.
- Australia:** NSW, Vic.

Habitat: Grassy or sclerophyll woodland on light, shallow soils.

Habit: Tree to 20 m high with short trunk and dense spreading crown of rounded dull grey-green or blue-green leaves. 'Box' bark on trunk and larger branches.

Site Preference: Well-drained soil. Tolerates frost and wind. Moderately drought tolerant.



-
- Characteristics:** Moderate growth rate.
- Flowering:** White, cream or pinkish, Sep-Dec. Profuse.
- Seed Collection:** Early Mar to late Jun. Monitor seed-bearing capsules as seeds shed after maturity.
- Propagation:** From seed (\pm 465 viable seeds per gram). Optimum germination temperature 32°C.
- Regeneration:** From seed, particularly in absence of competitive exotic grasses or weeds, during wet summers. Regenerates well from lignotuber after fire, browsing or cutting. Establishes when direct seeded, but not vigorously.
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks. Useful shade due to large spreading crown.
- Land Protection:** Useful for recharge areas as uses large volumes of ground-water.
- Fuel:** Excellent.
- Timber:** Red, fine-textured, interlocked grain. Hard, strong and durable. Density about 1020 kg/m³. Dries slowly. Difficult to season. Used in fencing, turning, and for poles. Apparently moderately termite resistant. Suitable woodlot species for firewood (coppices readily) and sawn farm timber. Suitable for high value knot-free furniture timber if planted at high densities and regularly pruned.
- Wildlife:** Excellent habitat. Flowers are a nectar source for various native birds and insects. Insect-eating birds attracted. Birds such as treecreepers and sittellas glean bark. Native birds eat seeds and fruits. Koalas occasionally eat foliage. Hollows are nesting sites for various native birds and mammals.
- Ornamental:** Shapely, attractive specimen, shade and street tree.
- Other:** Leaves produce range of dyes depending on mordants used. Leaves high in cineole, useful in medicine. In America and France, grown for producing cut foliage for cut flower trade.

Eucalyptus robertsonii — Robertson's Peppermint

Family: Myrtaceae — Myrtle family.

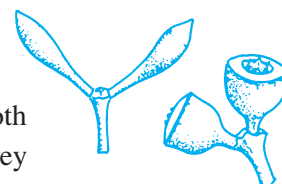
OCCURRENCE:

Regional: Widespread in the higher rainfall areas generally east of the Hume Highway.

Australia: NSW, Vic.

Habitat: Grassy or dry sclerophyll woodland or forest on lighter soils, often granite.

Habit: Tree to 30 m high. Bark grey to grey-brown, shortly fibrous, smooth above, shedding in long ribbons. Dense crown of fine blue-grey foliage.

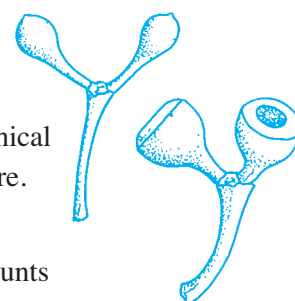


- Similar Species:** Similar to Narrow-leaf Peppermint (*E. radiata*), although the Herbarium at Sydney has no records of this species in the region. Robertson's Peppermint is commonly known as Narrow-leaf Peppermint throughout the region.
- Site Preference:** Moist deep soils. Tolerates moderate frost, some snow and poorly drained soil.
- Characteristics:** Fast growing. The leaves are rich in oil, giving off a strong aroma when crushed and following rain.
- Flowering:** Feb-Mar.
- Propagation:** From seed. Germinates readily.
- Regeneration:** From seed, particularly in the absence of competitive exotic grasses or weeds, and during wet summers. Coppices well.
- VALUES:**
- Shade & Shelter:** Useful medium to high-level cover in windbreaks.
- Fuel:** Useful, although burns quickly.
- Timber:** Heartwood light brown, sometimes with pinkish tinge. Generally straight-grained. Density about 720 kg/m³. Used for general construction or in joinery (better quality logs). High shrinkage rate.
- Wildlife:** Good habitat. Flowers provide pollen for various insects, mammals and birds. Insect-eating birds are attracted, such as treecreepers gleaning the bark and pardalotes feeding in the leaves. Foliage is occasional forage for koalas. Various native birds feed on the flowers, seed and fruit. Old trees develop hollows which are nesting sites for birds and mammals.
- Ornamental:** Attractive specimen for larger gardens and parks. Attractive foliage.
- Other:** High essential oil content in foliage of some provenances.

Eucalyptus rossii — Scribbly Gum

Also: Inland Scribbly Gum, Snappy Gum, Snap Gum, White Gum.

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *rossii* — after W.J.C. Ross (1850-1914), teacher at Bathurst Technical College. Common name refers to 'scribbles', a common bark feature.

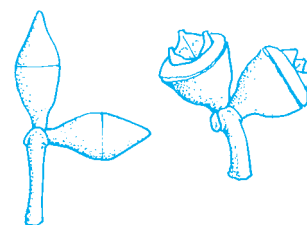


- OCCURRENCE:**
- Regional:** Noted in the areas: Carabost, Murraguldrrie, Yaven Creek, Lunts Sugarloaf and Four Mile.
- Australia:** NSW.
- Habitat:** Dry sclerophyll woodland. Poor shallow stony soils on rises, and low ridges in undulating country.

- Habit:** Tree to 20 m high with smooth white or yellow bark with scribbles, shedding in short ribbons. Dull grey-green leaves. Diameter at breast height up to 1 m.
- Similar Species:** Sometimes confused with Brittle Gum (*E. mannifera*), but distinguished by its scribbly non-powdery bark, leaves and buds. One of five species known as Scribbly Gum due to insects feeding in the bark, although other four species not within region. They are: *E. haemastoma*, *E. racemosa*, *E. sclerophylla* and *E. signata*.
- Site Preference:** Well-drained soil. Tolerates frost.
- Characteristics:** Scribbles in bark are left by insect larvae which burrow beneath bark.
- Flowering:** Dec-Feb.
- Propagation:** From seed (\pm 161 viable seeds per gram).
- VALUES:**
- Shade & Shelter:** Useful medium-level cover in windbreaks.
- Fuel:** Burns well.
- Timber:** Brittle. Not durable or commercial.
- Wildlife:** Nectar-rich flowers are a food source for various native birds.
- Ornamental:** Attractive specimen for landscaping due to white trunk and spreading branches.

Eucalyptus rubida — Candlebark

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *rubida* — from Latin *rubidus*, red, referring to seasonally red bark patches. Common name refers to bark appearance.



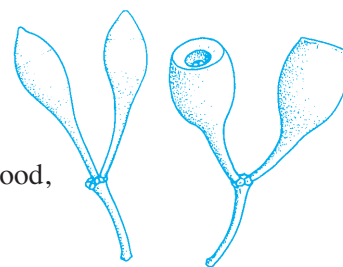
- OCCURRENCE:**
- Regional:** Widespread in the higher rainfall areas generally east of the Hume Highway.
- Australia:** NSW, Vic, Tas, SA.
- Habitat:** Moderately fertile, well-drained loams with clay subsoil, in foothills and tablelands. Also mountain slopes and upper river valleys.
- Habit:** Tall tree with straight, largely bark-free trunk, 20-30 m high.
- Similar Species:** Distinguish from Manna Gum (*E. viminalis*) mainly by juvenile foliage.
- Site Preference:** Well-drained soil. Resists cold, frost, wind and moderate drought.
- Characteristics:** Moderate growth rate. Foliage has distinctive aroma.
- Flowering:** White, Dec-Apr.

- Seed Collection:** Throughout year, particularly Feb-May.
- Propagation:** From seed (\pm 220 viable seeds per gram). Optimum germination temperature 27°C.
- Regeneration:** From seed, particularly in the absence of competitive exotic grasses or weeds, and during wet summers.
- VALUES:**
- Shade & Shelter:** Useful medium to high level cover in windbreaks.
- Fuel:** Useful, although burns quickly.
- Timber:** Timber tough, moderately hard and strong. Not durable. Density about 760 kg/m³. Occasionally used for fencing and firewood, but generally regarded as second-rate building timber. Potential for joinery, flooring and parquetry.
- Wildlife:** Excellent habitat. Hollows important nest sites for many native birds and mammals. Rosellas eat capsules and seeds. Koalas occasionally eat foliage. Flowers and nectar are a food source for various native birds, insects and mammals.
- Ornamental:** Attractive for larger gardens and parks. White trunk, interesting juvenile foliage and pink bark streaks in late summer are features.
- Other:** Leaves produce yellow dye with mordant alum.

Eucalyptus sideroxylon — Mugga

Also: Red Ironbark

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *sideroxylon* — from Greek *sideros*, iron, and *xylon*, wood, referring to the hard wood.



- OCCURRENCE:**
- Regional:** Confined to Gilmore Lower and Sandy subcatchments.
- Australia:** Qld, NSW, Vic.
- Habitat:** Sclerophyll woodland on lighter poorer soils.
- Habit:** Tree to 35 m high with red-brown to brown-black 'ironbark' and dull green or grey-green adult leaves.
- Site Preference:** Poor, shallow soils including gravels, sands, ironstones and clays. Tolerates frost. Moderately drought tolerant.
- Characteristics:** Moderate growth rate.
- Seed Collection:** Early Aug-late Feb. Monitor seed-bearing capsules as seed released 3-8 weeks after maturity.
- Propagation:** From seed (\pm 226 viable seeds per gram).

- Regeneration:** From seed, particularly in the absence of competitive exotic grasses or weeds, and during wet summers.
- VALUES:**
- Shade & Shelter:** Useful medium to high-level cover in windbreaks.
- Fuel:** Excellent.
- Timber:** Dark red with moderately fine texture and interlocked grain. Very hard, strong, and extremely durable. Density about 1150 kg/m³. Used for heavy engineering construction, railway sleepers and in turnery. Gaining popularity as furniture timber and for electric fence posts and droppers. Posts last in the ground for over 100 years. Appears to retain rich-coloured timber when grown quickly. Potential for woodlot planting for farm timber, firewood and valuable specialty timber.
- Wildlife:** Excellent habitat. Honeyeaters, Swift Parrots, lorikeets, Squirrel Gliders and Sugar Gliders attracted to nectar, an important winter food source. Important food source for many native insect-eating birds and mammals. Hollows good nest sites for many birds and mammals.
- Koori:** Timber used for boomerangs.
- Ornamental:** Very attractive. Flowers prolifically. Beautiful dark bark and contrasting foliage. Apparently retains rich coloured features when grown quickly.
- Other:** Leaves and bark produce various-coloured dyes depending on mordants used. Leaves contain high quality medicinal oil, with at least 70% cineole content, used commercially. One of most reliable honey producing Australian trees.

Eucalyptus stellulata — Black Sallee

Also: Black Sally

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *stellulata* — from Latin *stella*, star, referring to clusters of pointed buds.

OCCURRENCE:

- Regional:** Rarely lower than 800 m elevation. Noted in the areas: Upper Gilmore; Greenhills-Tarcutta; Ardenside-Welaregang; Paddy's River-Burra Valley and Rosewood Plateau.

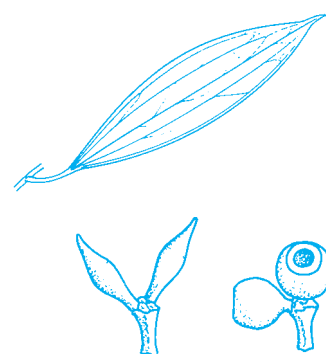
- Australia:** NSW, Vic.

- Habitat:** Grassy woodland. Fertile loamy or alluvial soils on cold flats at higher altitudes.

- Habit:** Tree to 15 m high with spreading branches and fairly dense crown of green glossy leaves.

- Site Preference:** Poorly-drained soils. Resists frost, snow and wind.

- Flowering:** White-cream, Apr-Oct. Prolific.

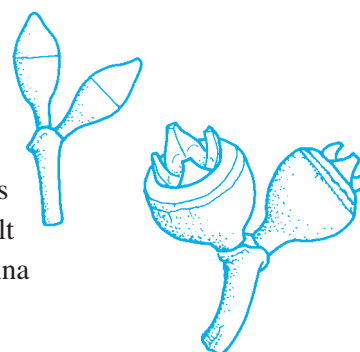


- Seed Collection:** Generally throughout the year, particularly spring-summer.
- Propagation:** From seed (\pm 355 viable seeds per gram).
- VALUES:**
- Shade & Shelter:** Useful shelter for exposed, high altitude sites. Useful low to medium-level cover in windbreaks.
- Land Protection:** Useful for poorly-drained areas.
- Fuel:** Good stove fuel.
- Timber:** Pale. Not durable.
- Wildlife:** Excellent habitat. Flowers are a valuable nectar source for birds, such as honeyeaters, and insects. Various native birds feed on seeds and fruits.
- Ornamental:** Attractive specimen.
- Other:** Leaves produce pale-fawn dye with alum as mordant.

Eucalyptus viminalis — Manna Gum

Also: Ribbon Gum, White Gum, Binnap, Beb (Koori names).

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *viminalis* — from Latin *viminalis*, bearing long flexible twigs or osier bearing, supposedly referring to resemblance of adult leaves to those of Osier Willow. Common name refers to manna (white sugary exudate) which falls from young foliage.



- OCCURRENCE:**
- Regional:** Catchments and districts with higher rainfall, east of the Hume Highway.
- Australia:** Qld, NSW, Vic, Tas, SA.
- Habitat:** Grassy woodland or forest on fertile loamy soils.
- Habit:** Tall upright tree to 30 m high (sometimes to 50 m), with narrow glossy green leaves.
- Similar Species:** Distinguished from Candlebark (*E. rubida*) mainly by its juvenile foliage, buds and fruit.
- Site Preference:** Moist, well-drained soil. Tolerates frost, snow and some flooding. Drought and fire tolerance depend on provenance (locality). Trees from lower rainfall areas more drought tolerant than those from higher rainfall areas.
- Characteristics:** Fast-growing. Saplings respond to fertiliser.
- Flowering:** White, Jan-May (mainly Feb-Mar). Not prolific.
- Seed Collection:** Early Jul to late Mar. Monitor capsules as seeds released 3-8 weeks after maturity. Heavy seeding every 2-3 years.

- Propagation:** From seed (\pm 350 seeds per gram). Optimum germination temperature 27°C.
- Regeneration:** From seed, particularly in absence of competitive exotic grasses or weeds, during wet summers. Coppices from cut stumps, and regenerates well from lignotubers after fire. Establishes very well when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful high-level cover in windbreaks.
- Land Protection:** Useful for controlling underground seepage and stabilising landslip areas, as deep roots use large volumes of ground-water.
- Fuel:** Useful, although fast-burning.
- Timber:** Light pink or pale yellow, straight-grained and moderately coarse-textured. Moderately strong but not durable. Density about 750 kg/m³. Used for building framing, flooring, paneling, joinery and pulp for container board.
- Wildlife:** Excellent habitat. Foliage is major koala forage. Gum is food for possums, particularly the Yellow-bellied Glider and Sugar Glider. The Yellow-bellied Glider bites grooves in bark to reach sapwood, as gum released to heal wound is favoured food. Nectar-rich flowers are a food source for birds such as honeyeaters, including the Red Wattlebird, Yellow-tufted Honeyeater and White-plumed Honeyeater. Hollows are valuable nesting sites for a range of native birds and mammals.
- Koori:** 'Manna' pellets gathered from ground and taken as a mild laxative. Flat shields and 'tarnuks' or water containers hollowed out from trunk burls, made from timber. Leaves laid on fires to smoke out fever. Bark and leaves moistened to treat sore eyes. Leaves consumed as remedy for diarrhoea.
- Ornamental:** Attractive specimen or shade for large gardens and parks.
- Other:** Leaves produce dyes ranging in colour depending on mordants used.

Exocarpos cupressiformis — Native Cherry

Also: Cherry Ballart, Wild Cherry, Palatt, Ballot (Koori names).

- Family:** Santalaceae — Sandalwood family.
- Name Origin:** *Exocarpos* — from Greek *exo*, outside, plus *carpos*, fruit, as the succulent pedicel or flower stalk resembles the pericarp or fruit wall below the nut. *cupressiformis* — meaning cypress-form, referring to resemblance to *Cypress* species.

- OCCURRENCE:**
- Regional:** Widespread across entire region.
- Australia:** Qld, NSW, Vic, Tas, SA.

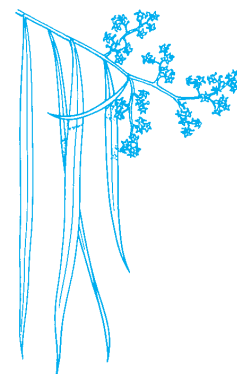


- Habitat:** Various habitats and soils, including open forest and woodland.
- Habit:** Shrub or small tree to 8 m high. Dense yellowish-green or bronzy foliage.
- Similar Species:** Distinguish from other Cherry in region, Dwarf Cherry (*Exocarpos strictus*) mainly by its greater size.
- Site Preference:** Poor shallow soils.
- Characteristics:** Parasitises roots of surrounding plants when young.
- Flowering:** Cream, mainly Oct-May, and throughout year. Inconspicuous.
- Seed Collection:** Early Oct to late Mar. Monitor closely as seeds released 3-14 days after maturity.
- Propagation:** Difficult. From seed or cuttings. Untreated seed may take 6-18 months to germinate. Bird-ingested seed (passed through hens) extracted and sown into pots with host plants such as Kangaroo Grass (*Themeda triandra*) has germinated. Thought that seedlings should be planted out within 12 months of germination near plants of families: Casuarinaceae, Fabaceae, Mimosaceae, Myrtaceae or Proteaceae. For cuttings, jam a sharp spade into soil at intervals around trees. Damaged roots will sucker. Transplant root suckers.
- Regeneration:** Suckers vigorously from damaged roots.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks. Plant on leeward side as plants are brittle (although coppice readily). Foliage reputedly poisonous to livestock, although grazed by kangaroos and wallabies.
- Timber:** Timber pinkish, soft, close-grained and light when dry. Excellent for turning. Was used for tool handles, wheel spokes and gun stocks.
- Wildlife:** Excellent habitat. Fruit are a food for native birds including Silvereyes, Mistletoebirds, Satin Bowerbirds, Grey Butcherbirds, honeyeaters, currawongs and parrots, many of which disperse seed. Many birds, including the Turquoise Parrot, shelter in dense foliage.
- Koori:** Juicy part of fruit (stalk) eaten. Spearthrowers and 'bullroarers' made from wood. Snake bite reputedly treated with sap.
- Ornamental:** Excellent ornamental due to attractive fine foliage. Prune or coppice old plants to rejuvenate.

Geijera parviflora — Wilga

Also: Sheepbush, Dogwood, Willow.

- Family:** Rutaceae
- Name Origin:** After J.D. Geijer, early Swedish botanist. *parviflora* — from Latin, meaning small-flowered.



OCCURRENCE:

- Regional:** Noted on sandy soil in The Rock-Henty-Milbrulong region. More common to the north-west of the SW Slopes.
- Australia:** Qld, NSW, Vic, SA.
- Habitat:** Mixed woodland communities on range of soils.
- Habit:** Shapely spreading small tree or shrub to 10 m high. Often rounded, dense canopy of branches hanging to ground-level and narrow glossy dark-green leaves.
- Site Preference:** Drought resistant and hardy.
- Characteristics:** Deep-rooted. Leaves strongly aromatic when crushed. Palatable trees often grazed to uniform horizontal line above ground-level.
- Flowering:** White, Jun-Nov. Small with strong odour. Strongly influenced by rainfall.
- Seed Collection:** Easily collected when mature, as seeds abundantly. Can be gathered from ground beneath trees.
- Propagation:** From fresh seed or cuttings, which are slow to root. Hard seed coat contains chemical inhibitors. Apply pressure to fracture and remove seed coat before sowing.
- Regeneration:** From seed. Very few seedlings establish despite prolific seed production.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks due to low branching.
- Timber:** Timber light-coloured, hard, close-grained with an agreeable fragrance. Tends to split in seasoning. Prone to gum veins.
- Wildlife:** Excellent habitat. Flowers are a nectar and pollen source used by native insects, including flies.
- Ornamental:** Excellent ornamental for wide streets, roadsides, parks, larger gardens, and shade. Requires adequate space to develop. Responds to pruning.
- Other:** Useful emergency fodder in drought (although not all individual trees palatable).

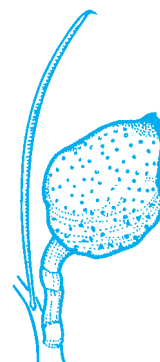
Hakea tephrosperma — Hooked Needlewood

Also: Striped Hakea, Needlewood.

- Family:** Proteaceae — Protea family.
- Name Origin:** *tephrosperma* — from Greek *tephro*, ash grey and *sperma*, seed, referring to ash-coloured seed (not always apparent).

OCCURRENCE:

- Regional:** Not widespread, but more common in west of region. Noted in the areas: Brookong; Boree and Narrandera-Morundah-Galore-Collingullie.
- Australia:** Qld, NSW, Vic, SA.



- Habitat:** Usually on coarse-textured soils, as individual trees or in dense thickets of shrubby plants.
- Habit:** Small tree or shrub 3-12 m high. Often with drooping branches. Sparse crown of cylindrical leaves 2-9 cm long.
- Similar Species:** Distinguished from Needlewood (*Hakea leucoptera*) by curved points on its leaves, minutely hairy flower stems and dark-coloured seed wing.
- Site Preference:** Very hardy. Tolerates moderate frost.
- Flowering:** Cream, spring. Attractive spider-like flowers.
- Seed Collection:** Easily collected when seed available, generally winter-spring. Seeds retained on plants.
- Propagation:** Most Hakeas easily grown from fresh seeds which usually germinate in 3-6 weeks. Direct sow into pots (2 seeds per pot) or into field.
- Regeneration:** Mainly from root suckers, particularly when protected from grazing.
- VALUES:**
- Timber:** Deep-red with attractive 'cartwheel' pattern. Turned to produce small ornaments.
- Wildlife:** Excellent cover for small native birds. Flowers are a food source for honeyeaters.
- Ornamental:** Attractive woody fruit, and beautiful flowers if mass-planted. Very hardy in cultivation.
- Other:** Nectar can be sucked from flowers or mixed with water for sweet drink.

Lomatia fraseri — Silky Lomatia

Also: Forest Lomatia, Tree Lomatia

- Family:** Proteaceae — Protea family.
- Name Origin:** *Lomatia* — from Greek *loma*, fringe or border, referring to leaf stalk-border around seed wing. *fraseri* — after Charles Fraser (1788-1831), first Superintendent of Sydney Botanic Gardens.



- OCCURRENCE:**
- Regional:** Areas east of the Hume Highway with higher rainfall.
- Australia:** NSW, Vic.
- Habitat:** Margins of cool and warm temperate rainforest in mountain areas. Also forests, open woodlands and exposed heaths up to 1500 m altitude.
- Habit:** Shrub or small tree to 8 m high. Grey to grey-brown bark and stiff leathery leaves 6-12 cm long, the upper surface green and the lower silky.
- Site Preference:** Deep, moist well-drained soil in sun or shade. Tolerates some wetness, most frost, limited dry periods and most soils and aspects.

-
- Characteristics:** Very variable, particularly leaf shape.
- Flowering:** Creamy white, summer.
- Seed Collection:** Monitor closely as seeds released immediately or within 1-2 days of maturity. Large quantities produced in leathery black fruit.
- Propagation:** From seed or cuttings. Germinates readily from fresh seed. May be suitable for sowing directly into pots or into field. Seedlings grow slowly.
- VALUES:**
- Wildlife:** Habitat.
- Ornamental:** Very attractive ornamental. Interesting foliage and seed follicles. Mulch with well-rotted compost and prune lightly.

Pittosporum angustifolium — Butterbush

(syn. *P. phyllireaoides*) *Also:* Weeping Pittosporum, Berrigan, Native Willow, Native Apricot, Western Pittosporum.

- Family:** Pittosporaceae — Pittosporum family.
- Name Origin:** From Greek *pitte*, to pitch, and *sporos*, seed, referring to seed covered by dark sticky substance in many Pittosporums.
- OCCURRENCE:**
- Regional:** West of the Olympic Highway, usually in isolated clumps. Probably previously more common.
- Australia:** Mainland states and territories.
- Habitat:** Woodland and mallee, and widespread on sandy soils in the arid zone.
- Habit:** Shrub or small tree to 10 m high. Virtually hairless with drooping branches, whitish or mottled trunk, narrow leaves 4-12 cm long and characteristic orange fruit.
- Site Preference:** Tolerates drought and frost. Prefers full sun. Resents waterlogging.
- Characteristics:** Very hardy. Slow-growing but long-lived. Highly palatable to stock.
- Flowering:** Yellow to cream, winter-spring. Fragrant.
- Seed Collection:** Early Dec to late May.
- Propagation:** From fresh seed (\pm 50 viable seeds per gram) or cuttings. Remove germination inhibitor from sticky seed by washing seed in detergent and rubbing with dry sand for several minutes before sowing. Germinates in 2-3 months.



Regeneration: Suckers readily.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful for stabilising banks.

Timber: Timber close-grained, light-coloured and very hard. Turned into small articles such as tool handles.

Wildlife: Good habitat. Sticky seeds eaten by birds.

Koori: Uses varied with location. Some clans ate gum from wounded branches. Others pounded seed into edible flour. An infusion was prepared from leaves, seed or wood to relieve internal pain and cramp, and treat colds, sprains, eczema and itching.

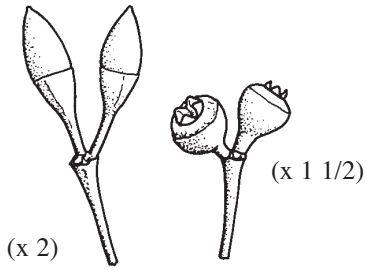
Ornamental: Very decorative ornamental for parks and gardens. Graceful weeping habit and attractive orange fruit.

Other: Cut for fair emergency fodder during drought.

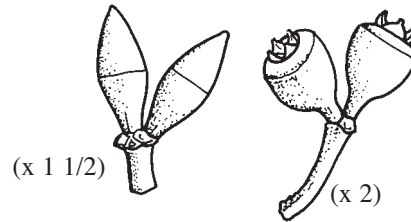
~ plant identification sheet ~
Eucalypts

Red Gums

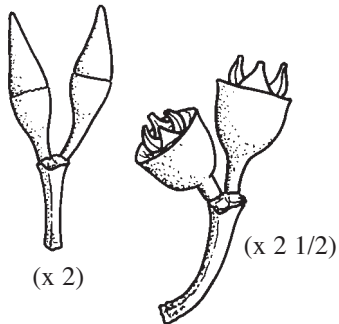
E. blakelyi
 Blakely's Red Gum



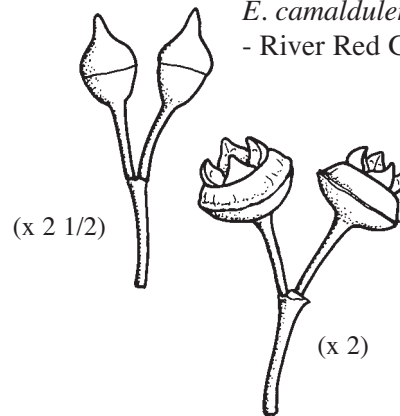
E. dealbata
 - Tumbledown Gum



E. dwyeri
 - Dwyer's Red Gum

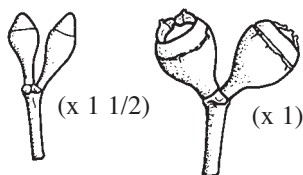


E. camaldulensis
 - River Red Gum

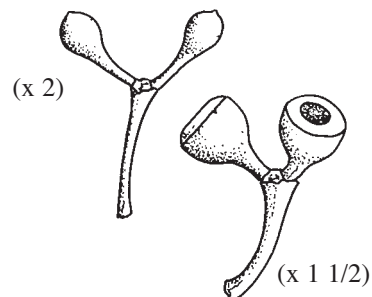


White Gums

E. mannifera
 - Brittle Gum



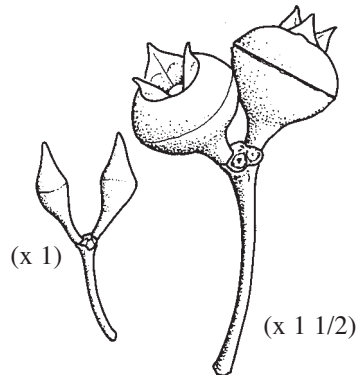
E. rossii
 - Scribbly Gum/Snap Gum



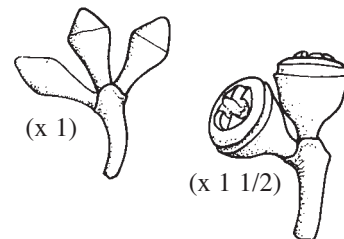
~ plant identification sheet ~
Eucalypts

Stringybark Types...

E. macrorhyncha
 - Red Stringybark

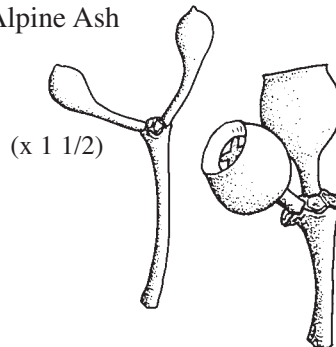


E. cinerea
 - Argyle Apple



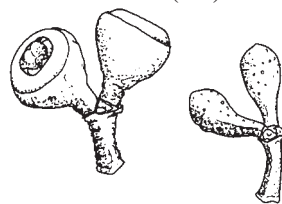
Ash Types...

E. delegatensis
 - Alpine Ash

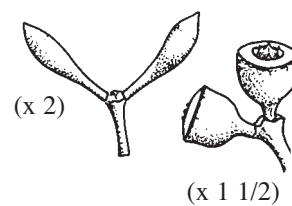


Peppermints...

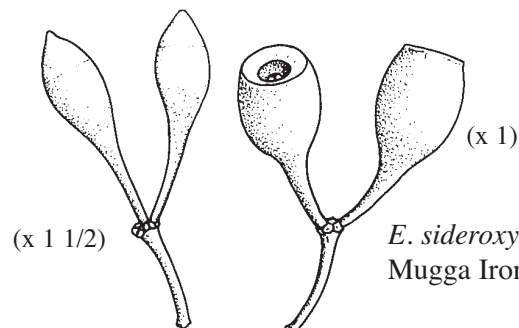
E. dives
 - Broad-leaved Peppermint
 (x 2)



E. robertsonii
 - Robertson's Peppermint
 (x 2)



Ironbarks...

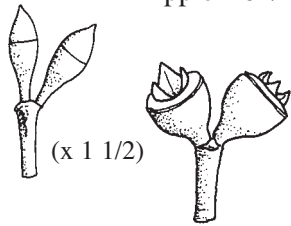


E. sideroxylon
 Mugga Ironbark/Red Ironbark

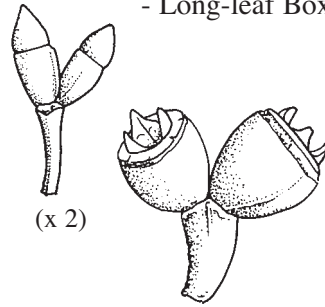
~ plant identification sheet ~
Eucalypts

Boxes

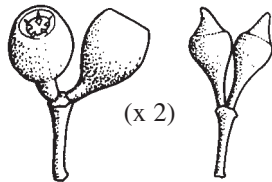
E. bridgesiana
 - Apple Box/But But



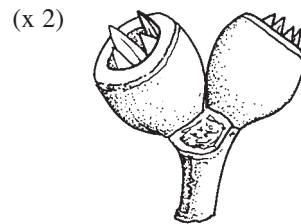
E. goniocalyx
 - Long-leaf Box



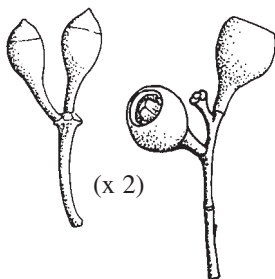
E. melliodora
 - Yellow Box



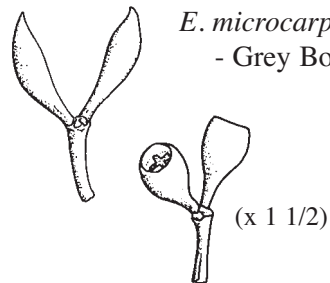
E. nortonii
 - Silver Bundy



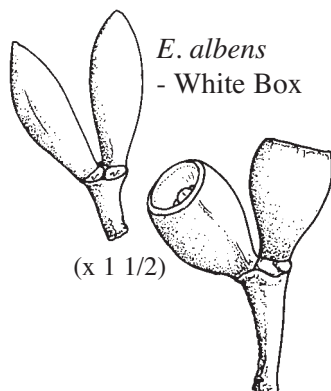
E. polyanthemos
 - Red Box



E. microcarpa
 - Grey Box

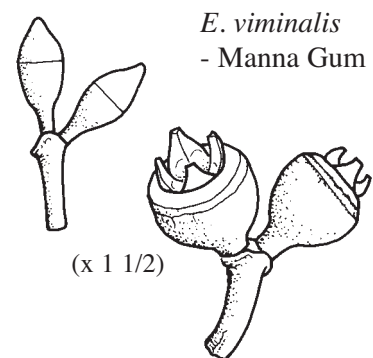
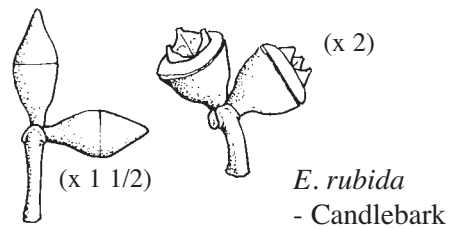
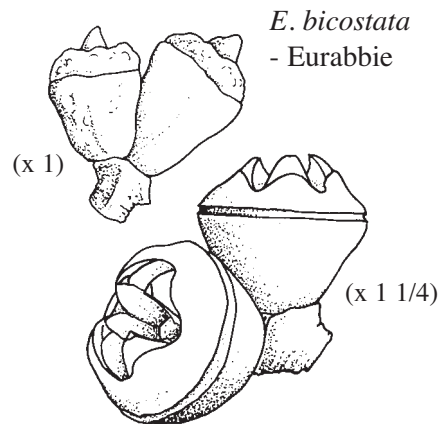
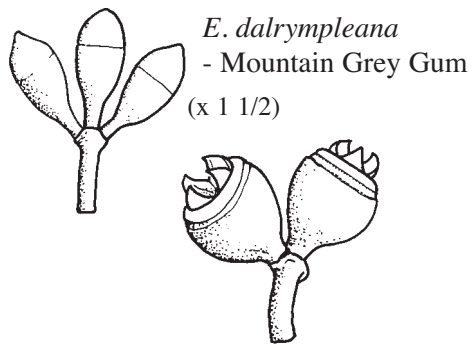


E. albens
 - White Box

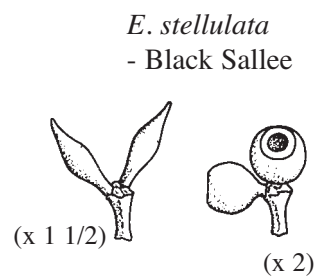
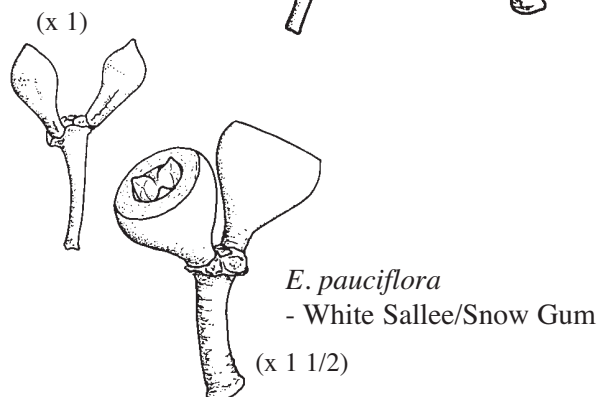
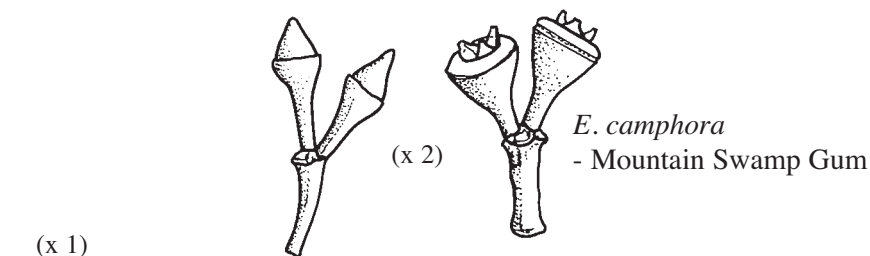


~ plant identification sheet ~
Eucalypts

Ribbon Gum Types



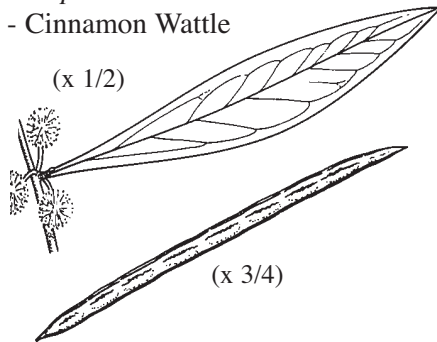
Snow Gums & Swamp Gums



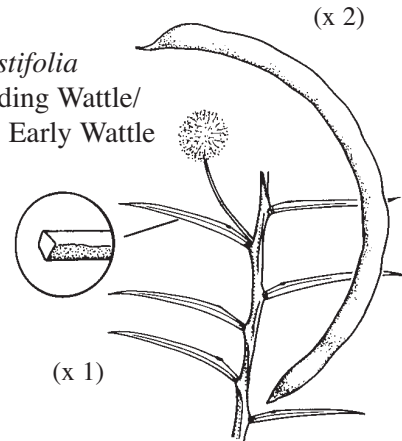
~ plant identification sheet ~
Acacias

**Phyllodes with one main vein per face.
 Flower heads on axillary peduncles.**

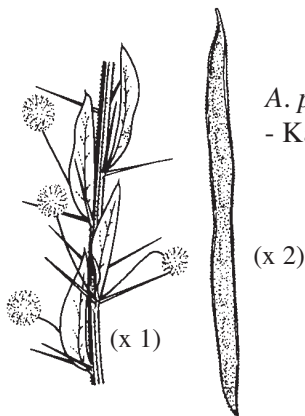
A. leprosa
 - Cinnamon Wattle



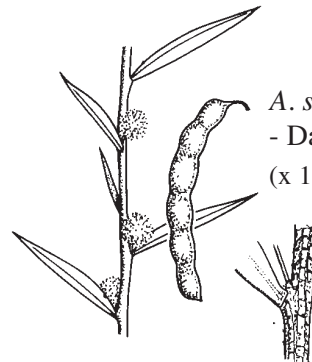
A. genistifolia
 - Spreading Wattle/
 Early Wattle



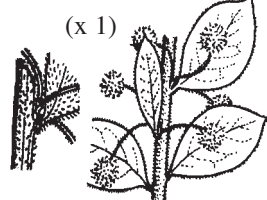
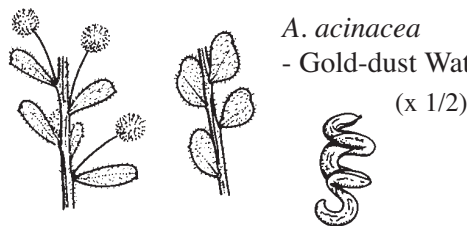
A. paradoxa
 - Kangaroo Thorn/
 Hedge Wattle



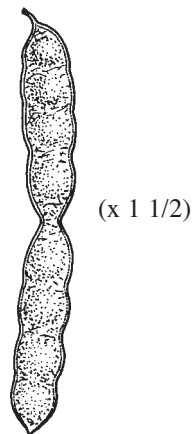
A. siculiformis
 - Dagger Wattle



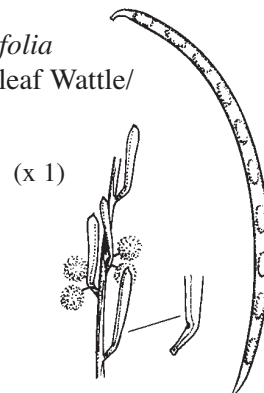
A. acinacea
 - Gold-dust Wattle



A. brachybotrya
 - Grey Wattle

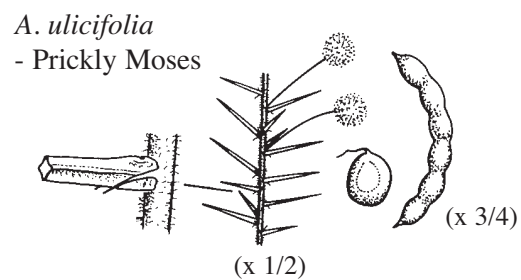
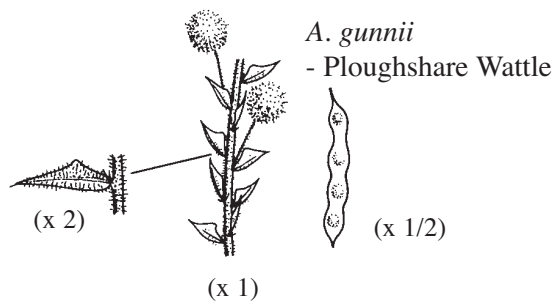
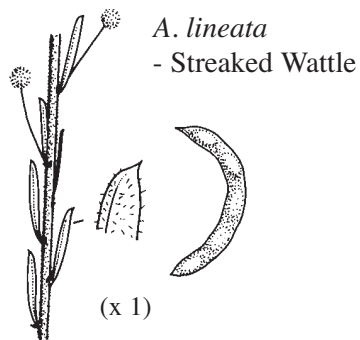


A. flexifolia
 - Bent-leaf Wattle/



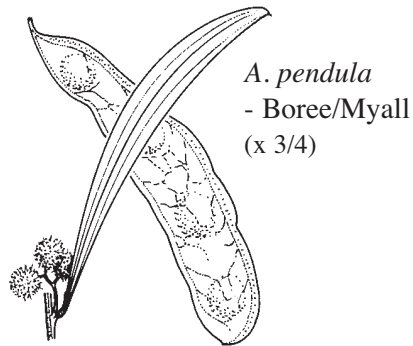
~ plant identification sheet ~
Acacias

**Phyllodes with one main vein per face.
Flower heads on axillary peduncles.**

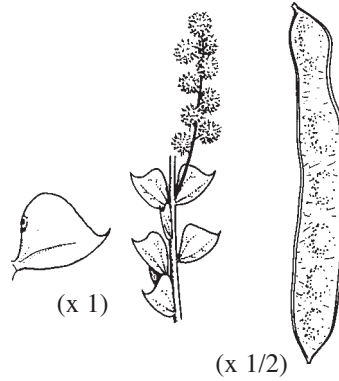


~ plant identification sheet ~
Acacias

**Phyllodes with more than one vein per face.
 Flower heads in racemes.**

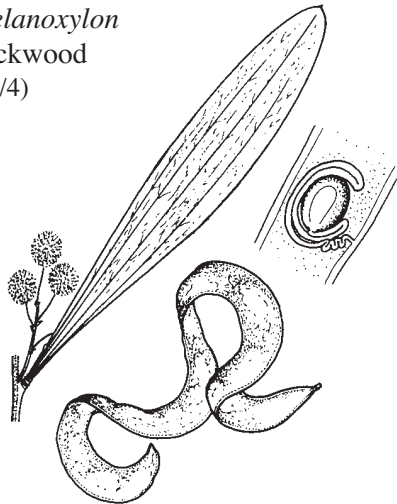


A. pendula
 - Boree/Myall
 (x 3/4)

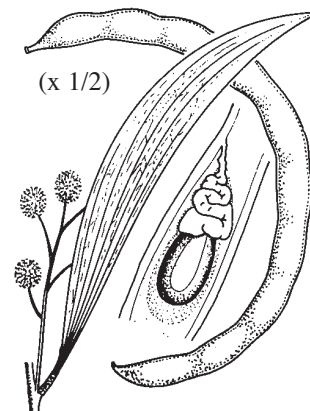


(x 1)
 (x 1/2) *A. pravissima*
 - Tumut Wattle

A. melanoxylon
 - Blackwood
 (x 1 1/4)



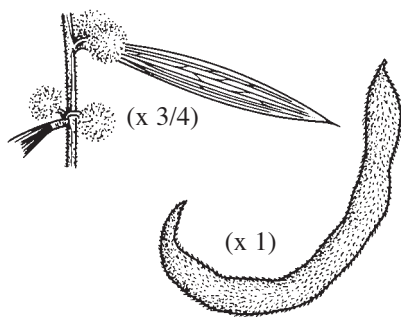
A. implexa
 - Hickory Wattle/
 Lightwood



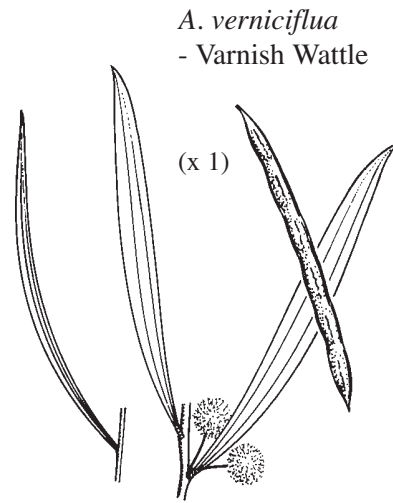
(x 1/2)

~ plant identification sheet ~
Acacias

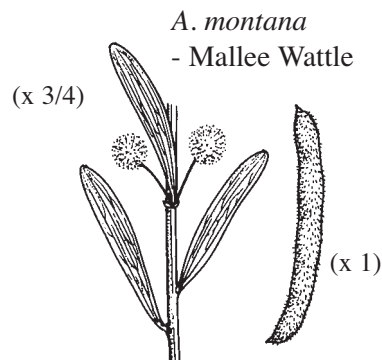
**Phyllodes with more than one vein per face.
Flower heads on axillary peduncles.**



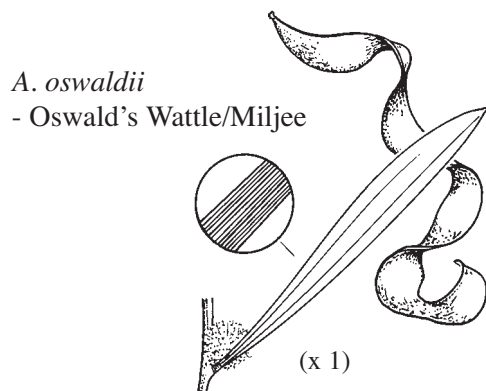
A. lanigera
- Woolly Wattle



A. verniciflua
- Varnish Wattle



A. montana
- Mallee Wattle

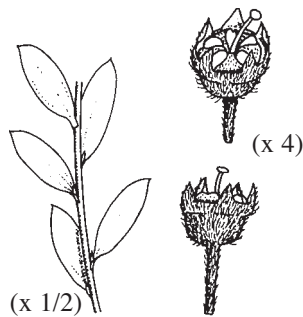


A. oswaldii
- Oswald's Wattle/Miljee

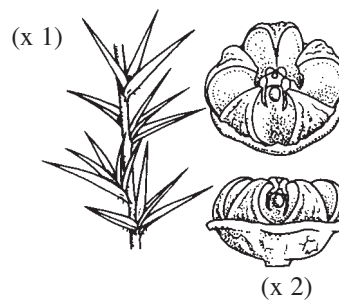
~ plant identification sheet ~

Tea-trees (Leptospermums)

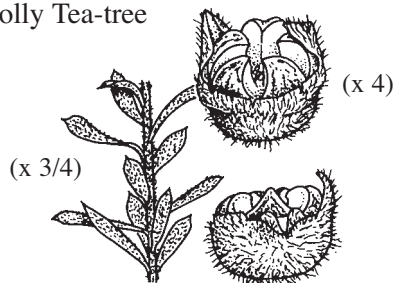
L. brevipes
- Slender Tea-tree



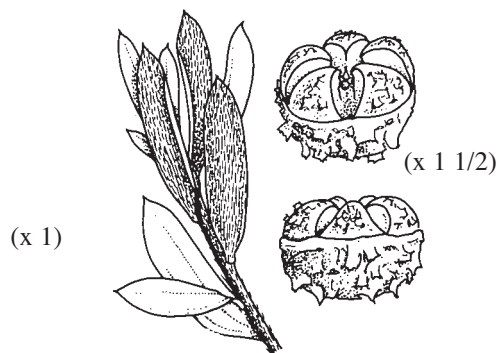
L. continentale
- Prickly Tea-tree



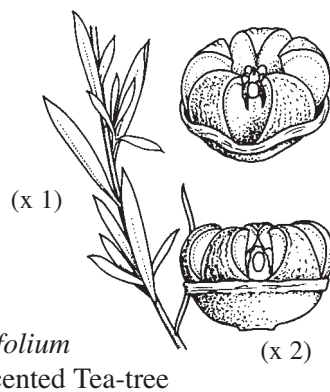
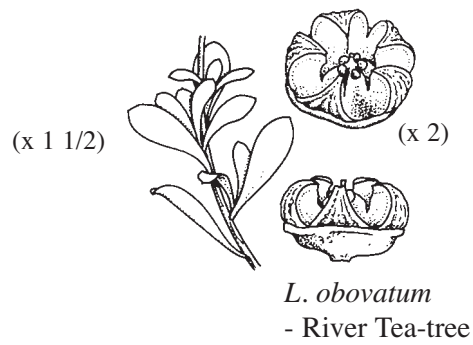
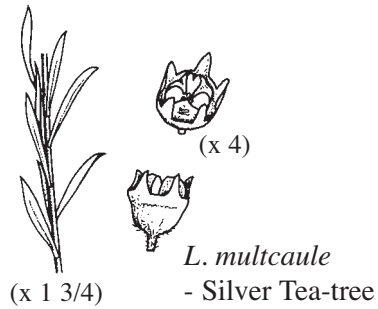
L. lanigerum
- Woolly Tea-tree



L. grandifolium
- Mountain Tea-tree

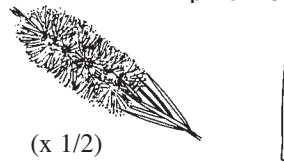


~ plant identification sheet ~
Tea-trees
(Leptospermums)



~ plant identification sheet ~
Callistemons, Kunzeas & Baeckea

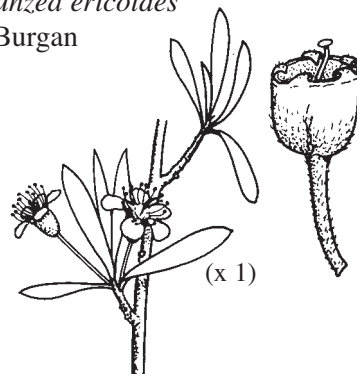
Callistemon pityoides
 - Alpine Bottlebrush



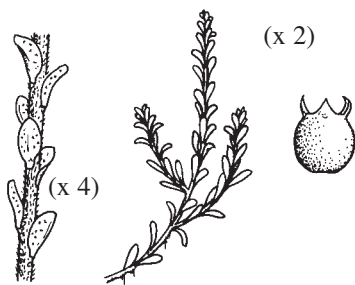
Callistemon sieberi
 - River Bottlebrush



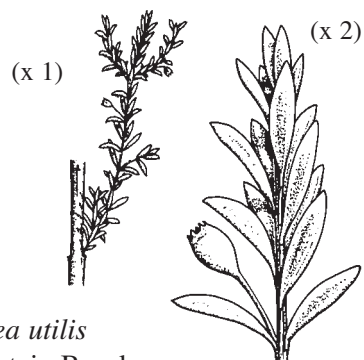
Kunzea ericoides
 - Burgan



Kunzea parvifolia
 - Violet Kunzea

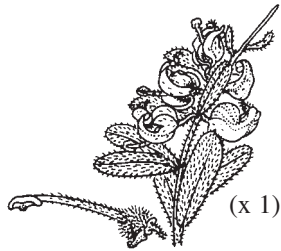


Baeckea utilis
 - Mountain Baeckea

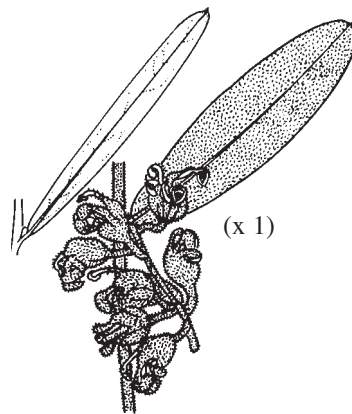


~ plant identification sheet ~
Grevilleas

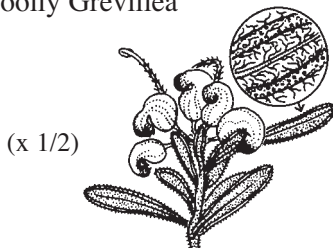
Grevillea alpina
 - Cat's Claws



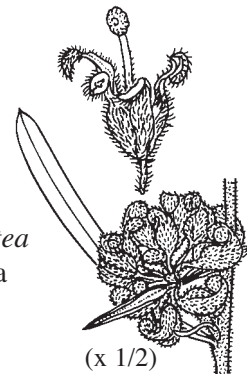
Grevillea floribunda
 - Seven Dwarfs Grevillea



Grevillea lanigera
 - Woolly Grevillea



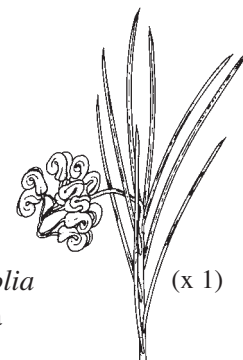
Grevillea polybractea
 - Crimson Grevillea



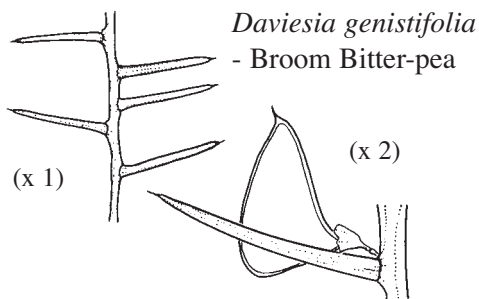
Grevillea ramosissima
 - Fan Grevillea/
 Branching Grevillea



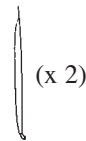
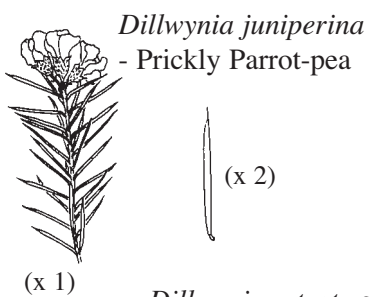
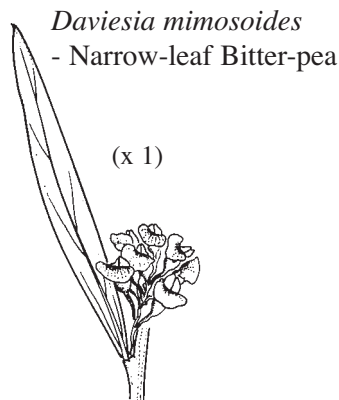
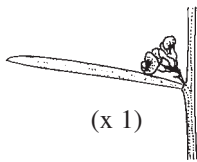
Grevillea rosmarinifolia
 - Rosemary Grevillea



~ plant identification sheet ~
Native Pea-flowers
(Fabaceae family)



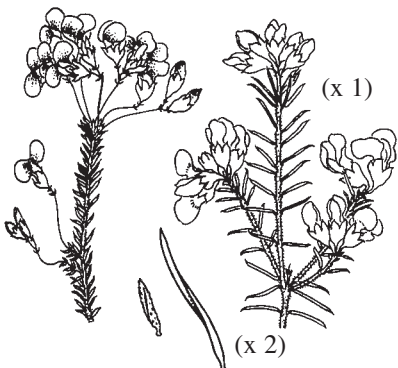
Daviesia leptophylla
 - Slender Bitter-pea



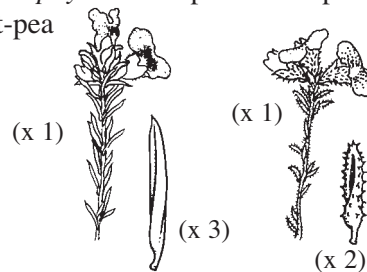
Dillwynia sericea
 - Showy Parrot-pea



Dillwynia retorta species complex
 - Small-leaf Parrot-pea

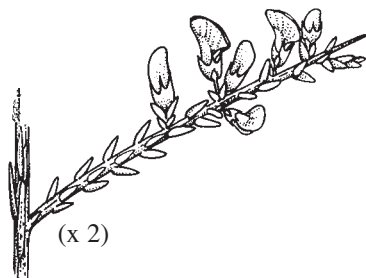


Dillwynia phyllicoides species complex
 - Parrot-pea



~ plant identification sheet ~
Native Pea-flowers
(Fabaceae family)

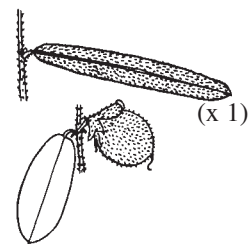
Eutaxia microphylla
 Mallee Bush-pea



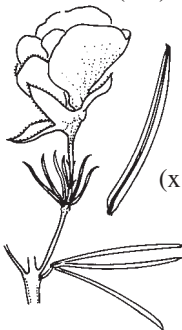
Hovea rosmarinifolia
 Mountain Beauty



Hovea linearis
 - Common Hovea



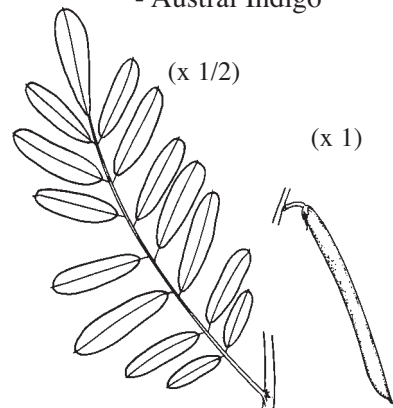
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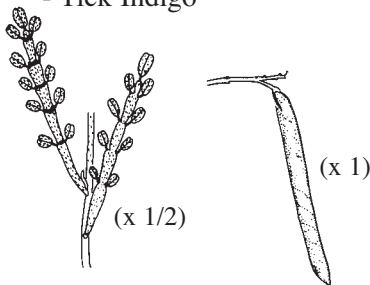
Gompholobium huegelii
 - Pale Wedge-pea

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Indigofera australis
 - Austral Indigo



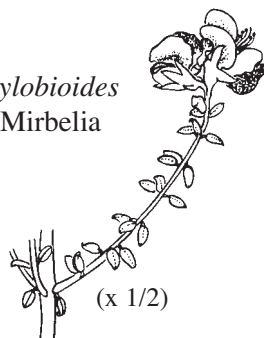
Indigofera adesmiifolia
 - Tick Indigo



(x 1/2)

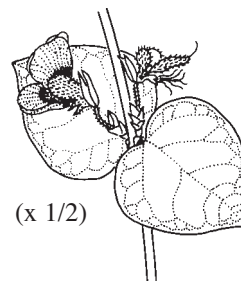
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Mirbelia oxylobioides
 - Mountain Mirbelia



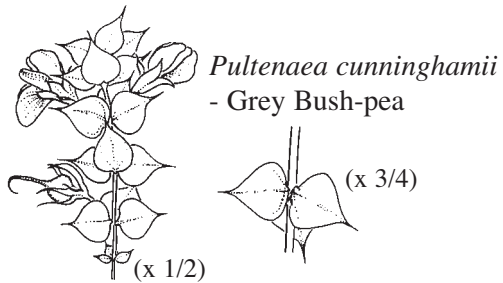
(x 1/2)

Platylobium formosum
 - Handsome Flat-pea



(x 1/2)

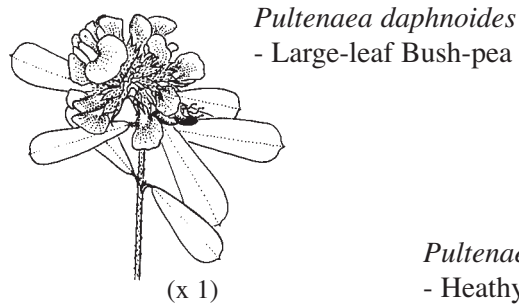
~ plant identification sheet ~
Native Pea-flowers
(Fabaceae family)



Pultenaea cunninghamii
 - Grey Bush-pea



Pultenaea foliolosa
 - Bush-pea



Pultenaea daphnoides
 - Large-leaf Bush-pea

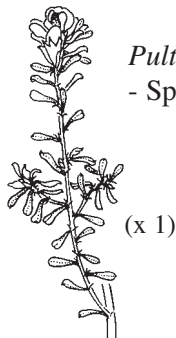
Pultenaea largiflorens
 - Twiggly Bush-pea



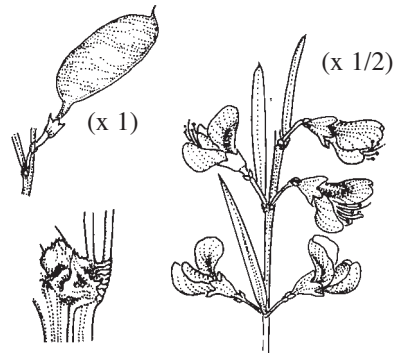
Pultenaea procumbens
 - Heathy Bush-pea



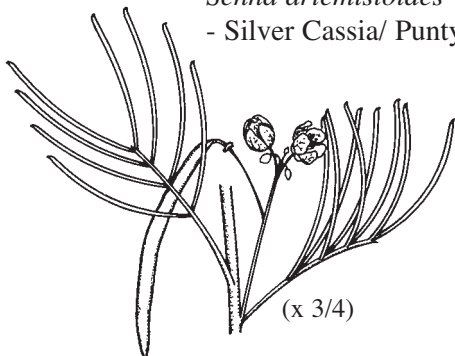
Pultenaea microphylla
 - Spreading Bush-pea



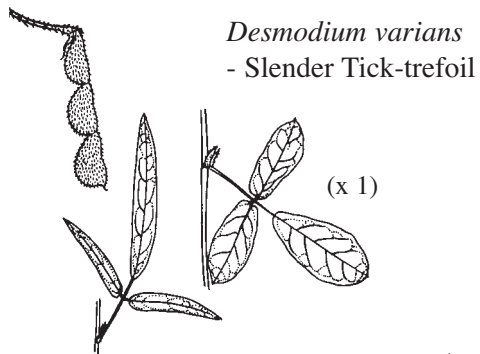
Templetonia stenophylla
 - Templetonia



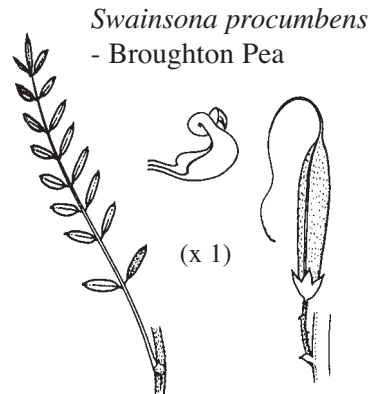
Senna artemisioides
 - Silver Cassia/ Puntty



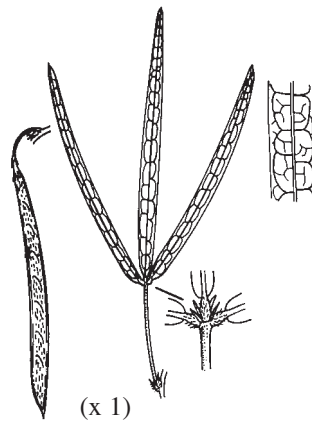
~ plant identification sheet ~
Native Pea-flowers
(Fabaceae family)



Desmodium varians
 - Slender Tick-trefoil

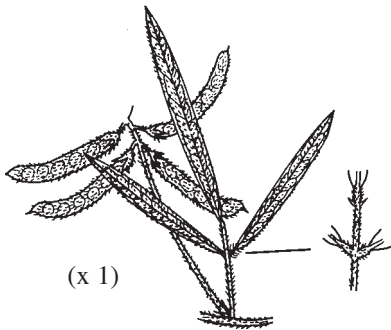


Swainsona procumbens
 - Broughton Pea

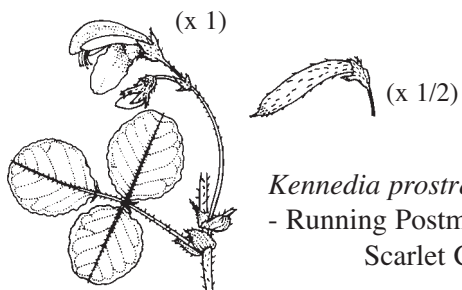
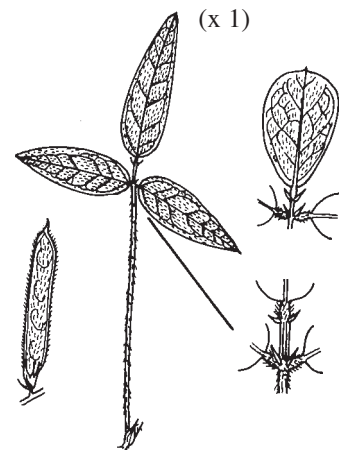


Glycine tabacina
 - Variable Glycine

Glycine canescens
 - Silky Glycine

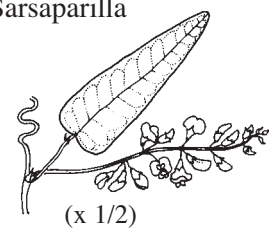


Glycine clandestina
 - Twining Glycine



Kennedia prostrata
 - Running Postman/
 Scarlet Coral Pea

Hardenbergia violacea
 - Purple Coral Pea/
 Sarsaparilla



Plant Descriptions
Small trees & shrubs
1.5 – 8m





Small trees & shrubs 1.5 – 8m

Common Name	Botanical Name	Page
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Bush-pea	<i>Pultenaea foliolosa</i>	350
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Green Wattle	<i>Acacia deanei</i> subsp. <i>paucijuga</i>	281
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Woolly Tea-tree	<i>Leptospermum lanigerum</i>	338
Woolly Wattle	<i>Acacia lanigera</i>	287

Acacia acinacea — Gold-dust Wattle

(syn. *A. rotundifolia*)

Family: Mimosaceae — Mimosa family.

Name Origin: *acinacea* — curved, sword-like, possibly referring to coiled legumes or seed-bearing fruit.

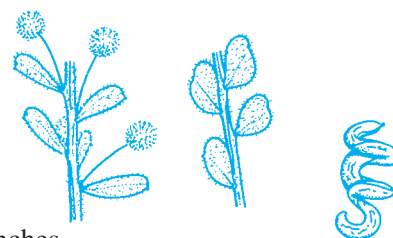
OCCURRENCE:

Regional: Common west of the Olympic Highway.

Australia: NSW, Vic, SA.

Habitat: Woodland. A range of soils, chiefly sand.

Habit: Small spreading shrub 30 cm to 2 m high with arching branches, angled or flattened branchlets and hairy 'leaves'.



Site Preference: Well-drained soil in full or partial sun. Frost and drought tolerant. Resents poor drainage.

Characteristics: Fast-growing. Lifespan may be several decades.

Flowering: Golden-yellow, usually Aug-Oct. Profuse.

Seed Collection: Early Dec to mid Feb. Monitor closely as seeds released immediately or within 1-2 days of maturity. Often produces little seed.

Propagation: From scarified seed (\pm 113 viable seeds per gram). Pour boiling or very hot water over seeds and soak for several hours before sowing. Also from cuttings.

Regeneration: From seed and suckers after fire, forming dense groundcover. Does not establish as readily as most wattles when direct seeded.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Legume — improves soil fertility by 'fixing' nitrogen.

Wildlife: Good habitat. Flowers are a nectar and pollen source for many native beetles, moths and butterflies. Insect-eating birds attracted. Seeds eaten by birds including parrots, native pigeons and quails, and invertebrates including ants (collections of seed often riddled with seed-eating insects).

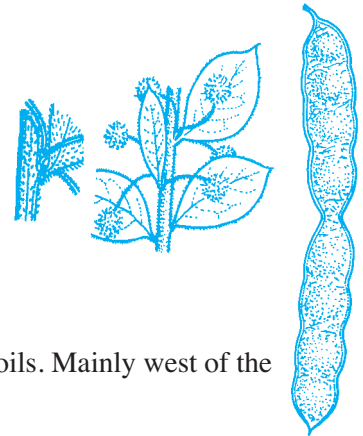
Ornamental: Attractive for hedges, screens, rock gardens, under trees and in large tubs. Prune lightly after flowering to promote bushiness (heavy pruning promotes suckering). Self-seeds in garden.

Acacia brachybotrya — Grey Wattle

Also: Grey Mulga

Family: Mimosaceae — Mimosa family.

Name Origin: *brachybotrya* — from Greek *brachys*, short, and *botrys*, bunch of grapes or racemes, as the inflorescences (flower structures) are typically much shorter than the ‘leaves’.



OCCURRENCE:

Regional: Widespread in the western and north-western areas on lighter soils. Mainly west of the Olympic Highway.

Australia: NSW, Vic, SA.

Habitat: Mainly in mallee. Common on red earths.

Habit: Erect or spreading grey to grey-green shrub, 1-4 m high, with downy branches.

Similar Species: May be confused with Box-leaf Wattle (*A. buxifolia*). Distinguish by different habitats and ‘leaves’.

Site Preference: Relatively well-drained soil.

Characteristics: Moderate growth rate.

Flowering: Golden-yellow, Jul-Sept. Abundant.

Seed Collection: Mid Nov to late Jan. Monitor closely as seeds released immediately or 1-2 days after maturity.

Propagation: From scarified seed.

Regeneration: From seed or stem after fire.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful for stabilising sandy country near watercourses. Legume — improves soil fertility by ‘fixing’ nitrogen.

Wildlife: Good dense understorey for bird cover. Seeds eaten by various native birds.

Ornamental: Decorative ornamental for gardens.

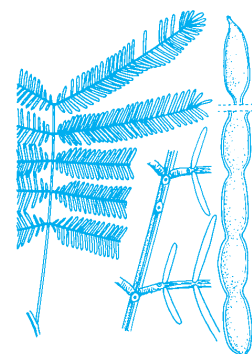
Acacia buxifolia — Box-leaf Wattle

Also: Box-leaved Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: *buxifolia* — from *buxus*, the ancient Box Tree, and Latin *folium*, leaf, referring to the ‘leaf’ similarity to those of Box Tree.



OCCURRENCE:**Regional:** East of the Olympic Highway.**Australia:** Qld, NSW, Vic.**Habitat:** Dry sclerophyll forest, woodland and heath. Often on rocky outcrops and slopes.**Habit:** Erect or spreading shrub, 1-3 m high, with thick blue-grey foliage.**Similar Species:** Distinguish from Western Golden Wattle (*A. decora*) by its generally glabrous inflorescence (flower structure) parts and different habitat.**Site Preference:** Well-drained soil. Tolerates frost and dryness.**Characteristics:** Moderate growth rate. Variable habit.**Flowering:** Golden-yellow, Jul-Nov.**Seed Collection:** Early Dec to mid Jan. Monitor closely as seeds released immediately or within 1-2 days of maturity.**Propagation:** From scarified seed (\pm 58 viable seeds per gram). Pour boiling or very hot water over seeds and soak for several hours before sowing. Also from cuttings.**Regeneration:** From seed, particularly after fire.**VALUES:****Shade & Shelter:** Excellent low-level cover in windbreaks.**Land Protection:** Useful in controlling erosion due to its soil-binding fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.**Wildlife:** Good habitat. Flowers are a food source for native moths, butterflies and other insects. Insect-eating birds attracted. Native birds, including parrots and pigeons eat seed.**Ornamental:** Attractive ornamental due to foliage and prolific flowers.***Acacia deanei* subsp. *paucijuga* — Deane’s Wattle*****Acacia deanei* subsp. *deanei* — Deane’s Wattle****Also:** Green Wattle.**Family:** Mimosaceae — Mimosa family.**Name Origin:** *deanei* — after H. Deane, Gilgandra railway engineer who collected the first specimen.**OCCURRENCE:****Regional:** Either one or both of the two subspecies were noted in the areas: Urana-Rand-Corowa; Long Plain-West Hume; Majors Creek; Deadmans-Bungowannah; Yambla; Upper Back-Upper Jerra Jerra; Mountain Tunnel; Coppabella; Narandera-Morundah-Galore-Collingullie; The Rock-

Henty-Milbrulong; Boree; Brookong; Lower Sandy; Upper Sandy; Buckaringah; Wagga City; Mates Gully; and Eringowarra-Deltrout-Hillas-Jellingro & Oaky.

Australia: Qld, NSW, Vic.

Habitat: Various sclerophyll communities on a range of soils.

Habit: Erect shrub or small tree, mostly 2-7 m high. Smooth grey-brown bark and green or green-yellow feathery foliage. Often in thickets.

Site Preference: Tolerates frost.

Characteristics: Very hardy. Browsed by sheep, particularly when more palatable forage is scarce.

Flowering: Golden-yellow or more or less white, any time.

Propagation: From scarified seed.

Regeneration: From seed. Seeds freely and regenerates strongly in disturbed sites. Readily established when direct seeded.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks.

Land Protection: Particularly valuable for controlling erosion due to soil-binding fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.

Wildlife: Excellent habitat.

Ornamental: Attractive ornamental for hedges, screening and low maintenance areas. Hardy and adaptable in cultivation.

Other: Poisonous to sheep and cattle if heavily grazed.

Acacia decora — Western Golden Wattle

Also: Western Silver Wattle, Showy Wattle.

Family: Mimosaceae - Mimosa family.

Name Origin: *decora* — from Latin *decorus*, referring to decorative appearance.

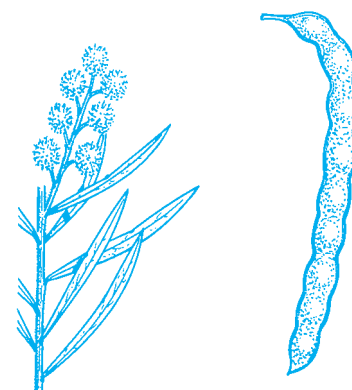
OCCURRENCE:

Regional: Noted mainly in the lower areas of the Murrumbidgee catchment. Also noted in Long Plain-West Hume, and the Urana-Rand-Corowa region.

Australia: Qld, NSW, Vic.

Habitat: Dry sclerophyll forest on rocky hillsides and ridges.

Habit: Erect or spreading shrub, usually 1-4 m high. Grey-blue foliage.



-
- Similar Species:** Distinguish from Box-leaf Wattle (*A. buxifolia*) by different habitat and inflorescence (flower structure). Refer to notes on Box-leaf Wattle.
- Site Preference:** Well-drained light to heavy soils, in full sun. Tolerates frost and resists drought.
- Characteristics:** Adaptable.
- Flowering:** Bright golden-yellow, usually Apr-Oct.
- Seed Collection:** Early Dec to mid-Jan. Monitor closely as seeds released immediately or within 1-2 days of maturity.
- Propagation:** From scarified seed or cuttings.
- Regeneration:** From seed, particularly after fire.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks.
- Land Protection:** Useful for recharge plantings. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Timber:** Valuable understorey in woodlots.
- Wildlife:** Good habitat. Good pollen source for many native insects and birds.
- Ornamental:** Decorative ornamental or feature for gardens, due to flowers and foliage. Can be pruned regularly. Adaptable in cultivation.

Acacia difformis — Drooping Wattle

Also: Wyalong Wattle, Mystery Wattle.

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *difformis* — from Latin *difformis*, irregularly or differently formed, presumably referring to variation in ‘leaf’ width.

OCCURRENCE:

- Regional:** Common in areas generally west of the Olympic Highway.
- Australia:** NSW, Vic.
- Habitat:** Dry sclerophyll forest, woodland and mallee, often on sand.
- Habit:** Erect or spreading shrub or small tree, 1-6 m high with hairless angular branches, frequently flattened.
- Site Preference:** Well-drained soils, although seems adaptable.
- Flowering:** Golden-yellow, usually Dec-Jan.
- Seed Collection:** Rarely sets seed.



- Propagation:** From seed (if available) or readily from stem cuttings.
- Regeneration:** Suckers freely.
- VALUES:**
- Shade & Shelter:** Useful cover in windbreaks.
- Land Protection:** Useful in soil stabilising due to suckering. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Good habitat.
- Ornamental:** Attractive in garden. Regular watering during dry periods is beneficial.

Acacia flexifolia — Bent-leaf Wattle

Also: Small Winter Wattle.

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *flexifolia* — from Latin *flexus*, bent, and *folium*, leaf, presumably referring to flexibility of fresh ‘leaves’ and twigs.
- OCCURRENCE:**
- Regional:** Noted in the Narrandera-Morundah-Galore-Collingullie region.
- Australia:** Qld, NSW, Vic.
- Habitat:** Chiefly woodland, dry sclerophyll forest and mallee in inland districts.
- Habit:** Spreading bushy shrub, 30 cm to 1.5 m high. Angled or flattened resinous branchlets and grey-green ‘leaves’.
- Similar Species:** Related to Streaked Wattle (*A. lineata*) but differs in ‘leaf’ shape, flowers and seed pods.
- Site Preference:** Well-drained light to heavy soils, partial to full sun. Tolerates frost. Withstands extended dry periods.
- Characteristics:** Adaptable.
- Flowering:** Golden-yellow, usually Jun-Sept. Perfumed.
- Seed Collection:** Nov to Dec.
- Propagation:** From scarified seed or cuttings.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Good habitat.
- Ornamental:** Attractive ornamental or informal hedge for gardens as flowers mostly during winter. Responds well to light pruning after flowering.



Acacia genistifolia — Spreading Wattle

(syn. *A. diffusa*) **Also:** Early Wattle, Wild Irishman

Family: Mimosaceae — Mimosa family.

Name Origin: Refers to likeness of foliage to some broom (*Genista*) species.

OCCURRENCE:

Regional: Mainly in areas north-east of the Olympic Highway. Noted in the areas: Oberne-Tarcutta; Mates Gully; Upper Burkes; Upper Kyeamba; Livingstone; O'Briens South & McLeods; O'Briens North; Lower O'Briens & Tywong; Lake Albert; Yerong Creek-Wattle Creek; Binni; Lower Sandy; Sawyers-Forest-Four Post & Little Billabong, and Yambla.

Australia: NSW, Vic, Tas.

Habitat: Dry sclerophyll forest on gravelly and shaley soils.

Habit: Erect or spreading, much-branched spiny shrub, 1-3 m high.

Site Preference: Well-drained soil. Dappled shade, partial or full sun. Withstands extended wet or dry periods and frost.

Characteristics: Adaptable and fast-growing. Very hardy.

Flowering: Pale yellow to more or less white, usually Jul-Oct. Long flowering period. Pungent perfume.

Seed Collection: Late Nov to late Dec. Monitor closely as seeds released immediately or within 1-2 days of maturity.

Propagation: From seed (45-84 viable seeds per gram), or cuttings.

Regeneration: From scarified seed.

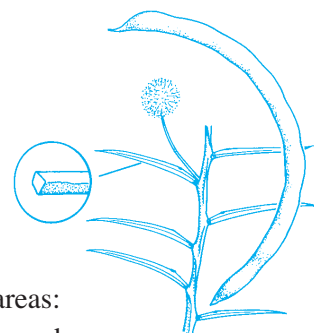
VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Coloniser of bare land. Legume — improves soil fertility by 'fixing' nitrogen.

Wildlife: Excellent habitat. Useful refuge for small native birds due to prickliness.

Ornamental: Attractive ornamental, particularly when flowering (during 'off' season). Useful barrier plant to direct traffic and for low maintenance areas. Often self-seeds in garden.

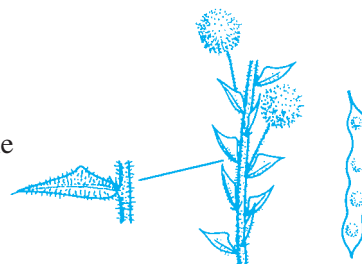


Acacia gunnii — Ploughshare Wattle

(syn. *Racosperma gunnii*; *Acacia vomiferous*) **Also:** Dog's Tooth Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: *gunnii* — after R.C. Gunn, early Tasmanian botanist.



OCCURRENCE:

- Regional:** Noted in various catchments and districts east of the Olympic Highway, from Albury district to Bringenbrong-Khancoban district.
- Australia:** Qld, NSW, Vic, Tas, SA.
- Habitat:** Sclerophyll communities on various soils.
- Habit:** Spreading or sprawling to erect shrub, 1-2 m high, with hairy branchlets.
- Site Preference:** Well-drained light to heavy soils, partial shade or full sun. Tolerates frost and dryness once established.
- Flowering:** Golden-yellow to almost white, usually Jul-Oct.
- Seed Collection:** Late Nov to early Jan. Monitor closely as seeds released immediately or within 1-2 days of maturity.
- Propagation:** From scarified seed or cuttings. Pour boiling or very hot water over seeds and soak for several hours before sowing.
- Regeneration:** From seed, particularly after fire. Shortage of seed usually precludes establishment through direct seeding.

VALUES:

- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Useful in controlling soil erosion due to soil-binding fibrous roots. Legume — improves soil fertility by 'fixing' nitrogen.
- Wildlife:** Good habitat. Flowers are a nectar and pollen source for various native birds and insects.
- Ornamental:** Useful groundcover for rockeries.

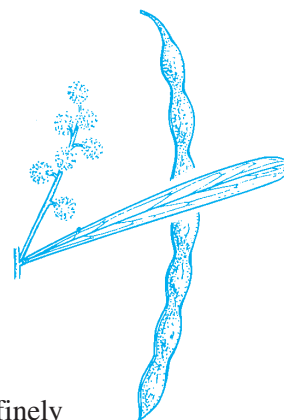
Acacia hakeoides — Hakea Wattle

Also: Western Black Wattle, Hakea-leaved Wattle

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** Refers to likeness of 'leaves' to those of some Hakeas.

OCCURRENCE:

- Regional:** Common in areas west of the Olympic Highway.
- Australia:** Qld, NSW, Vic, SA, WA.
- Habitat:** Woodland and mallee, on sand.
- Habit:** Erect or spreading hairless shrub, mostly 1-6 m high. Smooth or finely fissured grey-brown bark and angled or flattened branchlets.



- Similar Species:** Distinguish from Drooping Wattle (*A. difformis*) by 'leaf'. Drooping Wattle has lighter green 'leaf' and flattened 'leaf' stem.
- Site Preference:** Medium to well-drained light to heavy soils. Partial or full sun. Very hardy. Withstands frosts and extended dry periods.
- Characteristics:** Moderate growth rate. Lifespan up to several decades. Not known to be eaten by livestock.
- Flowering:** Golden-yellow, usually Jul-Nov.
- Seed Collection:** Early Dec to late Jan.
- Propagation:** From scarified seed (\pm 12 viable seeds per gram), or cuttings.
- Regeneration:** Frequently forms dense thickets. Establishes readily when direct seeded.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks.
- Land Protection:** Useful for controlling soil erosion due to soil-binding fibrous roots. Legume — improves soil fertility by 'fixing' nitrogen.
- Fuel:** Good.
- Wildlife:** Good habitat. Flowers are a food source for native insects and birds.
- Ornamental:** Excellent ornamental due to quick growth, prolific flowers and dark foliage.

Acacia lanigera — Woolly Wattle

Also: Hairy Wattle

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *lanigera* — from Latin *lana*, wool, and *gerus*, bearing, referring to woolly hairs on 'leaves' and stems.



- OCCURRENCE:**
- Regional:** Noted on the drier hills of many catchments and districts, east of the Olympic Highway.
- Australia:** NSW, Vic.
- Habitat:** Woodland and dry sclerophyll forest, on poor gravely and sandy soil.
- Habit:** Small erect or spreading shrub 50 cm to 3 m high, with rigid stems and 'leaves'. Grey bark and flattened or angled hairy branchlets.
- Site Preference:** Well-drained soils. Tolerates short periods of wetness.
- Flowering:** Golden-yellow, usually Jul-Sept.
- Seed Collection:** Mid Nov to early Jan, when pods are brown and curled. Monitor closely as seeds released immediately or 1-2 days after maturity.

-
- Propagation:** From scarified seed. Pour boiling or very hot water over seeds and soak for several hours before sowing.
- Regeneration:** From seed, particularly after fire. Establishes moderately well when direct seeded.
- Values:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Useful for stabilising soil and improving soil fertility. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Good habitat. Flowers are a pollen source for native moths, butterflies and other native insects, and a nectar-source for birds including honeyeaters. Insect-eating birds attracted. Native birds, including parrots and pigeons eat seeds.
- Ornamental:** Attractive ornamental for gardens, due to foliage and early flowering. Prune after flowering to maintain shape. Adaptable.

Acacia leprosa — Cinnamon Wattle

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *leprosa* — from Latin *leprosus*, scurfy appearance, referring to scurfy or spotted ‘leaves’.
- OCCURRENCE:**
- Regional:** Tumut region.
- Australia:** NSW, Vic.
- Habitat:** Eucalypt forest or woodland.
- Habit:** Erect or spreading shrub or small tree 1.5-6 m high. Smooth greyish bark and flattened or angled resinous branchlets.
- Similar Species:** Closely related, and similar to Varnish Wattle (*A. verniciflua*).
- Site Preference:** Moist, well-drained soil in dappled shade or partial sun. Very hardy. Tolerates short periods of dryness and frost.
- Characteristics:** Fast-growing. When crushed or on humid days, foliage has cinnamon fragrance. Hybridises with Kangaroo Thorn (*A. paradoxa*) around Melbourne.
- Flowering:** Golden to pale-yellow, Sep-Oct. Abundant scented yellow balls.
- Seed Collection:** Early Dec to early Jan.
- Propagation:** From scarified seed (\pm 123 viable seeds per gram), or cuttings.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks.

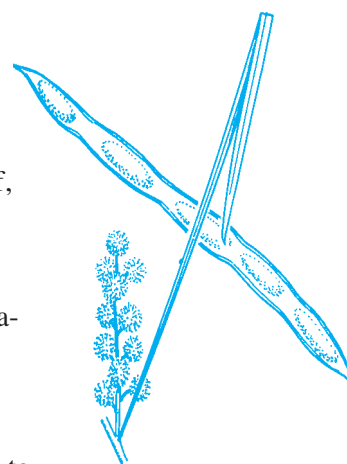


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- Land Protection:** Legume — improves soil fertility by ‘fixing’ nitrogen.
- Timber:** Reputedly excellent for small cabinet making and turning.
- Wildlife:** Good habitat.
- Ornamental:** Excellent ornamental for screening, planting near water (weeping forms) and for low maintenance areas.

Acacia linearifolia — Stringybark Wattle

Also: Narrow-leafed Wattle

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *linearifolia* — from Latin *linearis*, linear, and *folium*, leaf, referring to narrow ‘leaves’.
- OCCURRENCE:**
- Regional:** Noted in the areas: The Rock-Henty-Milbrulong and Corowa-Rand-Urana.
- Australia:** NSW.
- Habitat:** Dry sclerophyll forest and woodland, from lower slopes to exposed rocky sites.
- Habit:** Erect or spreading small tree, 3-6 m high with grey bark. Bipinnate leaves often persistent on adult plants.
- Site Preference:** Well-drained soil in the open.
- Characteristics:** Frost may damage young plants, which generally recover quickly.
- Flowering:** Golden-yellow, Aug-Oct.
- Seed Collection:** Nov to Dec.
- Propagation:** From scarified seed.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Good habitat.
- Ornamental:** Attractive specimen. Can be grown under established trees. Very attractive when flowering.



Acacia lineata — Streaked Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: *lineata* — from Latin *lineatus*, marked by a line or lines, probably referring to streaked sticky nerves of ‘leaves’.

OCCURRENCE:

Regional: Locally common in the far west of region. Noted in areas: Urana-Rand-Corowa and Boree.

Australia: Qld, NSW, Vic, SA.

Habitat: Dry sclerophyll forest, woodland and mallee, on sandy or gravelly soil.

Habit: Erect or spreading shrub, 60 cm to 2 m high. Smooth grey bark, resinous hairy branchlets and erect deep-green sticky ‘leaves’.

Site Preference: Well-drained soil in partial or full sun. Tolerates drought and frost.

Flowering: Golden-yellow, Aug-Oct.

Seed Collection: Nov to Dec.

Propagation: From scarified seed or cuttings.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks, as bushy to ground-level.

Land Protection: Legume — improves soil fertility by ‘fixing’ nitrogen.

Wildlife: Good habitat.

Ornamental: Neat ornamental. Particularly attractive in flower.



Acacia montana — Mallee Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: *montana* — from Latin *montanus*, pertaining to or growing on mountains, referring to mountainous habitat, although it occurs more widely on slopes and plains.

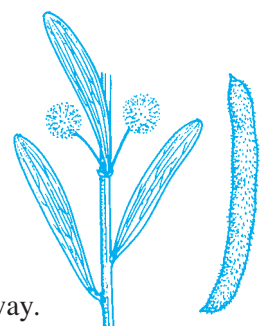
OCCURRENCE:

Regional: Widespread on lighter soils, predominantly west of the Hume Highway.

Australia: Qld, NSW, Vic, SA.

Habitat: Mallee, on sandy red earths. Also stony ridges and on heavy clay soils.

Habit: Erect or spreading shrub 1-3.5 m high. Fissured grey bark, angled or flattened branchlets and straight sticky ‘leaves’.

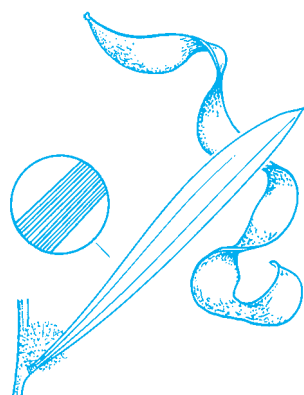


- Site Preference:** Well-drained light to heavy soil, in partial or full sun. Tolerates frost.
- Characteristics:** Fast-growing.
- Flowering:** Golden-yellow, usually Aug-Nov. Abundant.
- Seed Collection:** Mid-Nov to mid-Dec.
- Propagation:** From scarified seed or cuttings.
- Regeneration:** From seed and coppice after fire.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Good habitat.
- Ornamental:** Useful ornamental for hot dry areas, road batters and low maintenance sites. Very hardy and attractive.

Acacia oswaldii — Miljee

Also: Umbrella Wattle (Vic), Nelia (Qld), Umbrella Bush.

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *oswaldii* — after F. Oswald, 19th century collector for F. von Mueller.



- OCCURRENCE:**
- Regional:** Noted in Brookong catchment. Becomes widespread to the west of the region.
- Australia:** Mainland states and territories.
- Habitat:** Widespread in various habitats and vegetation communities, including open eucalypt forest or among other acacias.
- Habit:** Densely branched erect or spreading shrub or small tree, 2-6 m high. Finely fissured dark grey bark and angled or flattened branchlets. Sharp-tipped ‘leaves’ and large woody twisted pods.
- Similar Species:** Distinguish from Boree (*A. pendula*) by ‘leaves’. Miljee ‘leaves’ are sharp-tipped.
- Site Preference:** Heavy to moderately-drained soil. Partial or full sun. Tolerates drought and frost.
- Characteristics:** Moderate growth rate. Lifespan beyond several decades. Often appears umbrella-shaped due to regular trimming by livestock.
- Flowering:** Golden-yellow or pale-yellow, Oct-Dec.
- Seed Collection:** Dec to late Feb. Monitor closely as seeds released immediately or within 1-2 days of maturity. Abundant seeder every few years.

-
- Propagation:** From scarified seed (\pm 6 viable seeds per gram).
- Regeneration:** From seed. Birds disperse seeds around vegetated areas.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility by ‘fixing’ nitrogen.
- Fuel:** Very good.
- Timber:** Timber heavy, close-grained, durable and disagreeably-scented. Not commonly used, although reputedly suitable for cabinet work.
- Wildlife:** Prickly dense foliage good cover for birds.
- Koori:** Clubs and other weapons made from timber. Seeds ground to edible paste.
- Ornamental:** Ornamental value.
- Other:** Subsistence fodder. Pods eaten by sheep.

Acacia paradoxa — Kangaroo Thorn

(syn. *A. armata*) **Also:** Hedge Wattle, Prickly Acacia, Wild Irishman.

Family: Mimosaceae — Mimosa family.

Name Origin: *paradoxa* — from Latin *paradoxus*, contrary to the usual type.

OCCURRENCE:

Regional: Widespread in drier forests of most catchments and districts.

Australia: Qld, NSW, Vic, SA, WA. Introduced in Tas.

Habitat: Various communities and soils.

Habit: Erect or spreading shrub 2.5-4 m high. Dark green foliage, fine thorns and finely fissured brownish-grey bark.

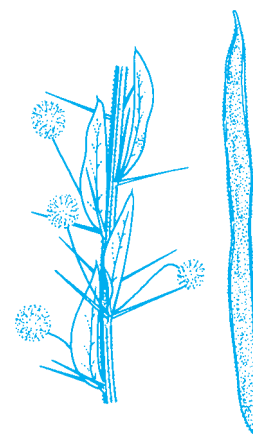
Site Preference: Dry shallow soils in higher rainfall areas or heavier soils in areas of lower rainfall. Withstands limited inundation, extended dry periods, alkaline and acidic soil. Very frost tender when young.

Characteristics: Fast-growing. Lifespan up to several decades. Prickliness precludes grazing by livestock. May spread in some districts.

Flowering: Golden-yellow, July-Nov.

Seed Collection: Early Dec to mid Jan. Monitor closely as seeds released immediately or within 1-2 days of maturity.

Propagation: From scarified seed (\pm 75 viable seeds per gram). Pour boiling or very hot water over seeds and soak for several hours before sowing.

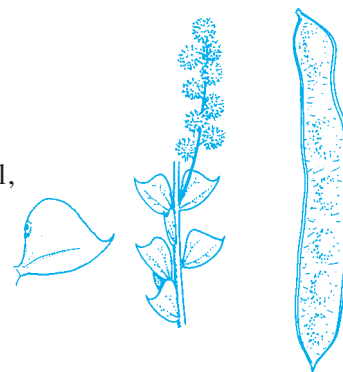


- Regeneration:** From seed after disturbance such as fire. Colonises steep bare banks in shallow soils. Readily established when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks in districts where known not to spread.
- Land Protection:** Useful for controlling soil erosion due to soil-binding fibrous roots, and for improving soil fertility. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Excellent habitat. Very useful refuge and nesting sites for small birds, such as wrens and thornbills due to prickliness. Flowers are a food source for moths, butterflies and other insects. Insect-eating birds attracted. Seeds eaten by native birds, including parrots and native pigeons.
- Ornamental:** Attractive specimen for hedges, barriers, screening, tubs and as cut flower, for districts where it does not spread. Prune lightly after flowering to prevent straggly growth. Resents severe pruning.
- Other:** Harbours rabbits in some areas, necessitating rabbit control.

Acacia pravissima — Tumut Wattle

Also: Wedge-leaved Wattle, Ovens Wattle.

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *pravissima* — meaning most irregular or asymmetrical, referring to branching.



- OCCURRENCE:**
- Regional:** Noted in Upper Gilmore.
- Australia:** NSW, Vic.
- Habitat:** Sclerophyll forest and woodland.
- Habit:** Erect or spreading shrub or small tree, 3-8 m high. Grey, smooth or finely fissured bark, angled or flattened branchlets and dense foliage.
- Site Preference:** Light to medium soils. Tolerates frost, seasonal waterlogging and drought.
- Characteristics:** Fast-growing.
- Flowering:** Golden-yellow, Sep-Nov.
- Seed Collection:** Early-late Dec. Monitor closely as seeds dropped soon after pods turn brown.
- Propagation:** From scarified seed (\pm 114 viable seeds per gram). Pour boiling water over seeds and soak for several hours before sowing.
- Regeneration:** From seed after disturbance such as fire, and along stony or sandy streambanks after flood.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks.

Land Protection: Excellent for controlling streambank erosion due to soil-binding fibrous roots. Useful component in rehabilitation works due to ability to improve soil fertility, through 'fixing' nitrogen.

Wildlife: Flowers are a pollen source for native moths, butterflies and other insects. Insect-eating, seed-eating and nectar feeding birds attracted.

Ornamental: Attractive foliage and prolific flowers. Prune after flowering to prevent straggly growth.

Other: Foliage dyes wool a range of colours depending on mordants used.

Acacia pycnantha — Golden Wattle

Also: Green Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: *pycnantha* — from Greek *phchos*, thick and compact, and *anthos*, flowers, referring to dense flower heads.

OCCURRENCE:

Regional: Widespread in most areas west of the Hume Highway.

Australia: NSW, Vic, SA.

Habitat: Usually dry sclerophyll forest, Box woodland and heath. Sandy and stony soils.

Habit: Erect or spreading tree or shrub 3-8 m high. Dark brown to greyish smooth or finely fissured bark and 'leaves' 6-20 cm long. May form thickets.

Site Preference: Young plants may be frost tender, while mature plants are reasonably frost tolerant. Tolerates drought and wide range of soils. Tolerates brief waterlogging and shade, which does not suppress seedling establishment. Fire kills mature plants.

Characteristics: Short-lived. Fast-growing. Floral emblem of Australia.

Flowering: Golden-yellow, Jul-Nov. Strongly scented.

Seed Collection: Early Nov to mid Jan. Frequently produces large crops.

Propagation: From scarified seed (20-64 viable seeds per gram). Pour boiling water over seeds and soak for several hours before sowing.

Regeneration: From seed after fire, or without fire in non-compacted soil. Seeds remain viable in soil for many decades. Establishes very well when direct seeded.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.



- Land Protection:** Useful for stabilising soil due to fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Fuel:** Burns well and produces a hot fire, but generally too small to be useful.
- Timber:** Pale buff to brown. Not durable. Easily split. Bark is one of richest tannin sources in world, although rarely used commercially.
- Wildlife:** Small nectar-feeding birds attracted to base of ‘leaves’. Flowers are a pollen source for native moths, butterflies and other insects. Insect-eating birds attracted. Larvae of the Fiery Jewel Butterfly feed on foliage at night. Grubs living at stem bases are food for birds, including the Grey Shrike-thrush and Black-faced Cuckoo-shrike. Gum is important food for possums such as the Sugar Glider and Squirrel Glider. Mature plants are nest sites for the Grey-crowned Babbler in Grey Box woodland. Insects attracted are important food for the Regent Honeyeater during breeding.
- Koori:** Gum eaten or dissolved in water with nectar to make sweet drink. Bark possibly used for medicine and fibre.
- Ornamental:** Attractive, free-flowering specimen with beautiful foliage. Cut out central growth when young to encourage bushiness. Unsuitable for high rainfall areas (over 1000 mm/year).
- Other:** ‘Leaves’ produce gold coloured dye with alum as mordant. European settlers used gum to treat diarrhoea.

Acacia rubida — Red-stemmed Wattle

Also: Red-leaved Wattle, Red-stem wattle.

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *rubida* — from Latin *ruber*, red, referring to red stems.

OCCURRENCE:

- Regional:** Noted in the Murray catchment, from as far west as Long Plain-West Hume, to as far east as Coppabella.

- Australia:** Qld, NSW, Vic.

- Habitat:** Usually dry sclerophyll forest on elevated rocky localities. Also riverbanks and swamp edges.

- Habit:** Erect or spreading shrub or small tree 2-10 m high with brownish, finely fissured bark and ‘leaves’ 5-20 cm long.

- Similar Species:** May resemble Hickory Wattle/Lightwood (*Acacia implexa*). Distinguish by reddish tinge in ‘leaves’ as they dry, and by retention of bipinnate foliage.

- Site Preference:** Dry soils. Tolerates frost, drought and limited waterlogging. Semi-shade and full sun.

- Characteristics:** Very hardy and fast-growing. Juvenile bipinnate leaves persist on plant with adult ‘leaves’, up to 2 m high.



- Flowering:** Pale to golden-yellow, Jul-Nov.
- Seed Collection:** Early Nov to late Dec.
- Propagation:** From scarified seed. Pour boiling water over seeds and soak for several hours before drying and sowing.
- Regeneration:** From seed and suckers, particularly after fire.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Useful for controlling soil erosion due to suckering and soil-binding fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Flowers are a pollen source for native moths, butterflies and other insects. Insect-eating birds attracted. Seed-eating birds attracted, including parrots and native pigeons. Foliage good cover for small birds.
- Ornamental:** Valuable ornamental, particularly conspicuous during winter when reddish. Severe pruning after flowering benefits plants.

Acacia siculiformis — Dagger Wattle

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** *siculiformis* — from Latin *sicula*, small dagger, and *formis*, resembling, referring to dagger-like ‘leaves’.
- OCCURRENCE:**
- Regional:** Noted in the hills of the areas: Rosewood Plateau; Ournie; Paddy’s River-Burra Valley; Tooma and Bringenbrong-Khancoban.
- Australia:** NSW, Vic, Tas.
- Habitat:** Eucalypt woodland and dry sclerophyll forest, often on granite-derived soils. Common near streams.
- Habit:** Spreading to erect shrub 50 cm to 3 m high with rigid ‘leaves’ 1-3 cm long.
- Site Preference:** Well-drained rocky or sandy sites. Tolerates frost and snow. Very hardy.
- Flowering:** Golden-yellow or pale-yellow to more or less white, Aug-Nov.
- Seed Collection:** Early Dec to late Feb.
- Propagation:** From scarified seed. Pour boiling water over seeds and soak for several hours before drying and sowing.
- Regeneration:** From seed, particularly after fire.



VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful in controlling erosion, due to soil-binding fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.

Wildlife: Prickly foliage good refuge for small birds. Flowers are a pollen source for native moths, butterflies and other insects. Insect-eating birds attracted. Nectar an important food for native insects and birds. Seed source for parrots and native pigeons.

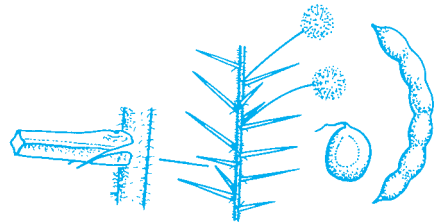
Ornamental: Attractive for low maintenance areas in cool regions.

Acacia ulicifolia — Prickly Moses

Also: Juniper Wattle

Family: Mimosaceae — Mimosa family.

Name Origin: Refers to the gorse-like foliage (*Ulex* genus).



OCCURRENCE:

Regional: Locally in Murrumbidgee areas: Snowball-Stony; Gilmore ‘Lower Reaches’; Sandy and Gocup. Primarily east of Hume Highway.

Australia: Qld, NSW, Vic, Tas.

Habitat: Dry sclerophyll forest and woodland, usually on sandy soil.

Habit: Spreading to erect shrub 50 cm to 2 m high. Smooth grey bark, resinous hairy branchlets and more or less rigid and straight pointed ‘leaves’ 8-15 mm long.

Site Preference: Moist well-drained light to heavy soil. Dappled shade or partial sun. Tolerates frost.

Characteristics: Short-lived. Hardy. Fast-growing.

Flowering: Pale yellow to almost white, usually Apr-Oct.

Seed Collection: Mid Oct to late Jan.

Propagation: From scarified seed or cuttings. Pour boiling water over seeds and soak for several hours before drying and sowing.

Regeneration: From seed. particularly after fire.

VALUES:

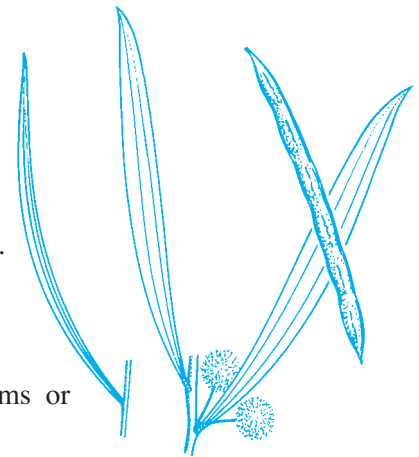
Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful in controlling soil erosion, due to soil-binding fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.

- Wildlife:** Prickly foliage good refuge for small birds. Flowers are a pollen source for native moths, butterflies and other insects, and nectar source for birds such as honeyeaters. Seed a food source for parrots and native pigeons.
- Ornamental:** Useful barrier, screen or hedge with attractive foliage, for low maintenance areas. Hardy and adaptable.

Acacia verniciflua — Varnish Wattle

- Family:** Mimosaceae — Mimosa family.
- Name Origin:** Varnish — refers to the shiny or sticky ‘leaf’ appearance.
- OCCURRENCE:**
- Regional:** Widespread throughout region on lower slopes and rises. Less common in the western, drier areas.
- Australia:** Qld, NSW, Vic, Tas, SA.
- Habitat:** Chiefly dry sclerophyll forest. Often along rocky streams or skeletal ridges. Also in Box woodland.
- Habit:** Erect or spreading tree or shrub 1-5 m high. Finely fissured grey bark, angled or flattened, usually resinous branchlets, and resinous ‘leaves’ 3-14 cm long.
- Site Preference:** Well-drained shallow soil. Tolerates moderate frost and extended dry periods.
- Characteristics:** Not known to be grazed by livestock.
- Flowering:** Golden-yellow, Aug-Oct.
- Seed Collection:** Mid Nov to early Jan, when pods brown and sticky.
- Propagation:** From scarified seed (\pm 63 viable seeds per gram). Pour boiling over seeds and soak for several hours before drying and sowing.
- Regeneration:** From seed, particularly after fire. Establishes readily when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful low-level cover for windbreaks.
- Land Protection:** Useful for controlling soil erosion due to soil-binding fibrous roots. Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Excellent habitat. Flowers are a pollen source for native moths, butterflies and other insects. Insect-eating birds such as the Regent Honeyeater attracted. Seed source for parrots and native pigeons. Grubs living in bark are food for native birds.
- Koori:** Reputedly used to stupefy fish before capture.
- Ornamental:** Attractive, with glistening resinous foliage and bright yellow flowers.



Baeckea utilis — Mountain Baeckea

Family: Myrtaceae — Myrtle family.

Name Origin: *Baeckea* — after A. Baeck (1713-1795), Swedish naturalist. *utilis* — meaning useful.

OCCURRENCE:

Regional: Noted only in the Munderoo district, but probably occurs in similar country surrounding Munderoo.

Australia: NSW, Vic, Tas.

Habitat: Heath or sclerophyll forest in wet places.

Habit: Slender shrub to 3 m high.

Site Preference: Semi-shade in wet or poorly drained soil. Tolerates frost.

Characteristics: Hardy in moist situations.

Flowering: White, summer.

Seed Collection: Monitor closely as mature seeds soon released.

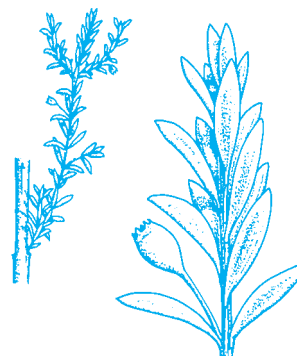
Propagation: From fresh seed or cuttings. Best sown thinly and given light covering. Capillary watering may benefit. May take 8-10 weeks to germinate.

VALUES:

Shade & Shelter: Low-level cover in windbreaks.

Land Protection: Useful for stabilising soil.

Ornamental: Attractive.



Bursaria lasiophylla — Hairy Bursaria/Native Blackthorn

Bursaria spinosa — Sweet Bursaria/Native Blackthorn

Also: Castanet Bush, Christmas Bush

Family: Pittosporaceae — Pittosporum family.

Name Origin: *Bursaria* — from Latin *bursa*, a purse, referring to pouch-like capsules. *lasiophylla* — from Greek *lasios*, woolly, and *phyllon*, leaf, referring to woolly underside of leaf. *spinosa* — from Latin *spinus*, thorny, referring to thorny branches. Note that the botanical names are in the process of being changed to *B. spinosa* subsp. *lasiophylla* and *B. spinosa* subsp. *spinosa*.



OCCURRENCE:

- Regional:** Widespread. Hairy Bursaria is more common in the higher rainfall areas, and Sweet Bursaria occurs predominantly in the drier, western areas of the region.
- Australia:** Hairy Bursaria — NSW, Vic, SA. Sweet Bursaria - Qld, NSW, Vic, Tas, SA, WA.
- Habitat:** Hairy Bursaria — Dry sclerophyll forest or woodland, on granite or metamorphic substrates. Sweet Bursaria — Dry or wet sclerophyll forest, on non-siliceous soils.
- Habit:** Hairy Bursaria — Shrub to 2.5 m high with clustered green leaves, hairy on underside. Sweet Bursaria — Shrub or small tree to about 8 m high with leaves green on both surfaces.
- Similar Species:** Distinguish Bursarias by the leaf underside. Hairy Bursaria has downy white leaf underside. Sweet Bursaria leaves green on both surfaces.
- Site Preference:** Well-drained soil. Tolerates frost and wind.
- Characteristics:** Long-lived. May be slow-growing.
- Flowering:** White to cream — chiefly summer.
- Seed Collection:** Late Jan to early May, when ripe fruit rattle. Timing depends on season and location of plants, with seed on plants east of the Hume Highway ripening later than seed on plants further west.
- Propagation:** From seed (\pm 190 viable seeds per gram), and cuttings. Stratifying seed by combining with moist sand and refrigerating for 6 weeks enhances germination. Sow immediately after collection, around Jun-Jul when temperatures low and days short. Germination may take several months. Seedlings prone to late damping-off. Treat with fungicide to reduce losses.
- Regeneration:** From seed over winter. Seed dispersed by wind.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks.
- Land Protection:** Useful for controlling gully erosion as fibrous roots bind soil.
- Timber:** Timber pale, fine-grained and tough. Seasons well due to little shrinkage. Takes fine polish and has pleasant scent when freshly cut.
- Wildlife:** Useful habitat as bursaria hosts insects that feed on saw-fly larvae (spit-fire grubs) which feed on eucalypts. Also a nectar source for wasps that parasitise leaf-eating scarab insects and pasture grubs, generally within 200 metres of plants. Fragrant flowers attract butterflies, moths and other native insects. Insect-eating birds attracted. Thorny plants excellent refuge and nest sites for small birds.
- Ornamental:** Excellent ornamental or specimens for hedges and cut flowers, due to summer flowering and bronze capsules over winter.
- Other:** Leaves contain aesculin, substance thought to absorb ultraviolet rays. European settlers apparently used it to prevent sunburn. There was industry based on collection of leaves for sunburn creams and haemorrhoid treatment. Nectar can be sucked from flowers.

Callistemon ptyoides — Alpine Bottlebrush

(syn. *C. sieberi*)

Family: Myrtaceae — Myrtle family.

OCCURRENCE:

Regional: Noted in the areas: Ournie and Talmalmo-Murray. Probably also occurs in similar country surrounding these areas.

Australia: Qld, NSW, Vic.

Habitat: Boggy areas. Often peaty granite heathland or shallow water in open sites. Alpine and subalpine areas and tablelands.

Habit: Shrub to 3 m high with silvery-grey new growth. Narrow, almost cylindrical leaves, mostly 1-2 cm long.

Site Preference: Periodically wet ground in partial or full sun. Tolerates frost. Drought sensitive.

Flowering: Golden yellow or cream, Nov-Feb, and sporadically throughout year.

Seed Collection: Any time, as seeds generally retained for many years. Seeds not usually released until plant meets with adversity such as injury, drought or fire. Collect from older wood.

Propagation: From seed (\pm 300 viable seeds per gram) or tip cuttings which strike readily.

Regeneration: From seed in seasonally inundated sites.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks on moist sites.

Land Protection: Useful in controlling gully erosion as fibrous roots bind soil.

Wildlife: Excellent bird attractant due to nectar (for honeyeaters) and foliage, refuge for small birds. Flowers are a pollen source for native butterflies and moths.

Ornamental: Attractive. Withstands hard pruning.



Callistemon sieberi — River Bottlebrush

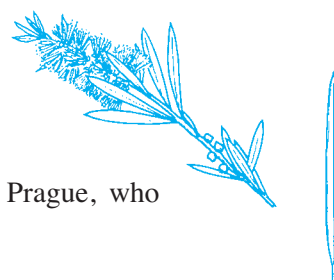
(syn. *C. paludosus*)

Family: Myrtaceae — Myrtle family.

Name Origin: *sieberi* — after F.W. Sieber (1789-1844), botanist from Prague, who collected extensively in Australia.

OCCURRENCE:

Regional: Common along major creeks and rivers throughout region.



-
- Australia:** Qld, NSW, Vic, SA.
- Habitat:** Along watercourses, dried and rocky riverbeds and gullies.
- Habit:** Shrub or small tree 2-7 m high. Pinkish new growth and narrow leaves 2-5 cm long.
- Site Preference:** Moist soils. Tolerates severe seasonal waterlogging and inundation, poor and acidic soils, poor drainage, dry periods, frost, wind and fire.
- Characteristics:** Fast-growing, hardy and adaptable.
- Flowering:** Cream or pale yellow, rarely pink, mostly Nov-Jan.
- Seed Collection:** Dec-Jan, as seeds shed after maturity. Collect from older wood.
- Propagation:** From seed (\pm 300 viable seeds per gram) using the Bog method, or cuttings taken from firm young growth. Cuttings often difficult to strike. Mist and bottom heat may enhance strike rate.
- Regeneration:** From seed, on sand and gravel banks after floods, and in absence of weed competition. After fire from seed, stem and coppice.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Useful for stabilising streambanks due to soil-binding fibrous roots. Branches produce roots when in contact with moist soil.
- Wildlife:** Important stream-side vegetation, for shade and insect source for fish. Flowers are a nectar source for honeyeaters and silveryeyes, moths, butterflies and other insects. Foliage good refuge for small birds. Attracts seed-eating birds.
- Koori:** Drink made from nectar.
- Ornamental:** Useful for screening, hedges, pond edges and bog gardens. Absorbs moisture in boggy sites. Prune severely to prevent straggly growth. Remove old flowerheads to promote flowering and bushiness.
- Other:** Nectar can be sucked from the flowers.

Calytrix tetragona — Common Fringe-myrtle

Also: Fringe-myrtle, White Fringe-myrtle

Family: Myrtaceae — Myrtle family.

Name Origin: *Calytrix* — from Greek *kalyx*, cup and *thrix*, hair, referring to divisions of calyx ending in long bristly hairs. *tetragona* — from Greek *tetra*, four, and *gonia*, angle, referring to leaves (when dried).

OCCURRENCE:

Regional: In most areas across region on rises and hills.

Australia: All states except NT.



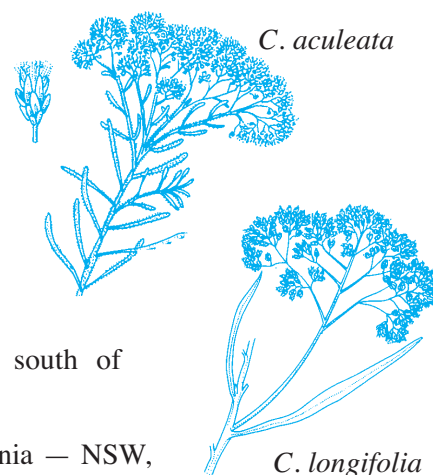
- Habitat:** Heath, woodland and dry sclerophyll forest on skeletal and sandy soils.
- Habit:** Bushy shrub 50 cm to 2 m high. Small aromatic green leaves 1-12 mm long and soft dark bark.
- Site Preference:** Well-drained soils in full sun or semi-shade. Tolerates periodic inundation, frost and extended dry periods.
- Characteristics:** Moderate growth-rate and longevity. Flammable. Highly variable in flower, leaf and habit.
- Flowering:** White to pink, all year but chiefly spring.
- Seed Collection:** Late Sep to mid-Mar, when capsules turn bronze and begin to fall.
- Propagation:** From cuttings 4-5 cm long, taken about 3 months after flowering from young growth low down on plant. Use well-drained and aerated mix. Strike in open shade with low humidity rather than on hot bed. Unreliable from seed.
- Regeneration:** From seed after light fires or when soil is bare.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Colonises bare sites.
- Wildlife:** Flowers are a food source for moths, butterflies and other insects. Foliage good refuge for small birds.
- Ornamental:** Excellent in parks, gardens, containers, and for screens and rockeries. Particularly attractive when flowering prolifically. Prune lightly after flowering to encourage flowering and promote bushiness. Avoid planting too close to house in fire-prone areas.

Cassinia aculeata — Common Cassinia

Cassinia longifolia — Shiny Cassinia

Also: Dogwood, Cauliflower Bush

- Family:** Asteraceae — Daisy Family.
- Name Origin:** *Cassinia* — after French botanist Count Alexandre Henri Gabriel de Cassini (1781-1832).
- OCCURRENCE:**
- Regional:** Noted mainly east of the Olympic Highway, and south of Billabong Creek.
- Australia:** Common Cassinia — NSW, Vic, Tas, SA. Shiny Cassinia — NSW, Vic, Tas.
- Habitat:** Sclerophyll forest, woodland and heath on sandy or gravelly soils.



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- Habit:** Common Cassinia — erect shrub 1-2.5 m high with narrow aromatic dark-green leaves 1-3 cm long, and downy branches. Shiny Cassinia — erect, aromatic and sticky shrub 1.2 - 2.5 m high with narrow dark-green leaves 4-8 cm long.
- Similar Species:** Distinguish Cassinias by leaves. Common Cassinia has shorter and more narrow leaves than Shiny Cassinia, and a different flowering time.
- Site Preference:** Moist, well-drained soil and semi-shade. Tolerates dry soil, full sun and drought.
- Characteristics:** Fast-growing pioneer. Short-lived. Adaptable. Flowers may cause dermatitis.
- Flowering:** Creamy white or straw coloured, summer-autumn.
- Seed Collection:** Common Cassinia — Early Dec to late Mar. Shiny Cassinia — early Jan to late Feb. Seeds released 3-14 days after maturity. Cut seed-bearing heads off and dry in paper bag. Break up seedhead and sieve to extract seed.
- Propagation:** From seed or cuttings. Surface-sow fine seed and cover lightly. Seedlings very small and may be difficult to handle. Direct sowing into pots recommended. Take cuttings about 15 cm long with heels in summer.
- Regeneration:** From seed after disturbance. Establishes very well when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful for quick low-level cover in windbreaks.
- Land Protection:** Colonises bare sites.
- Wildlife:** May be food source for native birds including the Red-rumped Parrot, Turquoise Parrot, Yellow Rosella and Eastern Rosella.
- Ornamental:** Valuable screen and specimen due to long, prolific flowering. Remove old flowerheads and prune heavily to promote flowering and dense growth.
- Other:** Foliage used in cut flower arrangements.

Cassinia arcuata — Chinese Shrub

Also: Sifton Bush, Chinese Scrub, Bidy Bush, Drooping Cassinia

Family: Asteraceae — Daisy family.

OCCURRENCE:

Regional: Not as widespread as Common Cassinia (*C. aculeata*), but can be found throughout most of the region.

Australia: NSW, Vic, SA, WA.

Habitat: Wide range of habitats and soils.

Habit: Small open aromatic shrub to 2 m high. Small narrow leaves and white woolly long slender branches. Scattered plants or dense clumps.

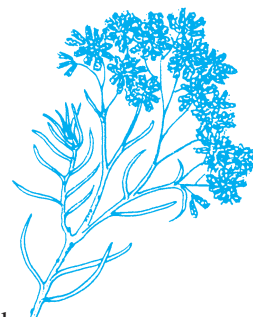


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- Site Preference:** Well-drained soil. Open position in semi-shade. Tolerates moist soil, full sun and drought. Resents poor drainage.
- Characteristics:** Fast-growing. Strong curry smell and drooping plumes of brownish flowerheads. Declared noxious weed in Culcairn Shire due to colonising habit.
- Flowering:** Shiny pale-brown flowerheads, spring-autumn.
- Seed Collection:** Early Feb to late Jun. Seeds released 3-14 days after maturity.
- Propagation:** From seed. Surface sow fine seed and cover lightly. Seedlings very small and may be difficult to handle. Direct sowing into pots recommended.
- Regeneration:** Germinates any time of year and grows rapidly.
- VALUES:**
- Land Protection:** Readily colonises disturbed and bare soils. Useful for reclaiming gravel pits or mine dumps.
- Ornamental:** Attractive, graceful and easily grown. Remove old flowerheads to promote flowering and dense growth.
- Other:** Foliage suitable for cut flower arrangements.

Cassinia laevis — Cough Bush

Also: Curry Bush, Inland Cassinia, Rosemary Bush, Wild Rosemary.

- Family:** Asteraceae — Daisy family.
- OCCURRENCE:**
- Regional:** Noted in The Rock-Henty-Milbrulong region.
- Australia:** NSW, SA, Qld.
- Habitat:** Various communities on ridges and stony soils, and in mallee on red sands.
- Habit:** Much-branched aromatic shrub to 3 m high with white woolly stems. Linear leaves 1-5 cm long and \pm 1 mm wide.
- Similar Species:** Distinguish from Common Cassinia (*C. aculeata*) by its thread-like leaves and less compact flower clusters.
- Characteristics:** May cause coughing and irritate eyes.
- Flowering:** Creamy-white, spring-autumn. Terminal clusters.
- Seed Collection:** Jan-Apr. Shake mature heads into paper bag.
- Propagation:** From seed. Surface sow fine seed late winter-early spring and cover lightly.



VALUES:

Timber: Timber dark with attractive pattern.

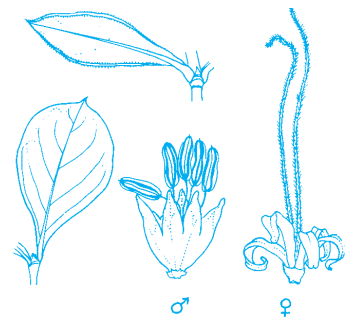
Wildlife: Good habitat. Ants and other insects eat seeds.

Coprosma hirtella — Rough Coprosma

Also: Coffee Berry

Family: Rubiaceae — Madder family.

Name Origin: *Coprosma* — from Greek *kopros*, excrement, and *osme*, smell, referring to fetid leaf smell on most species. *hirtella* — from Latin *hirtus*, shaggy, referring to rough leaf surface.



OCCURRENCE:

Regional: Not widespread. Noted in the areas: Upper Gilmore; Upper Adelong & Upper Yaven and Bringenbrong-Khancoban.

Australia: NSW, Vic, Tas.

Habitat: Damp sites at higher altitudes. Usually on hillsides in woodland, or scrub on granite or basalt.

Habit: Erect slender shrub to about 2 m high with rigid branches.

Site Preference: Moist, well-drained sheltered site. Tolerates frost.

Characteristics: Fast-growing. Fire retarder.

Flowering: Greenish, summer. Small and inconspicuous.

Seed Collection: Harvest fruit when reddish-orange by hand, or knock fruit onto ground sheets.

Propagation: From fresh seed or stem cuttings, which strike readily. Remove flesh from fruit and sow seed soon after collection. Do not allow seed to dry. Seedlings usually appear in flush of germination.

VALUES:

Wildlife: Good habitat. Fruit eaten by various mammals and birds. Prickly foliage good refuge for small birds.

Koori: Fruit eaten.

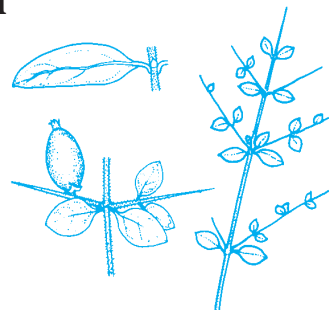
Ornamental: Useful ornamental with colourful fruit. Easily grown in protected garden position in partial or dappled sun. Requires extra water during dry periods.

Other: Showy edible fruit are sweet but leave an unpleasant aftertaste.

Coprosma quadrifida — Prickly Currant Bush

Family: Rubiaceae — Madder family.

Name Origin: *Coprosma* — from Greek *kopros*, excrement, and *osme*, smell, referring to fetid leaf smell on most species. *quadrifida* — from Latin *quadri*, four and *fida* meaning split into four parts.



OCCURRENCE:

Regional: Noted only in Upper Gilmore. Possibly also in surrounding areas in similar country.

Australia: NSW, Vic, Tas.

Habitat: Damp sites in woodland, sclerophyll forest and cool-temperate rainforest. Usually along creeks.

Habit: Prickly, slender, open, upright shrub, 2-4 m high. Very small, crowded shiny olive-green leaves.

Site Preference: Protected, semi-shaded position in moist soil. Accepts poor drainage and seasonal waterlogging to 10 cm deep. Drought sensitive. Tolerates salt.

Flowering: Greenish, summer. Inconspicuous.

Seed Collection: Dec-Feb. Small red globular edible berries.

Propagation: From fresh seed or stem cuttings, which strike readily. Remove flesh from fruit and sow seeds soon after collection. Do not allow seed to dry. Seedlings usually appear in flush of germination, up to 5 months after sowing.

Regeneration: Frequently germinates on trunks of tree ferns where they grow as epiphytes.

VALUES:

Wildlife: Native birds eat fruit.

Ornamental: Useful for screening, hedges and barriers in wet, shady, cool positions. Blends well with ferns. Prune regularly to maintain neat shape.

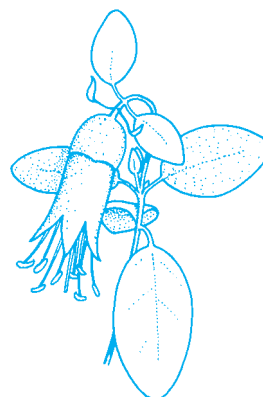
Other: Edible fruits sweet and slightly astringent and can be used in cooking.

Correa glabra — Rock Correa

Also: Smooth Correa

Family: Rutaceae — Rue family.

Name Origin: *Correa* — after Portuguese scholar and botanist Jose Francesco Correia da Serra (1750-1823). *glabra* — from Latin *glaber*, without hair.



OCCURRENCE:

- Regional:** Noted only in Bowna-Jindera district. Probably more widespread in the past prior to grazing pressures.
- Australia:** Qld, NSW, Vic, SA.
- Habitat:** Rocky habitats, mostly in open woodland.
- Habit:** Erect shrub to 2.7 m high with stems woody at base. Dense aromatic oval leaves and bell-shaped tubular flowers. Isolated plants or in small clumps.
- Site Preference:** Well-drained soil in semi-shade. Resents poor drainage. Tolerates drought and frost.
- Characteristics:** Fast-growing. Palatable to livestock. Generally in rocky areas inaccessible to stock.
- Flowering:** Pale green, sporadic, but chiefly May-Aug. Bell-shaped.
- Seed Collection:** Difficult and tedious.
- Propagation:** From cuttings, which strike readily, or from seed. Most sources recommend leaching seeds for several weeks; however, some growers indicate that seeds germinate readily without treatment.

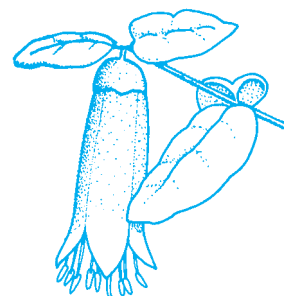
VALUES:

- Wildlife:** Good habitat. Flowers are a nectar source for native birds, including the Eastern Spinebill.
- Ornamental:** Attractive and useful for hedges, screening and tubs. Readily cultivated.
- Other:** Cut flowers.

Correa reflexa var. *reflexa* — Common Correa

Also: Native Fuchsia, Fuschia.

- Family:** Rutaceae — Rue family.
- Name Origin:** *Correa* — after Portuguese scholar and botanist Jose Francesco Correia da Serra (1750-1823). *reflexa* — from Latin *reflectere*, to bend back, referring to corolla (petals).

**OCCURRENCE:**

- Regional:** Noted in the areas: Albury; Bowna-Jindera; Yambla; Rosewood Plateau; Maragle; Ardenside-Welaregang; O'Briens South & McLeods and Burkes & Graveyard. Probably occurs in areas adjacent to those noted, in similar country.
- Australia:** Qld, NSW, Vic, Tas, SA.
- Habitat:** Dry sclerophyll forest and heath, usually on sandstone or coastal dunes.
- Habit:** Spreading or erect shrub, 50 cm to 1.5 m high. Round dull green leaves with pale undersides.
- Site Preference:** Well-drained, moist, light to heavy soil and semi-shade. Tolerates dry summer soil, full sun and frost. Resents poor drainage.

-
- Characteristics:** Hardy. Very adaptable. Moderate growth rate. Short lived.
- Flowering:** Green or red and green, Apr-Sep. Bell-shaped. Generally flowers for long period before other spring flowers.
- Seed Collection:** Early Nov to late Feb. Monitor closely as seeds released immediately or within 1-2 days of maturity.
- Propagation:** From cuttings, which strike readily, or from seed. Take cuttings with heels in autumn or spring and treat with hormones to improve strike rate. Most sources recommend leaching seeds for several weeks, however some growers indicate seeds germinate readily without treatment. Best results when sown at warmer temperatures.
- Regeneration:** From rootstock after fire.
- VALUES:**
- Wildlife:** Good habitat. Nectar a food source for honeyeaters including the Eastern Spinebill, Yellow-faced Honeyeater, White-naped Honeyeater and New Holland Honeyeater. Seed a food for various native birds.
- Ornamental:** Excellent for dry shady sites and containers and under mature trees. Interesting foliage. Prune lightly to encourage flowering and bushy growth. Water regularly and thoroughly during growing period to encourage flowering. Resents moisture fluctuations.
- Other:** Cut flowers.

Daviesia latifolia — Hop Bitter-pea

- Family:** Fabaceae — Pea family.
- Name Origin:** *Daviesia* — after botanist the Rev. Hugh Davies (1739-1821). *latifolia* — from Latin *latus*, broad, and *folium*, leaf, referring to broad 'leaves'.

OCCURRENCE:

- Regional:** Quite widespread, predominantly east of the Hume Highway.
- Australia:** Qld, NSW, Vic, Tas.
- Habitat:** Dry sclerophyll communities and woodland, to 1800 m altitude.
- Habit:** Open shrub 1-3 m high (rarely to 5 m). Broad dull green 'leaves' and many tough erect branches.
- Site Preference:** Well-drained soil in dappled shade or partial sun. Tolerates frost and full sun.
- Characteristics:** Adaptable to most soils.
- Flowering:** Orange-yellow with dark reddish markings, Sep-Dec. Showy.



- Seed Collection:** Early Dec to late Jan. Monitor very closely as seeds released immediately or 1-2 days after maturity. To ensure collection, cover fruiting branches with nylon stockings or paper bags after flowering. When ripe, pods light-brown and brittle and rattle when shaken, with dark-coloured seed. May be difficult to obtain seed in useful quantities. Long storage life.
- Propagation:** From scarified seed. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively soak in cold water for several hours. Dry to prevent rotting, before sowing. Germination takes 3-8 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- Regeneration:** From seed or suckers, particularly after fire. Other *Daviesia* species establish well from direct seeding, although seed shortages may preclude this method.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Useful understorey in recharge plantings, and for improving soil fertility, through 'fixing' nitrogen.
- Wildlife:** Good habitat. Flowers provide pollen and excellent nectar, food for various insects and native birds.
- Ornamental:** Very decorative with interesting foliage and attractive perfumed flowers. Plant in clumps to form dense thickets for best effect.
- Other:** 'Leaves' and stems produce fawn dye with alum as mordant. 'Leaves' have medicinal properties and were substituted for hops. Reputedly used as drug that expels intestinal worms by European settlers. 'Leaf' decoction taken to expel hydatid cysts, and also as tonic.

***Daviesia leptophylla* — Slender Bitter-pea**

***Daviesia mimosoides* — Narrow-leaf Bitter-pea**

(syn. *D. leptophylla*: *D. virgata*)

Also: *D. leptophylla* — Narrow-leaf Bitter-pea. *D. mimosoides* — Bitter-pea.

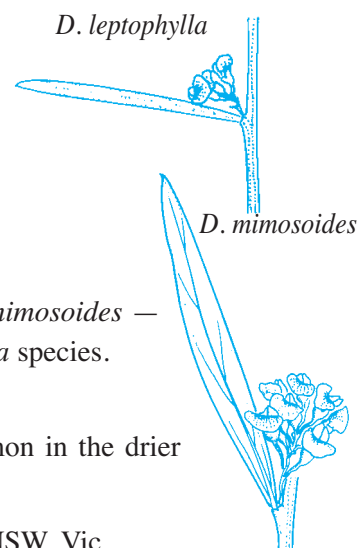
Family: Fabaceae — Pea family.

Name Origin: *Daviesia* — after botanist the Rev. Hugh Davies (1739-1821). *mimosoides* — mimosa-like, referring to similarity of 'leaves' to those of *Acacia* species.

OCCURRENCE:

Regional: Quite widespread in most catchments and districts. Less common in the drier areas to the west.

Australia: Slender Bitter-pea — NSW, Vic, SA. Leafy Bitter-pea — Qld, NSW, Vic.



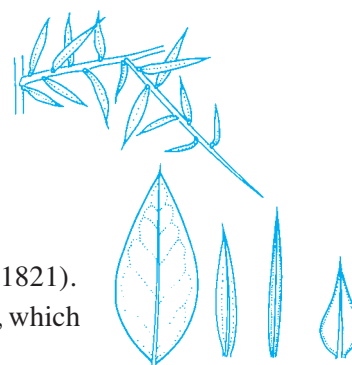
- Habitat:** Slender Bitter-pea — shrubland to dry sclerophyll forest, dry open sites, usually on skeletal soils. Leafy Bitter-pea — sclerophyll communities, mostly on acidic soils, 0-1500 m altitude (often dominant understorey shrub).
- Habit:** Slender Bitter-pea — broom-like erect shrub to 2 m high, upper branches often ‘leafless’, with dull yellow-green linear ‘leaves’ to 6.5 cm long. Leafy Bitter-pea — Multi-stemmed, open-branched erect shrub, 1-2 m high with narrow ‘leaves’ 2-20 cm long.
- Similar Species:** Slender Bitter-pea has narrower ‘leaves’ and flowers slightly later than Leafy Bitter-pea..
- Site Preference:** Well-drained soils. Tolerates frost.
- Flowering:** Slender Bitter-pea — Yellow and red-brown/orange, Oct-Dec. Leafy Bitter-pea — yellow and red-brown, Sep-Nov.
- Seed Collection:** Early Dec to late Jan. Monitor very closely as seeds released immediately or within 1-2 days of maturity. To ensure collection, cover fruiting branches with nylon stockings or paper bags after flowering. Ripe pods light-brown and brittle and rattle when shaken, with dark-coloured seed. May be difficult to obtain seed in useful quantities. Long storage life.
- Propagation:** From scarified seed. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively soak in cold water for several hours. Dry to prevent rotting, before sowing. Germination takes 3-8 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- Regeneration:** From seed or suckers, particularly after fire.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Useful understorey in recharge plantings. Legume — improves soil fertility through ‘fixing’ nitrogen
- Wildlife:** Good habitat. Flowers are a pollen and excellent nectar source for various native insects and birds.
- Ornamental:** Very decorative. Interesting foliage and attractive perfumed flowers. Plant in clumps to form dense thickets for best effect. Pruning encourages dense growth.

Daviesia ulicifolia — Gorse Bitter-pea

(syn. *D. ulicina*) **Also:** Native Gorse

Family: Fabaceae — Pea family.

Name Origin: *Daviesia* — after botanist the Rev. Hugh Davies (1739-1821). *ulicifolia* — ulex-leaved. *Ulex* is spiky European gorse or furze, which the ‘leaves’ of this species resemble.



OCCURRENCE:

Regional: Noted in the areas: Burrumbuttock-West Hume; Upper Adelong & Upper Yaven, and Gocup. Possibly also in similar country in areas surrounding those noted.

Australia: Qld, NSW, Vic, Tas, SA, WA.

Habitat: Usually dry sclerophyll forest.

Habit: Broadly spreading, much-branched stiff shrub to 2 m high. Narrow pointed dark-green 'leaves', 5-20 mm long.

Site Preference: Dry, well-drained soil in semi-shade. Accepts moist well-drained soil in full sun. Resents poor drainage. Tolerates drought.

Characteristics: Not grazed by livestock due to its thorns. Hardy.

Flowering: Yellow and red-brown, Aug (low altitude) to Dec (high altitude). Pea-like.

Seed Collection: Early Nov - late Jan. Monitor very closely as seed released immediately or within 1-2 days of maturity. To ensure collection, cover fruiting branches with nylon stockings or paper bags after flowering. Ripe pods are light-brown and brittle and rattle when shaken, with dark-coloured seed inside. May be difficult to obtain seed in useful quantities. Long storage life.

Propagation: From scarified seed. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively soak in cold water for several hours. Dry to prevent rotting, before sowing. Germination occurs in 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).

Regeneration: From seed, particularly after fire.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful understorey in recharge plantings, and for improving soil fertility, through 'fixing' nitrogen.

Wildlife: Good habitat. Flowers are a pollen and excellent nectar source for various native insects and birds. Prickly foliage good refuge for small birds.

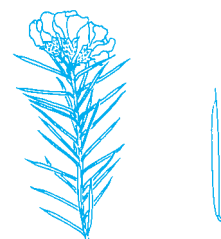
Ornamental: Ornamental for barriers and under trees. Richer flower-colour than other *Daviesia* species. Prune severely to promote new, dense growth. Hardy in cultivation.

Dillwynia juniperina — Prickly Parrot-pea

Also: Juniper Pea-bush

Family: Fabaceae — Pea family.

Name Origin: *Dillwynia* — after British botanist Lewis Weston Dillwyn (1778-1855).
juniperina — juniper-like, after a prickly European conifer.



OCCURRENCE:

- Regional:** Rare in the region. Noted west of the Hume Highway in the areas: Yambla; The Rock-Henty-Milbrulong; Yerong Creek-Wattle Creek, and Burkes and Graveyard.
- Australia:** Qld, NSW, Vic.
- Habitat:** Dry sclerophyll forest on various soils.
- Habit:** Erect prickly shrub 1-2 m high. Rigid narrow leaves 7-15 mm long.
- Similar Species:** *Dillwynia sieberi* was previously included in *Dillwynia juniperina*.
- Site Preference:** Well-drained soils in dappled shade or partial sun.
- Characteristics:** Very adaptable.
- Flowering:** Golden yellow with red.
- Seed Collection:** Late Oct to late Feb. Monitor closely as seeds released immediately or within 1-2 days of maturity. Seeds have long storage life.
- Propagation:** From scarified seed or cuttings. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively soak in cold water for several hours. Dry to prevent rotting before sowing. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).

VALUES:

- Shade & Shelter:** Low cover in windbreaks.
- Land Protection:** Legume — improves soil fertility through ‘fixing’ nitrogen.
- Wildlife:** Good habitat.
- Ornamental:** Decorative. Useful as barrier.

Dillwynia phyllicoides species complex — Parrot-pea

- Family:** Fabaceae — Pea family.
- Name Origin:** *Dillwynia* — after British botanist Lewis Weston Dillwyn (1778-1855). *phyllicoides* — from genus *Phyllica* and *oides*, like, referring to small narrow leaves which resemble those of *Phyllica* genus.

**OCCURRENCE:**

- Regional:** Quite widespread, predominantly in drier areas west of the Hume Highway. Noted in the areas: Yarra Yarra; Four Mile; Coppabella; Lower Sandy; Coreinbob; O’Briens South & McLeods; Burkes & Graveyard, and Mates Gully.
- Australia:** Qld, NSW, Vic.

- Habitat:** Dry sclerophyll woodland to forest on acidic well-drained soils.
- Habit:** Prostrate to erect shrub to 1.5 m high with hairy stems and spirally twisted leaves, usually 3-8 mm long.
- Similar Species:** This species complex seems to include at least 2 species and requires critical revision.
- Site Preference:** Well-drained soil. Tolerates frost.
- Flowering:** Yellow and red. Profuse terminal clusters.
- Seed Collection:** Late Oct to late Feb. Monitor closely as seeds released immediately or within 1-2 days of maturity.
- Propagation:** From scarified seed or cuttings. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively soak in cold water for several hours. Dry to prevent rotting before sowing. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- VALUES:**
- Shade & Shelter:** Low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility through ‘fixing’ nitrogen.
- Wildlife:** Important component of understorey layer.
- Ornamental:** Ornamental for gardens. Very hardy. Responds to hard pruning.

Dillwynia retorta species complex — Small-leaf Parrot-pea

- Family:** Fabaceae — Pea family.
- Name Origin:** *Dillwynia* — after British botanist Lewis Weston Dillwyn (1778-1855). *retorta* - to twist or turn back, referring to leaves.

OCCURRENCE:

- Regional:** Quite widespread in areas west of the Hume Highway. Noted in the areas: Urana-Rand-Corowa; Albury; Bowna-Jindera; Thugga-Culcairn East; Upper Back & Upper Jerra Jerra; Sawyers-Forest-Four Post & Little Billabong; Mullengandra; Fowlers Swamp & Wagra; Keajura and Upper Burkes.

- Australia:** Qld, NSW, Vic.

- Habitat:** Heath to dry sclerophyll forest, on acidic well-drained soil.

- Habit:** Prostrate to erect shrub to 3 m high. Leaves spirally twisted and 4-12 mm long.

- Similar Species:** This variable species complex seems to include at least 2 species and requires critical revision.

- Site Preference:** Well-drained light to medium soil with dappled shade or partial sun. Tolerates frost.



- Flowering:** Yellow and red, Aug-Dec. Profuse.
- Seed Collection:** Monitor closely as seeds released immediately or within 1-2 days of maturity.
- Propagation:** From scarified seed or cuttings, which strike readily. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively soak in cold water for several hours. Dry to prevent rotting before sowing. Germination occurs in 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).

VALUES:

- Shade & Shelter:** Low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility through ‘fixing’ nitrogen.
- Wildlife:** Important component of understorey layer.
- Ornamental:** Very ornamental. Useful in gardens and containers. Responds to hard pruning, which promotes bushiness.

Dodonaea viscosa subsp. *angustissima* — Narrow-leaf Hop-bush

(syn. *D. attenuata*; *D. angustissima*)

- Family:** Sapindaceae — Soap-berry family.
- Name Origin:** *Dodonaea* — after Flemish botanist Rembert Dodoens (1517-85). *viscosa* — sticky. *angustissima* — from Latin *angustus*, narrow, referring to leaves.
- OCCURRENCE:**
- Regional:** Widespread. In most areas throughout the region.
- Australia:** Mainland states and territories.
- Habitat:** In open forests, woodlands and scrubs, on rocky outcrops, drier slopes and sandy sites.
- Habit:** Erect shrub to 4 m high. Narrow green leaves 3 - 9.5 cm long.
- Site Preference:** Well-drained soil in partial or full sun. Tolerates frost and drought.
- Characteristics:** Fast-growing. Lifespan possibly up to several decades. Flowers are as early as two years after germination.
- Flowering:** Reddish, spring. Inconspicuous.
- Seed Collection:** Mid Oct to early Feb. Monitor closely as seeds released immediately or within 3-14 days of maturity. Papery capsules turn from red to tan-brown and become brittle as seeds ripen. Seeds black and firm when ripe. Large quantities easily collected. Retains viability for several years.
- Propagation:** From seed (\pm 212 viable seeds per gram), or cuttings. While untreated seeds germinate, hot water treatment hastens germination, which should take 2-4 weeks.



- Regeneration:** From seed, stem and coppice, particularly after fire. Establishes readily when direct seeded.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks, due to multi-stemmed growth.
- Land Protection:** Useful understorey in recharge planting. Useful in land rehabilitation such as stabilising sand due to shallow spreading roots.
- Wildlife:** Excellent habitat. Good pollen source for moths, butterflies and other insects including colourful beetles. Foliage good refuge for small birds. Fruits and seeds are forage for native birds. Kangaroos and wallabies browse foliage.
- Koori:** *Dodonaea* leaves used for pain relief. Leaves chewed for toothache (without swallowing the juice). Chewed leaves and juice used in treating stonefish and stingray wounds (usually bound to wound and left for several days).
- Ornamental:** Ornamental. Useful in hedges, screening, rock gardens and under trees. Three-angled fruits very colourful and attractive. Prune lightly to promote bushiness.
- Other:** Useful drought fodder in some arid areas. Fruiting branches have cut flower potential.

Dodonaea viscosa subsp. *cuneata* — Wedge-leaf Hop-bush

Family: Sapindaceae — Soap-berry family.

Name Origin: *Dodonaea* — after Flemish botanist Rembert Dodoens (1517-1585). *viscosa* — sticky. *cuneata* — from Latin *cuneus*, referring to leaf shape.

OCCURRENCE:

Regional: In many areas across the region.

Australia: Qld, NSW, Vic, SA.

Habitat: Mallee scrub in semi-arid areas and open forest. Mostly on sandy loams.

Habit: Compact spreading shrub to 3 m high with wedge-shaped green leaves.

Site Preference: Well-drained soil.

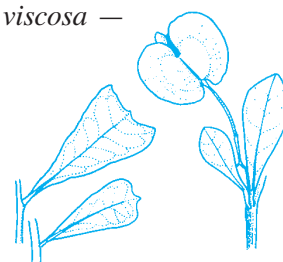
Characteristics: Occurs in clumps or as scattered plants in higher rainfall areas.

Flowering: Greenish, winter-spring.

Seed Collection: Mid-Oct to early Feb. Monitor closely as seeds released immediately or 3-14 days after maturity. Papery capsules turn from red to tan-brown and brittle as seeds ripen. Seeds black and firm when ripe. Large quantities easily collected. Retains viability for several years.

Propagation: From seed (\pm 212 seeds per gram), or cuttings. While untreated seeds germinate, hot water treatment hastens germination, which should take 2-4 weeks.

Regeneration: From seed, stem and coppice, particularly after fire. Establishes readily when direct seeded.



VALUES:

- Shade & Shelter:** Useful low-level cover in windbreaks, due to multi-stemmed growth.
- Land Protection:** Useful understorey in recharge planting. Useful in land rehabilitation such as stabilising sand.
- Wildlife:** Excellent habitat. Good pollen source for moths, butterflies and other insects including colourful beetles. Foliage good refuge for small birds. Fruits and seeds are forage for native birds. Kangaroos and wallabies browse foliage.
- Koori:** *Dodonaea* leaves used for pain relief. Leaves chewed for toothache (without swallowing the juice). Chewed leaves and juice used in treating stonefish and stingray wounds (usually bound to wound and left for several days).
- Ornamental:** Ornamental. Useful in hedges, screening, rock gardens and under trees. Three-angled fruits very colourful and attractive. Prune lightly to promote bushiness.
- Other:** Useful drought fodder in some arid areas, but protection from livestock necessary to preserve plants. Fruiting branches have cut flower potential.

Epacris breviflora — Drumstick Heath

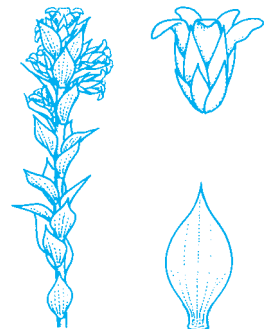
- Family:** Epacridaceae — Epacris family.
- Name Origin:** *Epacris* — from Greek *epi*, upon, and *acris*, a hilltop, referring to preferred location of many *Epacris*. *breviflora* — from Latin *brevis*, short, and *flora*, flower, referring to flowers.

OCCURRENCE:

- Regional:** Noted in the districts of Munderoo and Bringenbrong-Khancoban.
- Australia:** Qld, NSW, Vic.
- Habitat:** Swamps and damp places at 350-1500 m altitude.
- Habit:** Erect shrub, 50-100 cm high and sometimes 2 m. Hairy branchlets and erect leaves.
- Site Preference:** Moist, well-drained light to medium, fertile soil. Tolerates frost.
- Flowering:** White, mostly summer, and sporadically. Conspicuous and fragrant.
- Seed Collection:** Collect seed-bearing capsules when flowers wither. Dry flower-heads in paper bag and sieve dust-like seed to extract.
- Propagation:** From cuttings of firm young growth (although may be difficult to strike). The bog method and/or smoke treatment may enhance germination. Sprinkle fine seeds over acid potting mix in late spring, and place under mist.

VALUES:

- Land Protection:** Stabilises soils in damp areas.
- Ornamental:** Excellent in containers and rockeries. Prune regularly to maintain bushiness.



Eremophila deserti — Turkeybush

(syn. *Myoporum deserti*)

Also: Ellangowan poison-bush, Dogwood

Family: Myoporaceae

OCCURRENCE:

Regional: Murrumbidgee catchment, along creeks and rivers.

Australia: Qld, NSW, Vic, SA, WA.

Habitat: A wide variety of communities on calcareous red earths to stony skeletal soils on hillsides and riversides.

Habit: Erect, much-branched hairless shrub 1-4 m high, with warty branchlets.

Characteristics: Has been reported to poison stock.

Flowering: White, late winter to early summer. Bell-shaped.

Seed Collection: Collect when fruit are yellow.

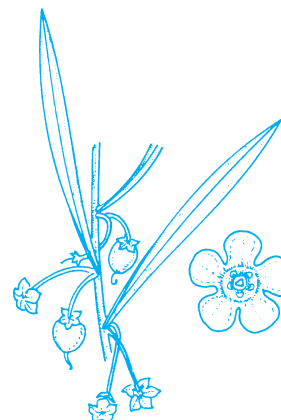
Propagation: From cuttings or fresh seed sown late summer-autumn. Remove flesh of fruit and soak overnight in warm water. Sow 2-3 mm deep and cover with fine gravel.

VALUES:

Land Protection: Stabilises soil on riverbanks.

Wildlife: Habitat. Fruits eaten by plains turkeys, emus, honeyeaters and silvereyes.

Ornamental: Attractive ornamental for garden windbreaks, parks, screens or informal hedges. Prune lightly and regularly to promote bushiness.



Eremophila longifolia — Berrigan

Also: Emubush, Native Plum Tree.

Family: Myoporaceae

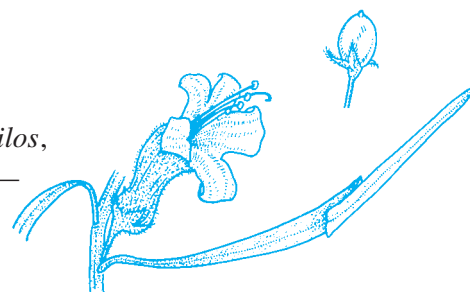
Name Origin: *Eremophila* — from Greek *eremos*, a desert, and *philos*, fond of, referring to dry country habitat. *longifolia* — Latin for long-leaved.

OCCURRENCE:

Regional: Locally common in the west, including the areas: Urana-Rand-Corowa; Boree; Brookong and Urangeline.

Australia: Mainland states and territories.

Habitat: Various communities, including plains country, on most soil types. Mainly sandy or loam soils, in Grey Box, White Cypress Pine, Boree and Mallee communities.



- Habit:** Shrub to small tree to 8 m high. Narrow drooping leaves 3-20 cm long on drooping branches. Mature bark dark-grey, rough and divided into squarish segments.
- Site Preference:** Well-drained soil in full sun.
- Characteristics:** Usually occurs as single trees or clumps of suckers of decreasing size out from parent tree.
- Flowering:** Pinkish to reddish-brown and spotted white, most of year. Very attractive tubular flowers.
- Seed Collection:** Early Jan to late Mar. Seeds released 3-14 days after maturity. Fruits can be collected from beneath plants.
- Propagation:** From seed or stem or root cuttings. Most *Eremophila* species very difficult to germinate. Hard woody fruits prevent germination and contain chemical inhibitor. Stem cuttings can be very slow to root. Promote suckering by disturbing roots. Transplant resulting root suckers.
- Regeneration:** Prolific, from seed and root suckers. Recovers well from fire, including juvenile plants. Best established by transplanting root suckers in moist conditions, or by fencing out stock and ripping to cause root suckering.
- VALUES:**
- Shade & Shelter:** Excellent low-level cover in windbreaks.
- Land Protection:** Useful in controlling soil erosion due to soil-binding fibrous roots.
- Timber:** Dark brown and brittle. Not used.
- Wildlife:** Excellent habitat. Emus eat fruit. Almost all *Eremophila* species are attractive to honeyeaters. Particularly useful bird attracter in drier areas. Beneficial nectar and pollen for bees.
- Koori:** Bruised leaves used for tanning skins. Reputed medicinal use.
- Ornamental:** Ornamental for low garden shelter.
- Other:** Probably the best *Eremophila* fodder species. Constantly trimmed by livestock, and sometimes used for emergency feed.

Eriostemon myoporoides subsp. *acutus* — Long-leaf Waxflower

Also: Native Daphne, Broad-leaf Waxflower.

- Family:** Rutaceae
- Name Origin:** *Eriostemon* — from Greek *erion*, wool, and *stemon*, stamen, referring to hairy stamens. *myoporoides* — resembling *Myoporum*.
- OCCURRENCE:**
- Regional:** Noted in the areas: Narrandera-Morundah-Galore-Collingullie, and Upper Gilmore. Found in rocky outcrops and mountainous country.
- Australia:** NSW.



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- Habitat:** Hilly areas with sandstone and quartzite. Chiefly in dry sclerophyll forest and heath.
- Habit:** Shrub to 2 m high with densely warty stems and aromatic leaves, 25-40 mm long.
- Site Preference:** Well-drained neutral to acid soils in dappled shade or partial sun. Tolerates frost, extended dry periods, semi-shade and full sun.
- Characteristics:** Highly aromatic when crushed. Moderate growth rate and longevity.
- Flowering:** White with pinkish tinge, mainly spring. Star-like.
- Seed Collection:** Jan-Mar. Cut off mature fruiting capsules and dry in warm area to allow seeds to fall out. Seeds are short-lived.
- Propagation:** From cuttings of firm new growth. May be slow and erratic to root. Bottom heat and overhead misting enhance or hasten rooting. Germination difficult. Seeds require nicking and leaching for 10-14 days before sowing.
- VALUES:**
- Ornamental:** Popular in cultivation for shrubberies or mass plantings. Very hardy and adaptable. Light or heavy pruning promotes bushiness and mulching benefits plants. Scale and sooty mould may be a problem.
- Other:** Cut flowers or foliage.

Eutaxia microphylla — Mallee Bush-pea

(syn. *E. microphylla* var. *microphylla*)

Also: Small-leaved Eutaxia, Eutaxia, Common Eutaxia.

- Family:** Fabaceae — Pea family.
- Name Origin:** *Eutaxia* — from Greek *eu*, well, and *taxis*, order arrangement, probably referring to the regimented leaf arrangement. *microphylla* — from Greek *micros*, small, and *phylon*, leaf, referring to small leaves.



OCCURRENCE:

- Regional:** Noted west of the Olympic Highway in the areas: Urana-Rand-Corowa; Long Plain-West Hume; Burrumbuttock-West Hume; Walla Walla and Brookong.
- Australia:** Qld, NSW, Vic, SA, WA.
- Habitat:** Mallee, Mugga Ironbark communities and various woodlands.
- Habit:** Variable, low, dense, intricate or erect perennial shrub. Tiny linear grey-green leaves and brown twiggy stems, sometimes spiny-tipped.
- Site Preference:** Open position in dry, well-drained soil and full sun. Tolerates wet winter soil, full shade, most frost and drought. Resents poorly-drained soil.

- Characteristics:** Adapts to most soils.
- Flowering:** Yellow and red, sometimes all yellow, spring. Profuse.
- Seed Collection:** Late Nov to mid Feb. Monitor closely as seeds shed soon after maturity.
- Propagation:** From scarified seed or cuttings, which strike readily. Pour very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks.
- VALUES:**
- Land Protection:** Useful in controlling soil erosion in small areas due to fibrous roots. Legume — improves soil fertility through ‘fixing’ nitrogen.
- Ornamental:** Excellent for containers, pool edges, groundcover, rockeries, hanging baskets and under trees. Prune severely to promote bushiness. Popular in cultivation.

Exocarpos strictus — Dwarf Cherry

- Also:** Pale Ballart, Pale-fruit Ballart
- Family:** Santalaceae — Santalum family
- Name Origin:** *Exocarpos* — from Greek *exo*, outside, plus *carpos*, fruit, as succulent pedicel or flower stalk resembles pericarp or fruit wall below the nut.

OCCURRENCE:

- Regional:** Noted in the west of Urana-Rand-Corowa region.
- Australia:** NSW, Vic, Tas, SA.
- Habitat:** Various habitats including high banks of rivers and streams, on well-drained clay soils in River Red Gum communities.
- Habit:** Erect shrub to 3.5 m high. Light green, bronzy, blue-green or greyish foliage. Often forms dense thickets.
- Site Preference:** Well-drained sandy or clay loam soils.
- Characteristics:** Most plants in this family are root parasites.
- Flowering:** Mainly early summer, and throughout year.
- Seed Collection:** Early Dec to late Apr. Monitor closely as seeds shed in 3-14 days.
- Propagation:** Difficult. See Native Cherry (*E. cupressiformis*).
- VALUES:**
- Land Protection:** Useful in controlling soil erosion.
- Wildlife:** Habitat.
- Ornamental:** Attractive.



Goodenia ovata — Hop Goodenia

Family: Goodeniaceae — Goodenia family.

Name Origin: *Goodenia* — after the Rev. Dr Goodenough, Bishop of Carlisle, botanist. *ovata* - Latin for ovate, referring to leaf shape.

OCCURRENCE:

Regional: Noted in The Rock-Henty-Milbrulong region.

Australia: Qld, NSW, Vic, Tas, SA.

Habitat: Forest and woodland, sometimes in exposed rocky areas near the sea.

Habit: Erect upright or prostrate sticky shrub to 2 m high. 'Varnished' bright green leaves.

Similar Species: Very similar to Sticky Goodenia (*G. varia*).

Site Preference: Protected position. Moist soil in semi-shade. Tolerates drought and moderate frost. Tolerates dry soil, poor drainage, waterlogging to 10 cm deep, and full sun to full shade.

Characteristics: Very hardy. Fast-growing. Leaves faintly aromatic when crushed. Appears to be unpalatable to livestock.

Flowering: Bright yellow, throughout year but mainly Oct-Mar.

Seed Collection: Early Dec to late Jan. Monitor closely as seeds shed quickly.

Propagation: From cuttings, which root readily. Difficult from fresh seed.

Regeneration: Suckers readily. Colonises after fire and clearing.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful tough, adaptable coloniser for various sites.

Wildlife: Good habitat. Excellent shelter and food source for small insect-eating birds and native mice. Shelter for lizards and snakes. Rosellas eat fruit.

Ornamental: Useful for bog gardens, rockeries, and under trees. Prune when young to prevent straggly growth. Accepts hard pruning. Useful for permanently wet soil.

Other: Cut flowering branches last well in water. Tea made from leaves and twigs thought to have anti-diabetic properties.



Grevillea alpina — Cat's Claws Grevillea

Also: Mountain Grevillea, Alpine Grevillea, Goldfields Grevillea.

Family: Proteaceae — Protea family.



Name Origin: *Grevillea* — after Charles Francis Greville (1749-1809), co-founder of London Horticultural Society. *alpina* — from Latin *alpinus*, alpine, referring to habitat of some provenances (localities).

OCCURRENCE:

Regional: Noted only in Albury district.

Australia: NSW, Vic.

Habitat: Dry sclerophyll forest or woodland, heath or mallee. Usually on sandy soil.

Habit: Spreading to semi-prostrate shrub 30 cm to 2 m high, with grey-green foliage.

Site Preference: Well-drained soil. Tolerates frost and extended dry periods.

Characteristics: Can be long-lived.

Flowering: Bright red and yellow, mainly winter-spring.

Seed Collection: Early Dec to late Feb. Monitor closely as seeds shed immediately or 1-2 days after maturity. Long season. Profuse and conspicuous.

Propagation: From cuttings of fresh new growth, 5-7 cm long, or from seed. Rooting hormones should improve strike rate.

Regeneration: From seed. Some provenances sucker.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Wildlife: Excellent habitat. Flowers are a nectar-source for native birds, particularly honeyeaters such as the Eastern Spinebill. Many native moths and butterflies attracted. Foliage provides nesting sites for small birds including the Yellow-tufted Honeyeater.

Ornamental: Attractive, popular ornamental for gardens and tubs. Prune to encourage bushiness.

Grevillea floribunda — Seven Dwarfs' Grevillea

(syn. *G. sphacelata*, *G. autumnalis*, *G. ferruginea*.)

Also: Rusty Spider-flower.

Family: Proteaceae — Protea family.

Name Origin: *Grevillea* — after Charles Francis Greville (1749-1809), co-founder of London Horticultural Society. *floribunda* — from Latin *floribundus*, profusely flowering.

OCCURRENCE:

Regional: Noted in the areas: Narrandera-Morundah-Galore-Collingullie; Mates Gully and Burkes & Graveyard.



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- Australia:** Qld, NSW.
- Habitat:** Dry sclerophyll forest or woodland on sandy soil, often in rocky situations.
- Habit:** Erect or spreading shrub, 40 cm to 1.8 m high, with velvety branches.
- Site Preference:** Well-drained soil in full sun or partial shade. Tolerates extended dry periods and moderate frost.
- Characteristics:** Hardy. Highly variable characteristics.
- Flowering:** Rusty and greenish, throughout year, but mainly spring. Free-flowering.
- Seed Collection:** Monitor, as seeds shed soon after maturity.
- Propagation:** From seed or cuttings, which strike readily. Germination may be difficult.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Wildlife:** Excellent to attract nectar-feeding birds.
- Ornamental:** Decorative ornamental for gardens and tubs, due to densely rusty-hairy flower-heads. Prune lightly from planting time to promote bushiness. Does not respond to hard pruning.
- Other:** Readily cultivated.

Grevillea lanigera — Woolly Grevillea

- Family:** Proteaceae - Protea family.
- Name Origin:** *Grevillea* — after Charles Francis Greville (1749-1809), co-founder of London Horticultural Society. *lanigera* — from Latin *lana*, wool, and *gerus*, bearing, referring to woolly leaves.



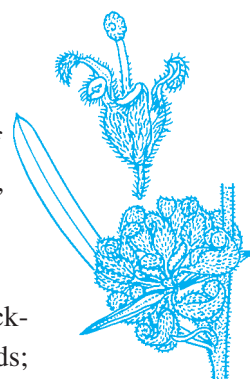
OCCURRENCE:

- Regional:** More common east of the Olympic Highway. Noted in the areas: Albury; Upper Back-Upper Jerra Jerra; Ardenside-Welaregang; Bringenbrong-Khancoban; Coreinbob; O'Briens South & McLeods; Upper Kyeamba; Keajura; Upper Burkes and Major. Possibly also in areas surrounding those noted.
- Australia:** NSW, Vic.
- Habitat:** Moist rocky places in light to heavy soil, including streambanks.
- Habit:** Spreading shrub mostly 20 cm to 1.5 m high, with grey-green foliage.
- Site Preference:** Well-drained soil. Tolerates frost and drought. Full sun or semi-shade.
- Characteristics:** Apparently commonly hybridises with Rosemary Grevillea (*G. rosmarinifolia*). Also hybridises with Cat's Claws Grevillea (*G. alpina*).
- Flowering:** Various red/pink/cream, mainly spring.

- Seed Collection:** Summer. Fruits turn from green to brown and seeds shed soon after maturity, requiring close monitoring. Secure nylon stockings or paper bags to fruiting branches after flowering to ensure collection. Generally only small proportion of flowers set seed.
- Propagation:** From cuttings 5-7 cm long with heels, which strike readily. Also from seed, which may result in variable plants.
- Regeneration:** From seed.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Wildlife:** Good habitat. Flowers are attract nectar-feeding birds, particularly honeyeaters such as the Eastern Spinebill, and various native moths and butterflies. Foliage is good refuge and nesting sites for small birds, particularly honeyeaters.
- Ornamental:** Attractive ornamental for screening, rockeries and groundcover. Prune regularly to promote bushiness. Enhance flowering and vigour by occasional and thorough summer watering.

Grevillea polybractea — Crimson Grevillea

- Family:** Proteaceae - Protea family.
- Name Origin:** *Grevillea* — after Charles Francis Greville (1749-1809), co-founder of London Horticultural Society. *polybractea* — from Greek *poly*, many, and Latin *bractea*, bract, referring to many bracts which conceal buds.
- OCCURRENCE:**
- Regional:** Noted in eastern parts of the region, including the areas: Upper Back-Upper Jerra Jerra; Yarra Yarra; Coreinbob; O'Briens South & McLeods; Upper Kyeamba; Keajura; Upper Burkes; Major; Murraguldrie and Carabost.
- Australia:** NSW, Vic.
- Habitat:** Dry sclerophyll forest on granite soil.
- Habit:** Spreading neat shrub, 30 cm to 1.8 m high, with rough hairy leaves.
- Site Preference:** Slightly sheltered areas in well-drained soil. Tolerates open situations in full sun. Moderately frost tolerant.
- Characteristics:** Prone to root-rot fungus and quickly dies if infected. Hybridises with Woolly Grevillea (*G. lanigera*) and Rosemary Grevillea (*G. rosmarinifolia*).
- Flowering:** Red to pink with yellow or green, spring. Dense woolly flowerheads.
- Seed Collection:** Summer. Monitor closely, as seeds shed soon after maturity. Secure nylon stockings or paper bags to fruiting branches after flowering to ensure collection.
- Propagation:** From cuttings, which strike readily. Can be grafted onto Rosemary Grevillea.



VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Wildlife: Good habitat.

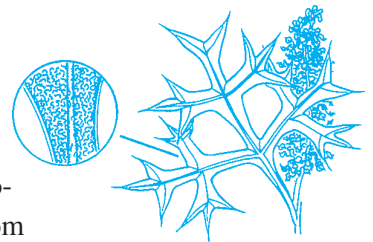
Ornamental: Attractive. Interesting well-displayed flowers. Excellent in tubs. Prune from early age to retain low growth. Avoid excess watering.

Grevillea ramosissima — Fan Grevillea

Also: Branching Grevillea

Family: Proteaceae — Protea family.

Name Origin: *Grevillea* — after Charles Francis Greville (1749-1809), co-founder of London Horticultural Society. *ramosissima* — from Latin *ramosissimus*, very branched, referring to habit.



OCCURRENCE:

Regional: Noted in the Tumut region.

Australia: NSW, Vic.

Habitat: Dry sclerophyll woodland, on various acidic substrates, including granite and sandy soils.

Habit: Low spreading shrub 30 cm to 3 m high. Leaves 3-10 cm long with turned down margins.

Site Preference: Semi or dappled shade. Tolerates moderate frost and snow.

Characteristics: Hybridises with Rosemary Grevillea (*G. rosmarinifolia*) and Green Grevillea (*G. jephcottii*).

Flowering: Creamy white, mainly spring.

Propagation: From seed or cuttings, which generally strike slowly.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Wildlife: Good habitat.

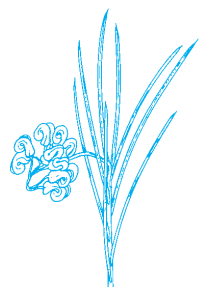
Ornamental: Attractive when flowering, suitable for screening and general planting. Not outstanding. Light to moderate pruning promotes bushiness. Easily cultivated.

Grevillea rosmarinifolia — Rosemary Grevillea

(syn. *G. glabella*, *G. divaricata*.)

Family: Proteaceae — Protea family.

Name Origin: *Grevillea* — after Charles Francis Greville (1749-1809), co-founder of London Horticultural Society. *rosmarinifolia* — from genus *Rosmarinus* and Latin *folium*, leaf, referring to similarity to herb rosemary.



OCCURRENCE:

Regional: Noted in the areas: Maragle; Tooma and Paddy's River-Burra Valley. Possibly also in areas surrounding those noted.

Australia: NSW, Vic.

Habitat: Woodland near streams and moist slopes. Also mallee and shrubland on plains and slopes, on sandy soil.

Habit: Compact to open shrub 30 cm to 2 m high. Narrow prickly leaves.

Site Preference: Well-drained soil in full sun. Tolerates frost and extended dry periods.

Characteristics: Apparently commonly hybridises with Woolly Grevillea (*G. lanigera*). Also hybridises with Crimson Grevillea (*G. polybractea*), Fan Grevillea (*G. ramosissima*) and Green Grevillea (*G. jephcottii*). Moderate growth rate. Lifespan up to several decades.

Flowering: Pink to red (sometimes with cream), mainly spring. Spider-like.

Seed Collection: Early Dec - early Jan. Monitor closely as seeds shed soon after maturity. Follicles turn from green to brown at maturity. Ensure collection by securing nylon stockings or paper bags to fruiting branches after flowering. Usually only small portion of flowers set seed.

Propagation: From seed, or cuttings which strike readily. Take cuttings 5-7 cm long from new growth with heels.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks.

Wildlife: Excellent habitat. Dense prickly foliage excellent refuge for small birds, including finches and wrens. Nectar-rich flowers attract native birds, moths, butterflies and other insects.

Ornamental: Attractive ornamental for screening, hedges, and under trees. Responds well to hard pruning and mulching.

Other: Flowers and leaves produce lemon-yellow dye with mordant alum, and flowers alone produce fawn-gold dye.

Gynatrix pulchella — Hempbush



(syn: *Plagianthus pulchellus*; *P. pulchellus* var. *tomentosus*) **Also:** Common Hempbush

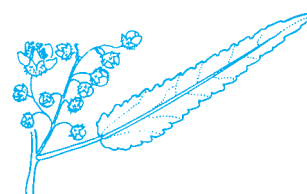
Family: Malvaceae

Name Origin: *pulchella* — from Latin *pulchella*, beautiful.

OCCURRENCE:

Regional: Noted in Tumut region.

Australia: NSW, Vic, Tas.

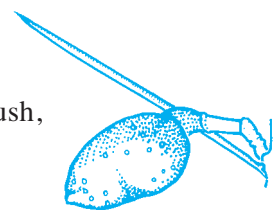


- Habitat:** Chiefly in gully scrubs and near creeks on rocky sites, at moderate elevations.
- Habit:** Semi-deciduous, open woody spreading shrub to 3 m high. Bright green heart-shaped, soft, toothed leaves to 15 cm long.
- Site Preference:** Protected position in moist, well-drained soil and semi-shade. Tolerates poor drainage and seasonal waterlogging to 10 cm deep, and full sun. Tolerates extended dry periods but not permanently dry soil. Tolerates moderate frost.
- Flowering:** Cream to white. Often profuse and fragrant, in loose clusters along stems.
- Seed Collection:** Late Nov to late Dec. Monitor closely as seeds shed 3-14 days after maturity. Seeds remain viable for at least 2 years.
- Propagation:** From seed or cuttings. Seeds germinate readily in 2-4 weeks, and can be direct seeded into pots (2 seeds per pot). Strikes readily from cuttings.
- Regeneration:** Regenerates readily in disturbed areas.
- VALUES:**
- Land Protection:** Useful for stabilising soils along creeks where it occurs naturally.
- Koori:** String made from bark.
- Ornamental:** Not highly ornamental, but attractive when flowering profusely. Fragrant floral perfume can permeate large areas. Can be planted under established trees. Prune tips to encourage bushiness and prevent straggleness. Cultivated plants may be short-lived.
- Other:** Good quality warp yarn produced from bark in 19th century.

Hakea leucoptera — Needlewood

(syn. *H. leucocephala* plus several others)

Also: Needle Hakea, Silver Needlewood, Silver Needle Bush, Pin Bush, Booldoobah (Koori name from Hay area).



- Family:** Proteaceae — Protea family.
- Name Origin:** *leucoptera* — from Greek *leucos*, white and *pteron*, wing, referring to ashy-white seed wings (although they may be brownish-grey). Common name refers to leaves which have very sharp points.
- OCCURRENCE:**
- Regional:** Noted south-west of the Olympic Highway, in the areas: Simmons Creek-North west Culcairn; Burrumbuttock-West Hume; Long Plain-West Hume and Urana-Rand-Corowa.
- Australia:** Mainland states and territories.
- Habitat:** Coarse-textured soils. Individual trees or dense thickets of shrubby plants.

- Habit:** Bushy shrub to about 2 m high or small tree to about 5 m high. Open-branched crown, straight, rigid branches and rigid cylindrical leaves 2-9 cm long.
- Similar Species:** Distinguish from Hooked Needlewood (*H. tephrosperma*) by its silvery leaves with *straight* points and glabrous flowers.
- Site Preference:** Tolerates relatively heavy soil and partial shade. Hardy and moderately frost tolerant.
- Characteristics:** Long-lived.
- Flowering:** Creamy white, late spring-summer. Sometimes profuse.
- Seed Collection:** Throughout year, as seeds generally retained.
- Propagation:** From fresh seed (\pm 300 viable seeds per gram) which generally germinate in 3-6 weeks. Suitable for direct seeding into pots (2 seeds per pot) or into field.
- Regeneration:** Root suckers.
- VALUES:**
- Fuel:** Easily split.
- Timber:** Timber reddish-brown, close-grained, hard and tough, with small oak-like appearance. Used in small turnery work, and takes good polish. Smoking pipes were made from roots.
- Wildlife:** Good habitat. Flowers are a nectar source for native birds and insects. Foliage good nesting sites for small birds.
- Koori:** Roots a source of water. Roots dug up and one end placed in slow fire, forcing water out other end.
- Ornamental:** Ornamental. Decorative woody fruit. Plant in full sun. Adaptable in cultivation.
- Other:** Light producer of fair quality honey.

Hakea microcarpa — Small-fruited Hakea

(syn. *H. patula*, *H. bifrons*, *H. glabriflora*) *Also:* Small-fruit Hakea

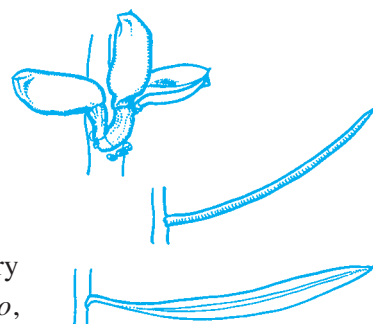
Family: Proteaceae — Protea family.

Name Origin: *Hakea* — after Baron Christian L. von Hake, 18-19th century German patron of botany. *microcarpa* — from Greek *micro*, small, and *carpos*, fruit, referring to small fruit.

OCCURRENCE:

Regional: Noted only in Munderoo district. Possibly also in surrounding areas in similar country.

Australia: Qld, NSW, Vic, Tas.



- Habitat:** Wet situations in dry sclerophyll forest and woodland, including streamsides and bogs, or heathy swamps, mainly at higher altitudes.
- Habit:** Small, rigid, open, spreading shrub to 2 m high. Cylindrical or flattened leaves 3-11 cm long on erect branches.
- Site Preference:** Wet areas. Tolerates frost.
- Flowering:** Creamy-white, spring-early summer. Conspicuous.
- Seed Collection:** Monitor closely as seeds shed 3-14 days after maturity. Ensure collection by securing nylon stockings or paper bags over seed pods. Large quantities generally available.
- Propagation:** From seed. Germinates readily from fresh seed. Suitable for direct seeding into pots.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks in poorly drained sites.
- Land Protection:** Useful for improving drainage in wet sites.
- Wildlife:** Flowers are a food source for native insects. Foliage good refuge for small birds.
- Ornamental:** Attractive, particularly when flowering or with open fruits. Easily cultivated. Prune regularly to promote branching.

Hymenanthera dentata — Tree Violet

- Family:** Violaceae — Violet family.
- Name Origin:** *Hymenanthera* — from Greek *hymen*, membrane, and *anthera*, anther, referring to thin stamen tube.
- OCCURRENCE:**
- Regional:** Predominantly east of the Hume highway. Noted in the areas: Talmalmo-Murray; Coppabella; Jingellic; Ournie; Maragle; Tooma; Ardenside-Welaregang; Lower Tooma-Greg Greg; Bringenbrong-Khancoban; Four Mile; Deadmans-Bungowannah-Long Flat; and Upper Gilmore.
- Australia:** NSW, Vic, Tas, SA.
- Habitat:** Amongst rocks, often along creeksides and in alpine heath.
- Habit:** Rigid shrub to 4 m high with branchlets often ending in spines. Dark-green foliage with toothed margins and tiny bell-shaped, fragrant flowers.
- Site Preference:** Well-drained sites. Tolerates most frost.
- Characteristics:** Apparently long-lived and extremely hardy. Slow-growing. Lush in lightly shaded gullies, or stunted and spiny on exposed dry rocky sites.
- Flowering:** Pale-yellow, spring-summer.



- Seed Collection:** Late Dec to early April, when berries are pale-green to purple. Monitor closely as seeds shed 3-14 days after maturity.
- Propagation:** From seed or cuttings. Sowing recommendations vary. Local growers have germinated seed by sowing whole freshly collected fruit about 1 cm deep and keeping in non-humid shadehouse. Seeds germinate in 3-4 months. Seedlings easily handled. Rooting hormones improve strike rate of cuttings.
- Regeneration:** From seed, dispersed by birds.
- VALUES:**
- Shade & Shelter:** Excellent long-lived low-level cover in windbreaks.
- Wildlife:** Excellent habitat. Prickly foliage excellent refuge and nesting sites for small native birds. Birds feed on fruit.
- Ornamental:** Attractive, for hedges, screening, and barriers. Watering over summer, and pruning is beneficial. Floral perfume may be overpowering if plants too close to house doors and windows.

Indigofera adesmiifolia — Tick Indigo

(syn. *I. australis* var. *signata*, *I. australis* var. *platypoda*) **Also:** Leafless Indigo

Family: Fabaceae — Pea family.

Name Origin: *Indigofera* — neo-Latin for indigo-bearing. *adesmiifolia* — leaves similar to plants in *Adesmia* genus.



OCCURRENCE:

Regional: Noted from drier areas to the west to higher rainfall areas to the east, including: Long Plain-West Hume; Majors Creek; Deadmans-Bungowannah-Long Flat; Burrumbuttock-West Hume; Bowna-Jindera; Walla Walla; Yambla; Scent Bottle-Serpentine & Upper Yarra Yarra; Paddy's River-Burra Valley; Maragle; The Rock-Henty-Milbrulong; Brookong and Lower Sandy. Probably more widespread prior to grazing pressures.

Australia: Qld, NSW, Vic.

Habitat: Rocky places, mostly on volcanic soils. Woodland, especially on ranges and slopes.

Habit: Small shrub to 1.5 m high with leaves up to 6.5 cm long and leaflets up to 5 mm long.

Site Preference: Well-drained soil in semi-shade. Tolerates moderately heavy frosts.

Flowering: Rose-pink, late winter-spring. Short flower sprays.

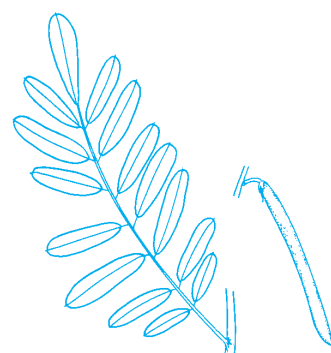
Seed Collection: Mid Nov to early Feb. Monitor closely as seeds shed immediately or very soon after maturity. Ensure collection by securing nylon stockings or paper bags to fruiting branches after flowering.

- Propagation:** From scarified seed or cuttings, which strike readily. Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- Regeneration:** From seed, particularly after fire.
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Legume — improves soil fertility by ‘fixing’ nitrogen.
- Wildlife:** Excellent habitat. Flowers are a pollen and nectar source for many native insects, including bees and wasps. Food for butterfly caterpillars.
- Ornamental:** Attractive ornamental for gardens. Prune from early age to promote bushiness and prevent straggleness.

Indigofera australis — Austral Indigo

Also: Hill Indigo, Native Indigo.

- Family:** Fabaceae — Pea family.
- Name Origin:** *Indigofera* — neo-Latin for indigo-bearing. *australis* — Latin for southern.
- OCCURRENCE:**
- Regional:** Widespread. Noted in most areas across region.
- Australia:** Mainland except for NT.
- Habitat:** Woodland and eucalypt forest. Commonly hilly areas.
- Habit:** Open erect spreading shrub to 2.5 m high. Long slender stiff stems.
- Site Preference:** Poor, shallow soil in semi or dappled shade. Tolerates moderately heavy frost and extended wet periods. Adapts to most well-drained acidic soils.
- Characteristics:** Palatable, nutritious legume, grazed severely by livestock.
- Flowering:** Mauve to purple (sometimes white), winter-spring. Pea-like.
- Seed Collection:** Mid Nov to early Feb. Monitor closely as seeds shed immediately or very soon after maturity. Ensure collection by securing nylon stockings or paper bags to fruiting branches after flowering.
- Propagation:** From scarified seed or cuttings. Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- Regeneration:** From seed, particularly after fire. Establishes readily when direct seeded.



VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Legume — improves soil fertility by ‘fixing’ nitrogen.

Wildlife: Excellent habitat. Flowers are a pollen and nectar source for many native insects, including bees and wasps. Also food for butterfly caterpillars.

Koori: Roots hammered and placed in salt or fresh water to poison fish.

Ornamental: Attractive ornamental, particularly when flowering. Plant in groups for best effect. Tip prune from when young to promote bushiness and prevent straggleness. Cut dead or straggly branches at base. Coppices.

Other: Leaves and stems produce yellow-fawn dye with alum as mordant.

Kunzea ericoides — Burgan

(syn. *Leptospermum phyllicoides*)

Family: Myrtaceae — Myrtle family.

Name Origin: *Kunzea* — after Dr Gustav Kunze (1793-1851), professor of medicine and botany, Leipzig. *ericoides* — Erica-like foliage (the Old World heaths).

**OCCURRENCE:**

Regional: Mainly east of the Hume Highway in the Murray region. Also around Holbrook district.

Australia: Qld, NSW, Vic, SA.

Habitat: Heath and sclerophyll forest, common at higher elevations, often along watercourses.

Habit: Tall shrub or small tree to 5 m high. Dense or open foliage.

Site Preference: Valley slopes, dry ridges and streambanks. Tolerates frost, wet and dry conditions.

Characteristics: Fast-growing.

Flowering: White, spring-summer.

Seed Collection: Jan-Apr. Monitor closely as seeds released soon after maturity.

Propagation: From seed, which germinates readily, or cuttings of young wood.

Regeneration: From seed, shed annually, and coppice after fire. Quickly colonises bare areas.

VALUES:

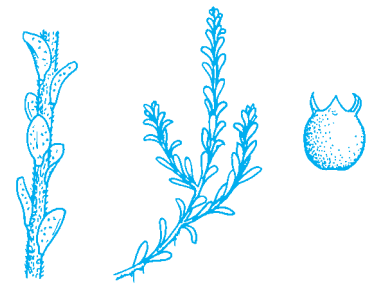
Shade & Shelter: Excellent fast-growing low-level cover in windbreaks.

Land Protection: Useful in controlling streambank and gully erosion due to soil-binding fibrous roots.

- Wildlife:** Excellent habitat. Dense foliage excellent refuge for small birds. Flowers are a good nectar source for honeyeaters and native insects, including moths and butterflies. Insect-eating birds attracted.
- Koori:** Kangaroo spears, fighting sticks, waddys and fighting boomerangs made from wood.
- Ornamental:** Specimen ornamental for screening, hedges and bog gardens. Attractive background foliage and conspicuous summer flowers. Responds to hard pruning and slow-release fertilisers.

Kunzea parvifolia — Violet Kunzea

- Family:** Myrtaceae — Myrtle family.
- Name Origin:** *Kunzea* — after Dr Gustav Kunze (1793-1851), professor of medicine and botany, Leipzig. *parvifolia* — from Latin *parvus*, small, and *foli*, leaf, referring to small leaves.



OCCURRENCE:

- Regional:** Noted east of the Hume Highway in the areas: Yarra Yarra; Four Mile; Lunts-Sugarloaf; Coppabella; Ournie; Tooma; Ardenside-Welaregang; Carabost, and Gilmore Lower and Sandy.
- Australia:** NSW, Vic.
- Habitat:** Heath and dry sclerophyll forest.
- Habit:** Erect shrub to 1.5 m high with slender wiry reddish branches and small leaves mostly 1-3.5 mm long. Forms thickets similar to tea-tree scrub.
- Site Preference:** Rocky slopes, especially near seepage areas.
- Characteristics:** Very hardy.
- Flowering:** Pink to purple (rarely white), spring-early summer.
- Seed Collection:** Early Jan — late May. Monitor closely as seeds shed 3-14 days after maturity.
- Propagation:** From seed, sown early autumn, or cuttings about 10 cm long in Jan. Rooting hormones should enhance strike rate. Most Kunzeas germinate readily in 3-5 weeks. Surface sow or cover lightly. Capillary watering may be beneficial.

VALUES:

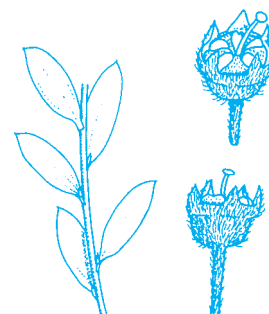
- Shade & Shelter:** Useful low-level cover in windbreaks.
- Land Protection:** Stabilises soil.
- Wildlife:** Good habitat. Foliage excellent refuge for small birds. Flowers are a nectar source for honeyeaters and other native birds.
- Ornamental:** Attractive when flowering. Regular pruning beneficial.

Leptospermum brevipes — Slender Tea-tree

Also: Grey Tea-tree

Family: Myrtaceae — Myrtle family.

Name Origin: *Leptospermum* — from Greek *leptos*, slender, and *sperma*, seed, referring to narrow seeds of some species. *brevipes* — from Latin *brevis*, short, referring to stalks.



OCCURRENCE:

Regional: Noted in the upper Murray areas: Paddy's River-Burra Valley; Tooma; Lower Tooma-Greg Greg and Bringenbrong-Khancoban.

Australia: Qld, NSW, Vic.

Habitat: Dry sclerophyll forest, woodland and shrubland, mostly on rocky granite outcrops.

Habit: Shrub or small tree to 4 m high with smooth bark, reddish drooping branchlets and leaves mostly 1-2 cm long.

Site Preference: Poor soils near streams. Sensitive to heavy frost when young. Tolerates limited periods of dryness.

Characteristics: Hardy and fast-growing. Invasive in some areas and where stocking rates low.

Flowering: White, Oct-Dec.

Seed Collection: Throughout year as seeds generally retained. Seed extremely viable and remain so for many years in storage.

Propagation: From seed or cuttings, which strike readily. Sow light scattering of seeds and cover lightly. Germinates in 2-5 weeks. Capillary watering should benefit seed. Suitable for direct seeding into pots.

Regeneration: From seed. Regenerates quickly.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks.

Land Protection: Useful in controlling streambank erosion due to soil-binding fibrous roots.

Wildlife: Excellent streamside habitat. Shade and insect source for fish. Flowers are a good pollen source for many insects, including moths and butterflies, and nectar source for birds.

Ornamental: Attractive ornamental for gardens, due to young reddish foliage and graceful habit. Prune to encourage bushiness.

Other: Cut foliage decorative and dries well. Leaves and young shoots reputedly useful in treating urinary complaints in colonial medicine.

Leptospermum continentale — Prickly Tea-tree

(syn. *L. juniperinum*)

Family: Myrtaceae — Myrtle family.

Name Origin: *Leptospermum* — from Greek *leptos*, slender, and *sperma*, seed, referring to narrow seeds of some species. *continentale* — refers to its mainland distribution as opposed to its close relative Manuka (*L. scoparium*), which only occurs in Tas and NZ.



OCCURRENCE:

Regional: Widespread east of the Olympic Highway.

Australia: NSW, Vic, SA.

Habitat: Forest or open sandy swampy places.

Habit: Upright rigid prickly shrub 1-2 m high. Firm bark and narrow green leaves.

Site Preference: Poorly-drained soil such as seepages. Tolerates frost and extended dry periods.

Characteristics: Very hardy. Moderate growth rate. Lifespan up to several decades.

Flowering: White, or rarely pink, Oct-Jan.

Seed Collection: Any time. Seeds retained for many years, only shed after adversity such as injury, drought or fire. Collect capsules from older wood. Seeds highly viable, remaining so for many years in storage.

Propagation: From seed or tip cuttings. Smoke treatment further improves germination. Sow light scattering of seed and cover lightly. Germinates in 2-5 weeks. Capillary watering should benefit fine seed. Suitable for direct seeding into pots.

Regeneration: From seed, suckers and lignotubers. Regenerates quickly after soil disturbance.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks, particularly on poorly drained sites.

Land Protection: Useful in controlling erosion due to soil-binding fibrous roots, and for revegetating swampy areas.

Wildlife: Excellent habitat. Prickly foliage excellent refuge for small birds, particularly dense thickets. Flowers are a good pollen and nectar source for many native insects, including moths and butterflies.

Koori: Implements made from stems, including pegs for kangaroo skins, hunting spears and eel spears.

Ornamental: Attractive, particularly when planted to form dense thickets. Flowers prolifically. Prune from early age to encourage bushiness.

Other: Stems used for tea-tree fencing and for plant stakes. Used in colonial medicine.

Leptospermum grandifolium — Mountain Tea-tree

Also: Woolly Tea-tree

Family: Myrtaceae — Myrtle family.

Name Origin: *Leptospermum* — from Greek *leptos*, slender, and *sperma*, seed, referring to narrow seeds of some species. *grandifolium* — from Latin *grandis*, large and *folium*, foliage, referring to large leaves.



OCCURRENCE:

Regional: Noted in the upper Murray areas: Rosewood Plateau; Paddy's River-Burra Valley; Maragle; Tooma; Ardenside-Welaregang; Lower Tooma-Greg Greg and Bringenbrong-Khancoban.

Australia: NSW, Vic, Tas.

Habitat: Sandy swamps and rocky streambanks.

Habit: Large, fairly dense shrub to small rounded tree 1.5 m to over 6 m high. Leaves mostly 1-3 cm long.

Site Preference: Moist to wet soil such as seepages and streamsides. Tolerates moderate frost.

Characteristics: Adaptable. Moderate to fast growth rate.

Flowering: White, Oct-Jan.

Seed Collection: Any time. Seeds retained for many years, and shed after adversity such as injury, drought or fire. Collect capsules from older wood. Seeds highly viable, remaining so for many years in storage.

Propagation: From seed or cuttings, which strike readily. Sow light scattering of seed and cover lightly. Germinates in 2-5 weeks. Capillary watering should benefit fine seed. Suitable for direct seeding into pots.

Regeneration: From seed.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Useful in controlling streambank and gully erosion due to soil-binding fibrous roots.

Timber: Used for turning.

Wildlife: Excellent habitat. Prickly foliage excellent refuge for small birds, particularly dense thickets. Flowers are a good pollen and nectar source for many native insects, including moths and butterflies. Insect-eating birds attracted.

Ornamental: Attractive. Prune to promote bushiness.

Other: Used in colonial medicine.

Leptospermum lanigerum — Woolly Tea-tree

Family: Myrtaceae — Myrtle family.

Name Origin: *Leptospermum* — from Greek *leptos*, slender, and *sperma*, seed, referring to narrow seeds of some species. *lanigerum* — from Latin *lana*, wool, and *gerus*, bearing, referring to woolly flower parts.



OCCURRENCE:

Regional: Noted only in Upper Gilmore. Possibly also in similar country nearby.

Australia: NSW, Vic, Tas, SA.

Habitat: Open eucalypt communities, sandy swamps and along watercourses.

Habit: Erect, dense tall shrub to over 5 m high. Smooth bark and often silvery new growth.

Site Preference: Moist soil. Tolerates most frost, and a range of acidic to alkaline soils. Tolerates heavy, poorly-drained soil.

Characteristics: Very hardy. Moderate growth rate. Lifespan up to several decades.

Flowering: White, Oct-Jan. Prolific.

Seed Collection: Any time. Seeds retained for many years, and shed after adversity such as injury, drought or fire. Collect capsules from older wood. Seeds highly viable, remaining so for many years in storage.

Propagation: From seed or tip cuttings, which strike readily. Sow light scattering of seed and cover lightly. Germinates in 2-5 weeks. Capillary watering should benefit fine seed. Suitable for direct seeding into pots. Smoke treatment enhances germination.

Regeneration: From seed, dispersed by wind and water. Regenerates well along creeks and rivers and in swampy areas.

VALUES:

Shade & Shelter: Excellent low-level cover in windbreaks.

Land Protection: Excellent in controlling creekside and gully erosion due to soil-binding fibrous roots. Branches root when contact made with moist soil.

Wildlife: Excellent habitat. Foliage excellent refuge for small birds, particularly in dense thickets. Flowers are a good pollen and nectar source for many native insects, including moths and butterflies. Insect-eating birds attracted.

Koori: Implements made from stems, including pegs for kangaroo skins, hunting spears and eel spears.

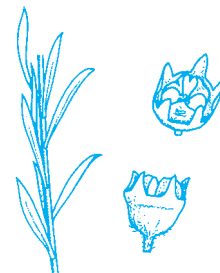
Ornamental: Attractive for screening, hedges, pond edges and bog gardens. Shallow roots do not interfere with footpaths or utilities. Tip prune regularly to encourage bushy growth.

Other: Used in colonial medicine.

Leptospermum multicaule — Silver Tea-tree

Family: Myrtaceae — Myrtle family.

Name Origin: *Leptospermum* — from Greek *leptos*, slender, and *sperma*, seed, referring to narrow seeds of some species. *multicaule* — from Latin *multi*, many and *caulis*, stem, referring to many stems.



OCCURRENCE:

Regional: Noted around the centre of the region in the areas: Upper Back-Upper Jerra Jerra; Sawyers-Forest-Four Post & Little Billabong; O'Briens South & McLeods; Burkes & Graveyard; Major and Murraguldrie.

Australia: NSW, Vic.

Habitat: Woodland on dry hills.

Habit: Shrub to 2 m high with smooth bark. Generally silky younger stems and variable, usually narrow leaves 2-10 mm long.

Site Preference: Full sun or semi-shade. Tolerates most frost.

Flowering: White or pink, Oct-Nov.

Propagation: From seed or cuttings, which strike readily. Sow light scattering of seed and cover lightly. Germinates in 2-5 weeks. Capillary watering should benefit fine seed. Suitable for direct seeding into pots.

VALUES:

Shade & Shelter: Could be planted in windbreaks as understorey plant.

Land Protection: Stabilises soil.

Wildlife: Good habitat.

Ornamental: Very attractive due to silvery foliage and pink flowers. Useful dense groundcover for gardens, parks and roadsides. Ability to form dense thickets may be useful in landscaping larger areas.

Leptospermum obovatum — River Tea-tree

Also: Blunt-leaf Tea-tree

Family: Myrtaceae — Myrtle family.

Name Origin: *Leptospermum* — from Greek *leptos*, slender, and *sperma*, seed, referring to narrow seed of some species. *obovatum* — from Latin *obovatus*, referring to obovate (broadest beyond middle) leaves.



OCCURRENCE:

Regional: Noted in the areas: Deadman's-Bungowannah-Long Flat; Munderoo; Tooma; Lower Tooma-Greg Greg; Bringenbrong-Khancoban; Greenhills-Upper Tarcutta and Upper Adelong-Upper Yaven. Possibly also in areas surrounding those noted.

Australia: NSW, Vic.

Habitat: Swampy places, or among granite or sandstone rocks along swiftly flowing streams.

Habit: Upright, erect, dense green shrub to over 2 m high. Smooth firm bark and aromatic leaves 5-20 mm long.

Site Preference: Moist soils. Tolerates inundation, most frost and dry periods.

Characteristics: Very hardy.

Flowering: White, Nov-Jan.

Seed Collection: Any time. Seeds retained on plants for many years, and shed after adversity such as injury, drought or fire. Collect capsules from older wood. Seeds highly viable, remaining so for many years in storage.

Propagation: From seed or tip cuttings, which strike readily. Sow light scattering of seed and cover lightly. Germinates in 2-5 weeks. Capillary watering should benefit fine seed. Suitable for direct seeding into pots.

Regeneration: From seed dispersed by insects, including ants.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Excellent for controlling streambank and gully erosion due to soil-binding fibrous roots.

Wildlife: Excellent streamside habitat. Shade and insect source for fish. Submerged branches fish habitat. Flowers are a good pollen source for many insects, including moths and butterflies, and nectar source for birds.

Ornamental: Attractive. Prune regularly to encourage bushiness.

Other: Used in colonial medicine.

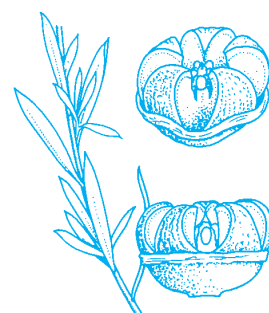
Leptospermum polygalifolium — Lemon-scented Tea-tree

(syn. *L. flavescens*)

Also: Tantoon, Tantoon Teatree.

Family: Myrtaceae — Myrtle family.

Name Origin: From Latin meaning leaves similar to those in genus *Polygale*.



OCCURRENCE:

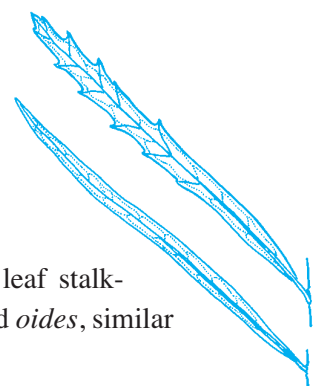
- Regional:** Noted in Munderoo district. Possibly also in surrounding areas.
- Australia:** Qld, NSW.
- Habitat:** Sandy soil or on sandstone or basalt soils, and along rocky watercourses.
- Habit:** Shrub or small tree 1-7 m high with firm, but soft smooth bark. Narrow leaves 5-20 mm long.
- Site Preference:** Resists frost.
- Characteristics:** Fast-growing. Lifespan up to several decades.
- Flowering:** Aug-Jan. Often profuse and honey-scented.
- Propagation:** From seed or cuttings.
- VALUES:**
- Shade & Shelter:** Good low-level cover in windbreaks.
- Land Protection:** Excellent for stabilising creeks and riverbanks due to soil-binding fibrous roots. It also protects banks as it is flexible enough to lie down in floods due to the weight of fast-flowing water.
- Timber:** Close-grained, hard, tough and light-coloured.
- Wildlife:** Good streamside habitat.
- Ornamental:** Attractive garden specimen. Prune to encourage bushiness.
- Other:** Lemon-scented leaves occasionally used as tea substitute in colonial times.

Lomatia myricoides — River Lomatia

(syn. *Lomatia longifolia* plus others)

Also: Long-leaf Lomatia

- Family:** Proteaceae — Protea family.
- Name Origin:** *Lomatia* — from Greek *loma*, fringe or border, referring to leaf stalk-border around seed wing. *myricoides* — from Greek *Myrica* and *oides*, similar to, referring to resemblance *Myrica* species, the Wax Myrtles.

**OCCURRENCE:**

- Regional:** Noted in the areas: Paddy's River-Burra Valley and Tooma. Probably also in surrounding areas in similar country.
- Australia:** NSW, Vic.
- Habitat:** Often along watercourses or in sclerophyll forest, at altitudes up to 1000 m.
- Habit:** Open shrub or small tree 2-5 m high. Narrow leaves 5-20 cm long, with toothed margins.

- Site Preference:** Shaded cool positions in moist well-drained soil. Tolerates most frost, and dry periods once established. Tolerates short periods of wetness.
- Characteristics:** Very attractive river bank shrub.
- Flowering:** Usually creamy (sometimes pink), summer. Fragrant. Flowers regularly except during drought.
- Seed Collection:** Early to late Jul, when follicle becomes dark and splits. Monitor closely as seeds released immediately or within 1-2 days of maturity. Large quantities produced.
- Propagation:** From seed or green hardened cuttings. Germinates readily from fresh seed. Grow young plants in pots for 12 months before planting out. Seedlings from seed and cuttings slow-growing.
- Regeneration:** From seed.
- VALUES:**
- Shade & Shelter:** May be useful low-level cover in windbreaks.
- Land Protection:** Useful in controlling streambank erosion due to soil-binding fibrous roots. Tolerates floods.
- Wildlife:** Probably food source for insect and nectar-feeding birds, and stream habitat for fish.
- Ornamental:** Attractive for screening or informal hedges. Flowers well with summer watering. Lightly prune regularly to promote bushiness. Grows in full sun if ample moisture available.
- Other:** Flowers suitable for indoor decoration.

Mirbelia oxylobioides — Mountain Mirbelia

- Family:** Fabaceae — Pea family.
- Name Origin:** *Mirbelia* — after Charles Francois Brisseau de Mirbel (1776-1854), French botanist. *oxylobioides* — from genus *Oxylobium* and *oides*, like, referring to similarity to *Oxylobium*.

OCCURRENCE:

- Regional:** Noted east of the Hume Highway in the higher rainfall areas: Coppabella; Rosewood Plateau; Bringenbrong-Khancoban; Greenhills-Tarcutta and Upper Gilmore.

Australia: NSW, Vic.

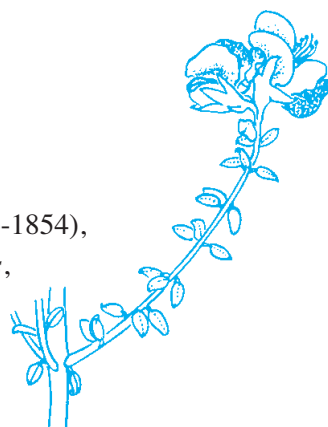
Habitat: Dry sclerophyll forest, chiefly at higher altitudes.

Habit: Spreading or erect open-branched shrub to 1.5 m high, with small leaves 2-10 mm long.

Site Preference: Well-drained soil in semi-shade. Tolerates drought and frost.

Characteristics: Moderate growth rate.

Flowering: Bright orange-yellow with dark red, late spring - early summer.



-
- Seed Collection:** Early to late Dec. Monitor closely as seeds shed immediately or within 1-2 days of maturity.
- Propagation:** From scarified seed, or cuttings of firm young growth (rooting hormones should improve strike rate). Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- VALUES:**
- Shade & Shelter:** Useful low-level cover in windbreaks. Important component of understorey.
- Land Protection:** Legume — improves soil fertility through ‘fixing’ nitrogen.
- Wildlife:** Flowers are a nectar source for native wasps, bees and butterflies.
- Ornamental:** Very attractive for gardens. Lightly prune regularly to promote bushiness.

Muehlenbeckia florulenta — Lignum

(syn. *M. cunninghamii*) **Also:** Tangled Lignum

Family: Polygonaceae

Name Origin: *Muehlenbeckia* — after Henri Gustav Muehlenbeck, 1798-1845, French botanical collector. *florulenta* — from Latin *floris*, flower and *ulentus*, abundant, with abundant flowers.

OCCURRENCE:

Regional: Noted in drier areas to the west, including Urangeline and Urana-Rand-Corowa, in depressions and along creeklines.

Australia: Mainland.

Habitat: Seasonally flooded low-lying areas of grey clay soils, such as swamps and river flats. Often associated with River Red Gum (*Eucalyptus camaldulensis*).

Habit: Intricate, entangled, rounded hairless perennial shrub 1-3 m high and wide. Grey-green stems, often ending in spines.

Site Preference: Tolerates most frost, dry periods and seasonal inundation.

Flowering: Whitish-yellowish, mainly Aug-Mar. Small.

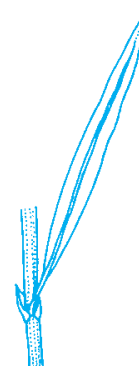
Seed Collection: Early Jan to late Apr.

Propagation: From seed, or cuttings of firm young growth. Untreated seeds germinate in 1-2 weeks.

Regeneration: Regenerates relatively quickly following flooding or wet years.

VALUES:

Shade & Shelter: Provides stock shelter where it occurs naturally.



-
- Wildlife:** Highly valuable habitat. Favoured breeding ground for wildfowl. Rich in pollen and nectar.
- Ornamental:** Not ornamental.
- Other:** Often in dense stands that restrict access. Stock do not readily graze Lignum except when other feed scarce. Can be controlled in cultivation by burning or other means, but usually regenerates fairly quickly.

Myoporum montanum — Water Bush

Also: Western Boobialla, Boobialla, Native Daphne, Native Myrtle.

- Family:** Myoporaceae
- Name Origin:** *Myoporum* — from Greek *myo*, to be closed and *poros*, pore, referring to closed appearance of leaf glands. *montanum* — from Latin *montanum*, of the mountains.



OCCURRENCE:

- Regional:** Noted in the areas Majors Creek-West Hume and Urana-Rand-Corowa.
- Australia:** Mainland states and territories.
- Habitat:** Sclerophyll forest, mallee and White Cypress Pine communities.
- Habit:** Hairless erect bushy shrub or small tree to 8 m high. Finely fissured bark and narrow leaves about 3-14 cm long. Usually scattered plants or in small, relatively dense colonies.
- Site Preference:** Well-drained soil in full sun. Tolerates severe drought.
- Characteristics:** Low flammability. Appears to be very unpalatable to livestock.
- Flowering:** White, spotted purple, winter-summer.
- Seed Collection:** Early Feb to late Mar. Monitor closely as seeds shed 3-14 days after maturity.
- Propagation:** From seed or cuttings of firm young growth. Remove fruit flesh and soak overnight in warm water before sowing. Sow fresh seed late summer to early autumn. Cover with 2-3 mm of seed raising media and 4 mm of fine gravel. Place seed trays in open shaded position.

VALUES:

- Shade & Shelter:** Excellent low-level cover for windbreaks.
- Wildlife:** Excellent habitat. Flowers are a good pollen and nectar source. Fruits food for native birds.
- Koori:** Gum from stems used as glue, and leaves used medicinally in some areas.
- Ornamental:** Attractive ornamental for garden windbreaks, parks, screens or informal hedges. Prune lightly and regularly to promote bushiness.

Persoonia rigida — Hairy Geebung

(syn. *P. spathulata*)

Also: Stiff Geebung.

Family: Proteaceae — Protea family

Name Origin: *Persoonia* — after Christiaan Hendrik Persoon (1755-1837), French mycologist. *rigida* — from Latin *rigida*, stiff, referring to habit.



OCCURRENCE:

Regional: Predominantly east of the Olympic Highway in rocky outcrops and hill country.

Australia: NSW, Vic.

Habitat: Woodland to dry sclerophyll forest or drier heaths, in sandy or rocky soil.

Habit: Dense erect to spreading shrub 1-3 m high with hairy branchlets and pale green foliage.

Site Preference: Well-drained stony acidic soil, in semi/ dappled shade or full sun. Tolerates frost.

Flowering: Yellow, Nov-Jan. Rarely profuse.

Seed Collection: Collect ripe fruit from ground beneath parent plants.

Propagation: From cuttings of very young growth, or seed (difficult to germinate). Cuttings callus well but do not root readily. Hormone treatment appears to improve rooting. Before sowing, compost fruit to remove flesh and rinse seeds well. Appears to be germination inhibitor, but composting fruit or treating seed with gibberellic acid should overcome this.

Regeneration: From seed, after fire.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Wildlife: Flowers pollinated by native bees seeking nectar. Possums, including gliders, eat fruit.

Koori: Fruits eaten (skins and seeds discarded).

Ornamental: Attractive ornamental. Decorative foliage and colourful flowers.

Other: Potential for cut foliage production.

Platylobium formosum — Handsome Flat-pea

Family: Fabaceae — Pea family.

Name Origin: *Platylobium* — from Greek *platys*, flat, and *lobos*, pod, referring to flat pods. *formosum* — from Latin *formosus*, beautiful.

OCCURRENCE:

Regional: Widespread, in most areas of the region.



Australia:	Qld, NSW, Vic, Tas.
Habitat:	Various habitats, from heath to rainforest margins.
Habit:	Erect, straggling or prostrate shrub, to 2.5 m high. Green leaves 1-6.5 cm long.
Site Preference:	Moist well-drained soil in semi-shade. Tolerates frost and drought.
Characteristics:	Very variable in leaf shape, leaf size, flowers and pods.
Flowering:	Yellow and red, spring to early summer.
Seed Collection:	Mid to late Dec. Monitor closely as seeds shed immediately or very soon after maturity. Ensure collection by securing nylon stockings or paper bags to fruiting branches after flowering.
Propagation:	From scarified seed (which may be difficult to germinate); from cuttings of young growth, or layered stems. Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot). Add local soil to potting mix to introduce beneficial micro-organisms, and enhance success.
Regeneration:	From seed, particularly after fire.
VALUES:	
Shade & Shelter:	Useful low-level cover in windbreaks. Important component of understorey.
Land Protection:	Legume — improves soil fertility through ‘fixing’ nitrogen.
Wildlife:	Good habitat. Native bees, wasps and butterflies pollinate flowers. Parrots, including the Red-rumped Parrot and Turquoise Parrot, and finches eat seeds.
Ornamental:	Highly attractive ornamental for gardens and embankments, particularly when flowering.
Other:	Very adaptable in cultivation.

Polyscias sambucifolia — Elderberry Panax

(syn. *Tieghemopanax sambucifolius*)

Also: Ornamental Ash

Family:	Araliaceae
Name Origin:	<i>Polyscias</i> — from Greek <i>poly</i> , many, and <i>scias</i> , canopy, umbel, referring to generally large umbels.



OCCURRENCE:	
Regional:	Noted in Munderoo district. Probably also in similar country in surrounding areas.
Australia:	Qld, NSW, Vic, Tas.
Habitat:	Wet or dry sclerophyll forest, open forest, woodland and rainforest. Moist gullies or sheltered slopes.

- Habit:** Tall shrub to small tree, to 5 m high.
- Site Preference:** Well-drained soils. Tolerates extended wet periods, and shade to semi-shade.
- Characteristics:** Highly variable appearance. Fast-growing.
- Flowering:** Yellow-green, Nov-Feb. Profuse, but rarely conspicuous.
- Seed Collection:** When berries translucent steely-blue and edible.
- Propagation:** From seed or cuttings of firm young growth.
- Regeneration:** Suckering roots. May form dense colonies.
- VALUES:**
- Land Protection:** Stabilises soils along gullies where it naturally occurs.
- Ornamental:** Excellent for shady moist gardens, indoor containers, and for quick-growing screens. Responds to pruning. Remove suckers at ground level.

Pomaderris species — Pomaderris

- Family:** Rhamnaceae — Buckthorn family.
- Name Origin:** *Pomaderris* — from Greek *poma*, lid, and *derris*, skin/ fur/ leather covering, alluding to membranous capsule covering, in some species.

OCCURRENCE: *Pomaderris* species in the region include:

- | | |
|------------------------|---|
| Hazel Pomaderris | <i>P. aspera</i> |
| Narrow-leaf pomaderris | <i>P. phyllicifolia</i> var. <i>phyllicifolia</i> |
| Pomaderris | <i>P. angustifolia</i> |
| Pomaderris | <i>P. eriocephala</i> |
| Velvet Pomaderris | <i>P. velutina</i> |
| Woolly Pomaderris | <i>P. lanigera</i> |

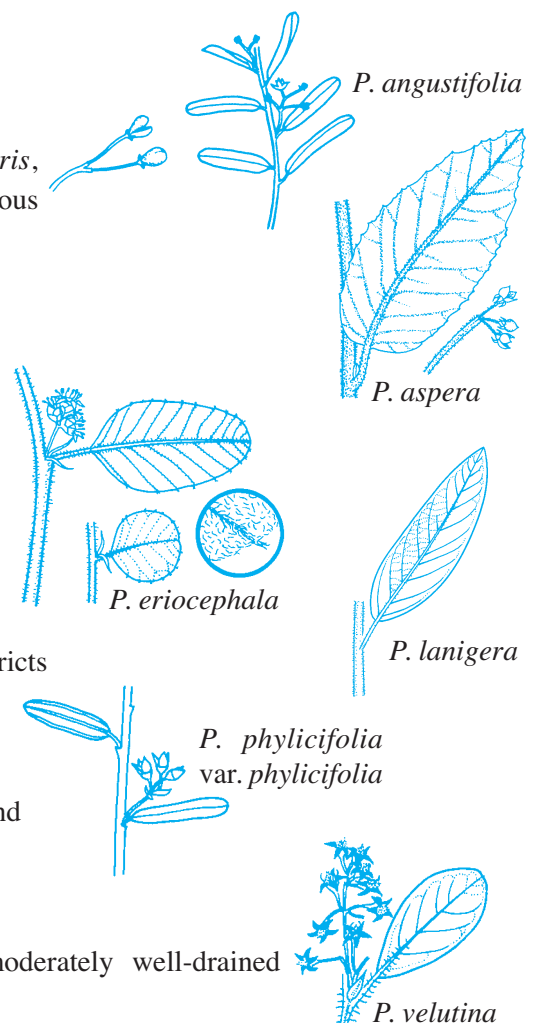
Regional: Noted in the higher rainfall areas, particularly districts in the Riverina Highlands.

Australia: Vic, NSW. Some also in Qld.

Habitat: Most *Pomaderris* species occur along gullies and streams, in open forest and woodland.

Habit: Shrubs 1-3 m high, many with hairy stems.

Site Preference: Generally semi-shade/sheltered situations in moderately well-drained soils. Most tolerate moderate frost.



- Flowering:** Spring.
- Seed Collection:** Early to late summer. Monitor closely as seeds shed 3-14 days after maturity.
- Propagation:** From seed, which may require scarification, or cuttings of firm young growth. Pour boiling water over seeds and soak before sowing, or apply dry heat at 150°C for 10 minutes.
- VALUES:**
- Land Protection:** Useful for stabilising soils along streams and gullies where they occur.
- Wildlife:** Hazel Pomaderris — trunks habitat for lichens. Hosts larvae of Jewell butterflies.
- Ornamental:** Pomaderris (*P. angustifolia*) has few ornamental qualities. Hazel Pomaderris (*P. aspera*) is excellent for copses and beneath established trees. Woolly Pomaderris (*P. lanigera*) is highly ornamental. Pomaderris (*P. eriocephala*) and Narrow-leaf Pomaderris (*P. phyllicifolia* var. *phyllicifolia*) are decorative.

Prostanthera lasianthos — Mint Bush

Also: Victorian Christmas Bush

- Family:** Lamiaceae — Mint family.
- Name Origin:** *Prostanthera* — from Greek *prostheke*, appendage, and *anthera*, anther, alluding to spur-like anther appendage. *lasianthos* — from Greek *lasios*, woolly, and *anthera*, anther, referring to woolly anthers.



OCCURRENCE:

- Regional:** Noted in the areas: Bowna-Jindera; Yambla and Upper Gilmore. Probably also in similar country in surrounding areas.
- Australia:** Qld, NSW, Vic, Tas.
- Habitat:** Rainforest, sclerophyll forest and subalpine woodland, mainly along watercourses and moist gullies.
- Habit:** Shrub to small tree, usually 1-6 m high. Bushy crown of aromatic leaves 4-12 cm long.
- Site Preference:** Moist, well-drained soil in shady areas. Tolerates frost.
- Characteristics:** Fast-growing.
- Flowering:** White to pale-mauve with purple spots, Nov-Mar.
- Seed Collection:** Early to late Jan. Monitor closely as seeds shed immediately or 1-2 days after maturity.
- Propagation:** From cuttings of short laterals with heels, Feb to July, or from fresh seed which may give erratic results. Cuttings may be slow to strike. Mist may rot cuttings.
- Regeneration:** From seed.

VALUES:

Timber: Hard and tough. Saplings used for fishing rods.

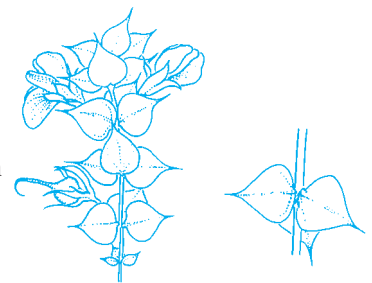
Wildlife: Flowers food for native bees and wasps.

Ornamental: Attractive ornamental. Spectacular in flower. Useful screen, although requires protection from strong wind. Benefits from mulching, summer watering and pruning after flowering.

Pultenaea cunninghamii — Grey Bush-pea

Family: Fabaceae — Pea family.

Name Origin: *Pultenaea* — after Richard Pulteney (1730-1801), English botanist. *cunninghamii* — after A. Cunningham, Australian explorer.



OCCURRENCE:

Regional: Predominantly east of the Olympic Highway. Noted in the areas: Bowna-Jindera; Yambla; Talmalmo-Murray; Scent Bottle-Serpentine-Upper Yarra Yarra; Coppabella; Lower Adelong and Upper Gilmore and Sandy.

Australia: Qld, NSW, Vic.

Habitat: Dry sclerophyll woodland to forest, generally on sandy or stony soil.

Habit: Erect spreading shrub 50 cm to 2 m high. Drooping branchlets, grey-green leaves pointed at tips. Growing tips often pink/orange.

Site Preference: Well-drained soil in partial sun. Tolerates drought and frost.

Flowering: Yellow-orange with red, Oct-Dec. Usually flowers for 4-6 weeks.

Seed Collection: Mid Oct to late Feb. Monitor closely as seeds shed immediately or within 1-2 days of maturity.

Propagation: From scarified seed, or cuttings of firm young growth (rooting hormones should improve strike rate). Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).

Regeneration: From seed, particularly after fire.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks. Important understorey component.

Land Protection: Legume — improves soil fertility through ‘fixing’ nitrogen.

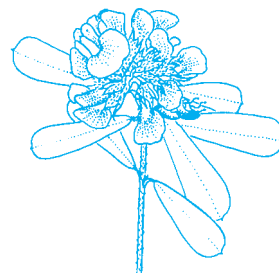
Wildlife: Good habitat. Flowers are a nectar source for native wasps and bees. Wallabies graze foliage.

Ornamental: Attractive ornamental. Interesting, colourful foliage.

Pultenaea daphnoides — Bush-pea

Family: Fabaceae — Pea family.

Name Origin: *Pultenaea* — after Richard Pulteney (1730-1801), English botanist. *Daphne* — a nymph in Greek mythology, meaning exotic shrub.



OCCURRENCE:

Regional: Noted in Mountain Tunnel catchment. Probably also occurs in surrounding areas.

Australia: Qld, NSW, Vic, Tas, SA.

Habitat: Shrubby understorey of open dry sclerophyll forest on drier hilly terrain, with stony or sandy soils.

Habit: Erect branching shrub 1-2 m high.

Site Preference: Well-drained soil. Tolerates dryness once established.

Characteristics: Moderate to fast growth rate.

Flowering: Yellow with red, Sep-Nov. Large.

Seed Collection: Monitor closely as seeds shed immediately or within 1-2 days of maturity.

Propagation: From scarified seed or cuttings of firm young growth (rooting hormones should improve the strike rate). Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting (to which seed are prone) and sow. Germination occurs in 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).

Regeneration: From seed, particularly after fire.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks.

Land Protection: Legume — improves soil fertility through ‘fixing’ nitrogen.

Wildlife: Good habitat. Flowers are a nectar source for native wasps and bees. Wallabies graze foliage.

Ornamental: Attractive soft ornamental.

Pultenaea foliolosa — Bush-pea

Family: Fabaceae — Pea family.

Name Origin: *Pultenaea* — after Richard Pulteney (1730-1801), English botanist. *foliolosa* - from Latin *folium*, leaf, and *osus*, abounding in, referring to abundant leaves.



OCCURRENCE:

Regional: Widespread in most areas east of the Olympic Highway. Also in the areas: Albury; Narrandera-Morundah-Galore-Collingullie; The Rock-Henty-Milbrulong, and Brookong.

Australia: Qld, NSW, Vic

Habitat: Dry sclerophyll forest to woodland, on various well-drained soils.

Habit: Erect to spreading shrub, with small leaves usually 1-4 mm long.

Seed Collection: Mid Oct to late Feb. Monitor closely as seeds shed immediately or within 1-2 days of maturity.

Propagation: From scarified seed, or cuttings of firm young growth (rooting hormones should improve strike rate). Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).

Regeneration: From seed, particularly after fire.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks. Important component of understorey.

Land Protection: Legume — improves soil fertility through ‘fixing’ nitrogen.

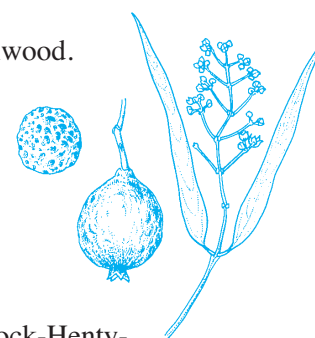
Wildlife: Good habitat. Flowers are a nectar source for native wasps and bees. Wallabies graze foliage.

Santalum acuminatum — Quandong

Also: Sweet Quandong, Native Peach, Desert Quandong, Sandalwood.

Family: Santalaceae

Name Origin: *Santalum* — from Greek *santalón*, the Sandalwood tree.
acuminatum — from Latin *acuminatus*, sharp or pointed, referring to leaves.

**OCCURRENCE:**

Regional: Mainly west of the Olympic Highway. Noted in the areas: The Rock-Henty-Milbrulong; Boree; Brookong and Urangeline. Probably previously more widespread, but now confined to isolated patches.

Australia: Qld, NSW, SA, WA, NT.

Habitat: Various woodland communities, sandy sites to gravelly ridges.

Habit: Erect spindly shrub or small shapely tree to 6 m high. Spreading to drooping branches, and sparse pale to olive-green narrow leaves 3-9 cm long, in opposite pairs.

Characteristics: Parasitic on roots of other plants, at least when young.

Flowering: Whitish or cream, spring-summer or throughout year.

- Seed Collection:** Early Aug to late Nov. Monitor closely as seeds shed immediately or within 1-2 days of maturity.
- Propagation:** From seed. Before sowing, soak fruits in mild bleach solution for 30 minutes, then wash thoroughly in water. Sow fruits whole, or to hasten germination, gently crack or remove outer shells. Place nuts into sealed plastic bag with moist vermiculite and small amount of fungicide. Store at 16-25°C. Seeds will germinate in 1-2 months. Carefully remove seeds when roots are about 1 cm long and place in large containers. Plant seedlings in 12 months with host plants, such as native grasses. Alternatively, plant seeds directly over host roots.
- VALUES:**
- Timber:** Heartwood hard, close-grained, and flesh-coloured; sapwood creamy-pink. Emits pleasant fragrance when freshly cut. Works very well. Excellent for cabinet work, taking fine polish.
- Koori:** Wood used for making fire. Fruit useful food source. Scarlet acidic fruit pulp, rich in vitamin C was favoured, and sometimes a staple for short periods. Dried fruit from beneath trees soaked in water, or fashioned into cakes for storage. Oily kernels also eaten. Some trees produce sweet almond-flavoured kernels, while others produce distasteful ones.
- Ornamental:** Attractive.
- Other:** European settlers favoured quandong fruit for pies, jellies, jams and dried fruit. Foliage has some fodder value. Edible fruits suitable as 'bush foods'.

Santalum lanceolatum — Northern Sandalwood

Also: Plum bush, Native Plum, Cherry Bush

- Family:** Santalaceae — Santalum family
- Name Origin:** *Santalum* — from Greek *santalón*, Sandalwood tree.
- OCCURRENCE:**
- Regional:** Noted in the Brungle Bridge-Gundagai area.
- Australia:** Qld, NSW, Vic, SA, WA, NT.
- Habitat:** Various woodland communities, from sandy sites to rocky hillsides.
- Habit:** Much-branched erect shrub 3-7 m high. Bluish-green leaves 3-6 cm long.
- Characteristics:** Parasitises roots of other plants, at least when young.
- Flowering:** Throughout year, but mainly Aug-Dec.
- Seed Collection:** Collect drupe when dark blue or purple.
- Propagation:** From seed. Soak seeds in mild bleach solution for 30 minutes, then wash carefully. Shell can be cracked and removed, or planted whole. Place seeds in plastic bag with moist vermiculite (and fungicide), then secure to make airtight. Keep at 16-25°C. Should germinate in about



1 month. Carefully remove when root is about 1 cm long and plant into a pot or into the field. Seedlings require a host plant for at least the first year.

VALUES:

Fuel: Emits aromatic scent when burning.

Wildlife: Edible sweet drupe eaten by emus.

Koori: Fruits were eaten.

Other: Foliage useful fodder.

Senna artemisioides varieties — Silver Cassia

(syn. *Cassia artemisioides*) **Also:** Cassia, Punty

Family: Caesalpinaceae

Name Origin: *Senna* — from Arabic name. *artemisioides* - from genus *Artemisia* and *oides*, like, referring to similarity.



OCCURRENCE:

Regional: Widespread mainly west of the Olympic Highway in drier areas and lighter soils.

Australia: Qld, NSW, SA, WA, NT.

Habitat: All three varieties are on inland plains. All except Silver Cassia also inhabit rocky slopes.

Habit: Small bushy shrubs, 1-3 m high, with silver-grey leaves.

Similar Species: Three varieties in region are: Silver Cassia — *S. artemisioides* var. *artemisioides*; Woody Cassia — *S. artemisioides* var. *petiolaris*; and *S. artemisioides* var. *zygophylla*.

Site Preference: Moderately well-drained soil, in full sun. Tolerates drought and frost, although heavy frost may damage tips.

Characteristics: Fast-growing. Short-lived. Three varieties tend to hybridise.

Flowering: Golden-yellow, winter and spring. Sweet scented.

Seed Collection: Early Dec to mid Mar. Monitor closely as seeds shed immediately or 1-2 days after maturity.

Propagation: From scarified seed. Try boiling or hot water soaking treatment, and dry seed before sowing to prevent rotting. Also from cuttings.

Regeneration: Seeds readily. Establishes readily when direct seeded.

VALUES:

Shade & Shelter: Useful low-level cover in windbreaks. Important component of understorey.

Land Protection: Legume — improves soil fertility through ‘fixing’ nitrogen.

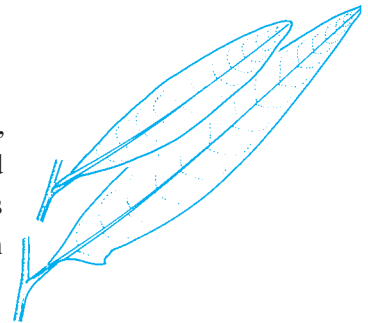
- Wildlife:** Excellent habitat.
- Ornamental:** Ornamental for gardens or as low hedge. Attractive foliage and abundant flowers. Prune lightly after flowering to maintain shape (becomes straggly with age) and promote flowering.

Solanum simile — Oondoroo

Family: Solanaceae — Solanum family

OCCURRENCE:

Regional: A rare plant of the area, noted in a few scattered locations, including on the lower country of Long Plain-West Hume and in The Rock-Henty-Milbrulong region (east of Pleasant Hills on stony country). Likely to have been more common throughout the region.



Australia: NSW, Vic, SA, WA.

Habitat: Drier disturbed areas, gravel creekbanks and roadside verges. Mainly red earths in communities including White Cypress Pine, Wilga and Belah.

Habit: Erect, hairless shrub to 2 m high. Deep-green leaves 3-8 cm long.

Flowering: Purple, chiefly spring.

Seed Collection: Mid Dec to mid Mar. Globular berry. Monitor closely as mature fruits shed in 3-14 days.

Propagation: From fresh seed. Wash before sowing. Germinates in 3-6 weeks. Suitable for direct seeding into pots.

Regeneration: Abundant after fire.

VALUES:

Land Protection: A useful 'pioneer' plant for revegetation works, establishing quickly and providing shelter for slower growing species.

Styphelia triflora — Pink Five Corners

Family: Epacridaceae — Epacrid family.

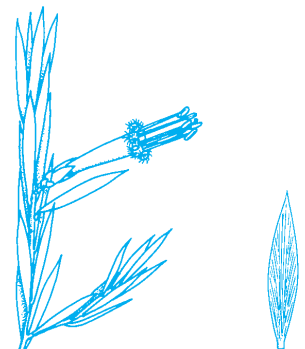
Occurrence:

Regional: Noted at Mates Gully subcatchment.

Australia: Qld, NSW.

Habitat: Sclerophyll forest and woodland with *Casuarina*, *Callitris* and Box species. Sandy soils or loams on various substrates.

Habit: Erect diffuse to bushy shrub 40 cm to 2 m high. Sharp-pointed stiff leaves.



-
- Site Preference:** Well-drained soil with some shade.
- Flowering:** Usually pink to red, or occasionally cream or pale yellow-green, mainly Apr-Oct. Tubular.
- Propagation:** From seed. May take several weeks to germinate. Difficult from cuttings.
- Values:**
- Shade & Shelter:** Could be planted as understorey plant in windbreaks.
- Land Protection:** Stabilises soil.
- Ornamental:** Attractive ornamental due to flowers and compact habit.

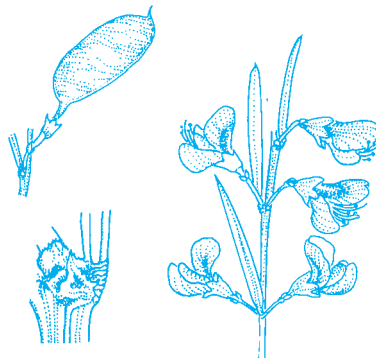
Plant Descriptions *Small Shrubs* *and Groundcovers*





small shrubs and groundcovers

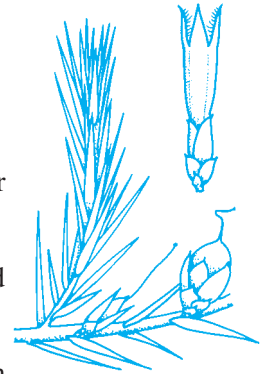
Common Name	Botanical Name	Page
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Astroloma humifusum — Native Cranberry

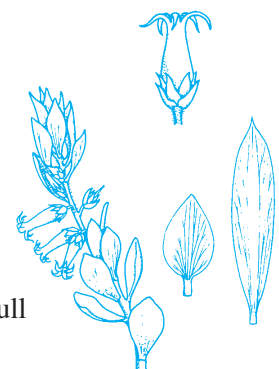
Also: Cranberry Heath

- Family:** Epacridaceae — Epacris family.
- Occurrence:** Noted in the higher rainfall areas: Coppabella; Jingellic and Upper Gilmore.
- Habitat:** Ridges and slopes in dry sclerophyll forest over sandstone, shales and basalt, often in disturbed sites.
- Habit:** Small, mat-forming densely-branched shrub with branches to 50 cm high. Bright to dark red tubular flowers, particularly May-Sep, and blue-green stiff, prickly narrow leaves.
- Seed Collection:** Harvest *Astroloma* seed early Sep to late Mar. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** From cuttings of very young but firm new growth. Difficult to root, and propagate from seed.
- Values or Uses:** Widely cultivated for rockeries, embankments, groundcover and planting beneath larger shrubs. The sweet fruits were eaten by the Kooris, and can be used in jams and jellies. Apparently not eaten by stock, due to its prickliness. Good habitat — provides nectar for native birds.
- Comments:** Requires well-drained soil. Tolerates frost and extended dry periods. Responds well to pruning.



Brachyloma daphnoides — Daphne Heath

- Family:** Epacridaceae — Epacris family.
- Occurrence:** Widespread in hilly country east of the Olympic Highway.
- Habitat:** Heath, dry sclerophyll forest and woodland on sand, sandy loams or occasionally more clayey soils.
- Habit:** Upright shrub 40-150 cm high with bristly branchlets and small dull grey-green leaves. Creamy honey-scented flowers, mainly Aug-Dec.
- Propagation:** From cuttings of fresh new growth. Prune or burn parent plants to obtain growth for cuttings. Difficult from seed, although smoking may improve results.
- Values or Uses:** Good wildlife habitat. Nectar-rich flowers are food for birds, particularly honeyeaters. Attractive garden ornamental. Kooris ate the raw fruit.
- Comments:** Requires well-drained soil in dappled shade or partial sun. Frost tolerant. Slow-growing.



Cheiranthra linearis — Finger Flower

(syn. *C. cyanea* var. *cyanea*)

- Family:** Pittosporaceae
- Habitat:** Sclerophyll woodland and forest. Sometimes on disturbed sites, on sandy and stony soils.
- Habit:** Small, hairless, more or less erect shrub to about 50 cm high. Deep blue flowers, summer-autumn.
- Propagation:** From seed or cuttings.
- Values or Uses:** Decorative. Excellent for gardens and containers.
- Comments:** Prefers well-drained soils and dappled shade or partial sun. Tolerates full sun, frost and extended dry periods.



Cryptandra amara var. *longifolia* — Pretty Cryptandra

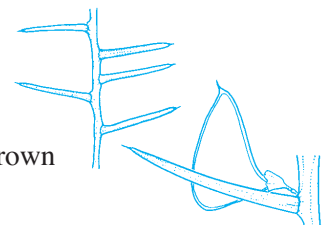
Also: Bitter Cryptandra, Spiny Cryptandra

- Family:** Rhamnaceae
- Occurrence:** Noted in the areas: Burrumbuttock-West Hume and Upper Gilmore. Probably also in similar country surrounding those noted.
- Habitat:** Open country, particularly heathland. Usually on shallow gravelly or skeletal soils. Also on red earths.
- Habit:** Shrub to 1 m high, often intricately branched, the smaller branches sometimes ending in spines, with small leaves and conspicuous, white flowers mainly Aug-Sep.
- Seed Collection:** Cover fruiting branches with paper bags or nylon stockings after flowering to catch seed.
- Propagation:** Generally grown from cuttings which may be slow to root.
- Values or Uses:** Good habitat, attracting insect-eating native birds. Attractive ornamental for shrubberies and rockeries due to its flowering. Flowers are long-lasting and have cut-flower potential.
- Comments:** May be slow-growing. Abbreviated to *Cryptandra amara* in the General Native Vegetation Profiles.



Daviesia genistifolia — Broom Bitter-pea

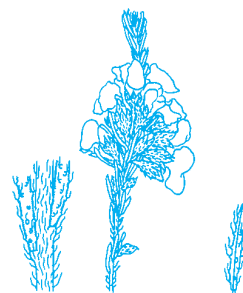
- Family:** Fabaceae — Pea family
- Habitat:** Sclerophyll communities, on sandy soils.
- Habit:** Spiny, erect slender shrub 50 cm to 2 m high, with tiny orange-brown flowers Aug-Nov.
- Seed Collection:** Early Dec-late Jan. Monitor closely as mature seeds shed immediately or in 1-2 days.



- Propagation:** From scarified seed. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively, soak in cold water for several hours before drying and sowing.
- Values or Uses:** Legume — improves soil fertility through ‘fixing’ nitrogen. Important component of understorey. Excellent refuge plant for native birds.

Dillwynia sericea — Showy Parrot-pea

- Family:** Fabaceae — Pea family.
- Occurrence:** Widespread east of the Olympic Highway. Also noted in the areas: Long Plain-West Hume and Albury district.
- Habitat:** Exposed heath, woodland and dry sclerophyll forest on a range of soils.
- Habit:** Upright shrub 50 cm to 1 m high with stiff hairy stems, linear leaves and conspicuous yellow and red flowers, spring to early summer.
- Seed Collection:** Late Oct-late Feb. Monitor closely as mature seeds released immediately or within 1-2 days.
- Propagation:** From scarified seed. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively, soak in cold water for several hours before drying and sowing.
- Values or Uses:** Legume — improves soil fertility through ‘fixing’ nitrogen. Important component of understorey. Excellent for beneath established trees, for screening and in containers. Prune regularly after flowering.



Gompholobium huegelii — Pale Wedge-pea

Also: Common Wedge-pea

- Family:** Fabaceae — Pea family.
- Occurrence:** Noted in the areas of Albury and Upper Jerra Jerra-Upper Back. Probably previously more widespread prior to grazing pressures.
- Habitat:** Dry sclerophyll forest and heath, on sandy to gravelly soils at moderate altitudes.
- Habit:** Erect or spreading small shrub to about 1 m high with leaves 5-20 mm long, in threes (trifoliate). Pale to bright yellow flowers in spring.
- Seed Collection:** Late Dec-late Jan. Monitor closely as seed released immediately or within 1-2 days of maturity.
- Propagation:** From scarified seed. Soak in near-boiling water for about 30 seconds, before cooling rapidly under flowing cold water. Alternatively, soak in cold water for several hours before drying and sowing. Suitable for direct seeding in pots (2-3 seeds per pot).
- Values or Uses:** Excellent ornamental for gardens and containers, due to attractive flowers displayed beyond the fine foliage. Prune regularly from when young and after flowering to promote bushiness. Useful for low-level cover in windbreaks and in revegetating recharge areas. Legume — improves soil fertility through ‘fixing’ nitrogen. Important component of understorey.





(F. Stelling)

Blackwood, *Acacia melanoxylon*.



(F. Stelling)

Currawang, *A. doratoxylon*.



(F. Stelling)

Silver Wattle, *A. dealbata*.



(G. Watson)

Lightwood, *A. implexa*.



(D. Marini)

Kangaroo Thorn, *A. paradoxa*.



(F. Stelling)

Golden Wattle, *A. pycnantha*.



(D. Marini)

Gold-dust Wattle, *A. acinacea*.



(A. Gibb)

Varnish Wattle, *A. verniciflua*.



(F. Stelling)

Hairy Bursaria, *Bursaria lasiophylla*.



(F. Stelling)

Hairy Bursaria, *Bursaria lasiophylla*.



(G. Johnson)

Pale Wedge-pea, *Gompholobium huegelii*.



(G. Datson)

Sticky Everlasting, *Bracteantha viscosa*.



(A. Gibb)

Blue Pincushion, *Brunonia australis*.



(F. Stelling)

Wedge-leaf Hop-bush, *Dodonaea viscosa* subsp. *cuneata*.



(G. Datson)

Chocolate Lily, *Dichopogon strictus*.



(G. Johnson)

Bulbine Lily, *Bulbine bulbosa*.



(J. Barrrell)

Early Nancy, *Wurmbea dioica*.



(G. Datson)

Chocolate Lily, *Dichopogon strictus*.



(G. Datson)

Milkmaids, *Burchardia umbellata*.

Hibbertia obtusifolia — Grey Guinea-flower

Also: Hoary Guinea-flower.

- Family:** Dilleniaceae — Dillenia family.
- Occurrence:** Widespread, predominantly east of the Olympic Highway.
- Habitat:** Sandy and gravelly soils in filtered sun or partial shade in open forest and other habitats.
- Habit:** Softly hairy, upright or spreading small shrub to 60 cm high. Grey-green leaves and bright golden-yellow flowers, spring to summer.
- Seed Collection:** Late Nov-mid Mar. Monitor closely as mature seeds soon shed. Difficult to collect due to low seed production linked to poor pollination and consumption by insects.
- Propagation:** From cuttings of firm young growth, which strike readily. Difficult from seed due to dormancy.
- Values or Uses:** Good habitat, the flowers providing food for many native insects including moths, butterflies, wasps and bees. Seeds are food for various insects. Excellent ornamental for containers and rockeries. Prune tips regularly to promote bushiness.
- Comments:** Requires well-drained soil. Tolerates moderate frost and dry shady sites once established. Regenerates from suckers and seed.



Hibbertia riparia — Erect Guinea-flower

(syn. *Hibbertia stricta*)

- Family:** Dilleniaceae — Dillenia family
- Occurrence:** Noted around Albury and Upper Upper Jerra Jerra-Upper Back. Probably also in similar surrounding country.
- Habitat:** On porphyry and granite areas, on shallow gravelly soils.
- Habit:** Low, usually upright shrub to 60 cm high with conspicuous golden-yellow flowers, spring-summer.
- Seed Collection:** Monitor closely as mature seeds soon shed.
- Propagation:** From cuttings.
- Values or Uses:** Good habitat. Flowers are a food for many native insects, including moths, butterflies, wasps and bees. Excellent ornamental for containers and rockeries. Prune tips regularly to promote bushiness.



Hibbertia sericea — Silky Guinea-flower

Family: Dilleniaceae — Dillenia family.

Occurrence: Noted in areas east of the Hume Highway including: Four Mile; Lunts Sugarloaf and Coppabella. Probably also in similar country nearby.

Habitat: Heath or open woodland on sandy and silty soils.

Habit: Erect shrub to 100 cm high (but generally less than 50 cm high) with softly hairy branchlets and large bright yellow flowers most of the year, particularly late winter-spring.

Seed Collection: Monitor closely as mature seeds soon shed.

Propagation: *Hibbertia* species are very difficult to propagate from seed. Most, however, strike readily from cuttings.

Values or Uses: Good habitat. Flowers are a food for many native insects, including moths, butterflies, wasps and bees. Excellent ornamental for containers and rockeries. Prune tips regularly to promote bushiness.



Hovea linearis — Common Hovea

(syn. *Hovea heterophylla*) **Also:** Bird's-eye, Blue Bonnet

Family: Fabaceae — Pea family.

Occurrence: Noted in the areas: Gilmore Lower and Sandy, Upper Gilmore and Yaven Creek. Probably in similar country in other parts of the region.

Habitat: Eucalypt forest.

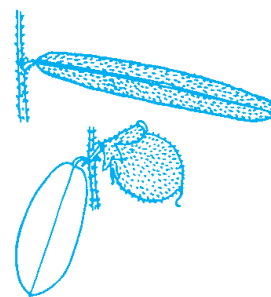
Habit: Upright or trailing shrub to about 50 cm high with light mauve flowers, Aug-Sep, and variable olive-green leaves.

Seed Collection: Early Oct-late Dec. Monitor closely as mature seeds soon shed. Rounded green seeds turn black when ripe.

Propagation: From scarified seed which germinate readily, or cuttings which strike readily, but are slow to establish.

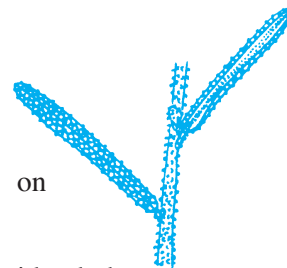
Values or Uses: Ornamental for informal garden drifts and containers. Rejuvenate old plants by pruning. Legume — improves soil fertility through 'fixing' nitrogen. Important component of understorey.

Comments: Prefers well-drained, moist soils in filtered shade.



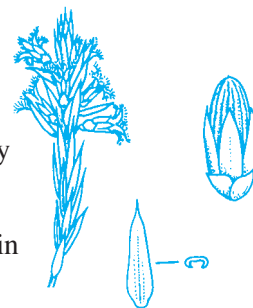
Hovea rosmarinifolia — Mountain Beauty

- Family:** Fabaceae — Pea family.
- Occurrence:** Bringenbrong-Khancoban district.
- Habitat:** Poor sandy soils. Mostly scrubby understoreys of open forests on sheltered gully slopes.
- Habit:** Light shrub to 1.5 m high. Narrow leaves 1-3 cm long and 1-2 mm wide, dark-green above and paler beneath. Bluish-purple or mauve flowers, Aug-Nov.
- Seed Collection:** Pick hairy rounded pods after monitoring closely.
- Propagation:** From scarified seed which germinate readily, or cuttings which may be slow to root.
- Values or Uses:** Useful screen. Legume — improves soil fertility through ‘fixing’ nitrogen. Important component of understorey.
- Comments:** Requires freely-draining soil. Tolerates light to moderate frost and extended dry periods.



Leucopogon attenuatus — Grey Beard-heath

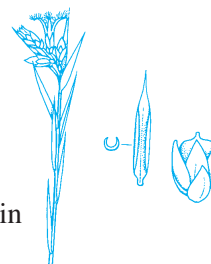
- Family:** Epacridaceae — Epacris family.
- Occurrence:** Noted in Burkes-Graveyard catchment. Possibly also in similar country nearby.
- Habitat:** Dry sclerophyll forest, open woodland and open rocky platforms within heath, and on sandy loams.
- Habit:** Dwarf shrub usually 20-60 cm high, generally with profuse white flowers, mainly Aug-Nov.
- Seed Collection:** Collect *Leucopogon* species seed early Nov-late Feb. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** From seed, or cuttings of firm young growth. Try sowing fresh seed in early winter in soil from beneath parent plants. Unstratified seed may germinate in 3-18 months. Some growers have germinated bird-ingested seed.
- Values or Uses:** Attractive, particularly when flowering profusely.
- Comments:** Requires well-drained soil. Tolerates most frost. Mulch and water during dry periods.



Leucopogon virgatus — Common Beard-heath

Also: Beard-heath.

- Family:** Epacridaceae — Epacris family.
- Occurrence:** Noted around Albury and in Burkes-Graveyard catchment. Possibly also in similar country elsewhere in region.



-
- Habitat:** Heath and woodland on sandy soil.
- Habit:** Slender upright wiry shrub 35-45 cm high with green leaves. Often abundant, white, fragrant, bearded flowers Jul-Dec.
- Seed Collection:** Early Nov-late Feb. Monitor closely as *Leucopogon* species quickly shed mature seeds.
- Propagation:** From seed, or cuttings of firm young growth. Try sowing fresh seed in early winter in soil from beneath parent plants. Unstratified seed may germinate in 3-18 months. Some growers have germinated bird-ingested seed.
- Values or Uses:** Excellent ornamental for containers and gardens, where it can fill small gaps between other shrubs. Impressive flowering. Rejuvenate old plants by hard pruning.
- Comments:** Prefers well-drained soil in filtered sun or semi-shade. Moderately frost tolerant.

Lissanthe strigosa — Peach Heath

(syn. *Lissanthe subulata*)

- Family:** Epacridaceae — Epacris family.
- Occurrence:** Noted in many districts and catchments east of the Olympic Highway.
- Habitat:** Dry sclerophyll forest, dry scrub and heath on sandy soil.
- Habit:** Open, rigid heath-like shrub, usually 15-70 cm high. Often scrambling, with profuse, honey-scented, white to pink flowers, Aug-Nov.
- Seed Collection:** Collect fruit when mature. You can eat the ripe fruit and save the seed.
- Propagation:** From cuttings of new season's growth before it becomes too firm. Slow to strike. Difficult from seed.
- Values or Uses:** Excellent habitat. Edible fruit eaten by small native birds. Attractive ornamental, particularly when flowering profusely.
- Comments:** Prefers well-drained soil in filtered light.



Maireana species — Cotton Bush/Blue Bush

- Family:** Chenopodiaceae — Chenopod family.
- Occurrence:** Noted west of the Olympic Highway.
- Habitat:** Various habitats, including grasslands and woodlands, often on poorer, heavier soils.
- Habit:** Low-growing hardy perennials less than 1.5 m high.
- Seed Collection:** Generally summer.



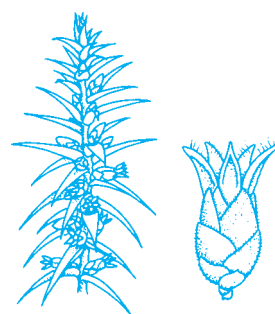
- Propagation:** From seed or cuttings. Seed may lose viability after a year or so.
- Values or Uses:** Black Cotton Bush — *Maireana decalvans*: coloniser on heavy soils prone to flooding. Eastern Cottonbush — *Maireana microphylla*: coloniser on poorer soils. Rarely grazed by stock. Yanga Bush or Bluebush — *Maireana breviflora*: coloniser for saline soils. Planted for fodder (provides good grazing and recovers well from it) and for reclaiming saline areas. Hairy Bluebush — *Maireana pentagona*: heavier red and brown soils. Stabilises bare or scalded soil.

Melichrus urceolatus — Urn Heath

(syn. *Styphelia urceolatus*)

Also: Honey-gland Heath

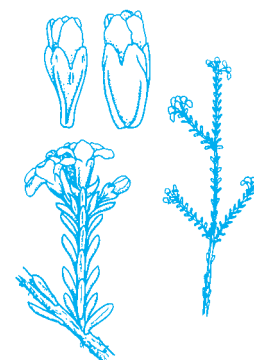
- Family:** Epacridaceae — Epacris family.
- Occurrence:** Common predominantly east of the Olympic Highway.
- Habitat:** Dry sclerophyll forest, Cypress Pine woodland and wattle scrub on skeletal sandy or loamy soils.
- Habit:** Upright, stiffly-branched shrub 20-150 cm high with prickly leaves and downy branches. Crowded white, cream or yellow-green urn-shaped flowers, Mar-Nov.
- Seed Collection:** Collect fruit when ripe. Wash off or eat fruit pulp and store or sow seed.
- Propagation:** From cuttings of relatively soft young growth. May be difficult to strike. Very difficult from seed.
- Values or Uses:** Good habitat, and attractive in gardens. Prune moderately. Edible fruit.
- Comments:** Regenerates from a lignotuber.



Micromyrtus ciliata — Heath-myrtle

Also: Fringed Heath-myrtle, Feather-bush.

- Family:** Myrtaceae — Myrtle family.
- Occurrence:** Noted on Great Yambla Ridge (Table Top Mountain).
- Habitat:** Heath to dry sclerophyll forest in various habitats, often in rocky sites.
- Habit:** Low-growing spreading to upright shrub 30 cm to 1.2 m high with small green leaves and abundant white to pink flowers, spring-early summer.
- Seed Collection:** Difficult to obtain. Rarely sets viable seed.
- Propagation:** From cuttings of firm, semi-mature growth.



Values or Uses: Attractive ornamental for rockeries and bonsai. Spectacular in flower. Popular in landscaping. Cut-flowers are long-lasting and suitable for dried arrangements, if the stems dry slowly. Prune regularly to promote bushiness.

Comments: Prefers well-drained moist soil and full sun. Moderately frost tolerant. Tolerates drought when established. Not grazed by stock.

Pimelea species — Rice-flower

Family: Thymelaeaceae

Occurrence: Predominantly east of the Olympic Highway. Also noted in the areas: Walla Walla; Deadmans-Bungowannah-Long Flat; Long Plain-West Hume and Majors Creek.

Habitat: Various habitats, including open woodland, forest, mallee or sandhills.

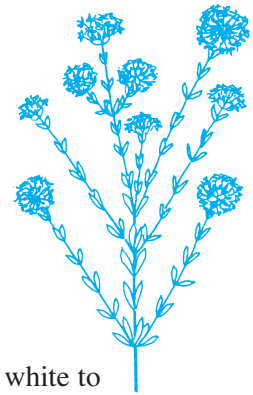
Habit: Low growing shrubs, 15 cm to about 2 m high, with attractive, mainly white to pink flowers, generally late winter - spring.

Seed Collection: Slender Rice-flower (*P. linifolia* subsp. *linifolia*): early Oct to early Mar.

Propagation: From cuttings, which are slow to strike. Very difficult from seed.

Values or Uses: Good habitat, providing nectar for native butterflies and other insects. Ornamental - excellent for rockeries. May require regular pruning to maintain shape.

Comments: Regional rice-flowers include: Curved Rice-flower: *Pimelea curviflora* var. *sericea* (15-30 cm high); Slender Rice-flower: *Pimelea linifolia* subsp. *linifolia* (prostrate to 1.5 m high); Rice-flower: *Pimelea ligustrina* subsp. *ligustrina* (1-3 m high); Erect Rice-flower: *Pimelea stricta* (to 1.5 m high). Ungrazed or toxic to stock. Rice-flowers generally require reasonable drainage and flower best in full sun.



Ricinocarpos bowmanii — Western Wedding-bush

Also: Pink wedding-bush, Bowman jasmine

Family: Euphorbiaceae.

Occurrence: Noted in Lower Adelong subcatchment in the Adelong Falls vicinity.

Habitat: Soils of low fertility in dry sclerophyll forest, mallee communities or on rocky outcrops.

Habit: Erect bushy shrub to 1 m high with woolly branches. Linear leaves 1-4 cm long. Pink or white flowers, winter to early summer.

Propagation: From seed, although germination may be erratic. Should take 4-5 weeks to germinate. Also from cuttings, which may be difficult to strike.

Values or Uses: Attractive ornamental, particular when flowering.



Rubus parvifolius — Native Raspberry

Also: Small-leaved Bramble, Native Bramble

Family: Rosaceae

Occurrence: Predominantly east of the Hume Highway in higher rainfall areas.

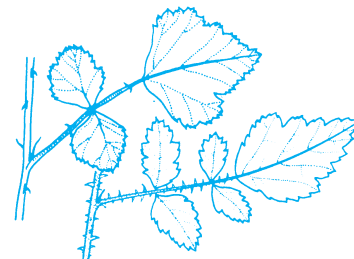
Habit: Scrambling perennial prickly shrub with stems to about 1 m long and red or pink flowers, spring to summer.

Seed Collection: Red raspberry-like fruit, mid Dec to mid Feb. Mature fruits shed in 3-14 days.

Propagation: From fresh seed, semi-hardwood cuttings in summer, or root suckers.

Values or Uses: Excellent habitat. Berries are food for native birds and plants are valuable cover for bandicoots. Berries are sweet and edible, and were eaten by Kooris and gathered by colonists for jams and pies. Attractive groundcover for rocks and walls, and can be trained as a climber. Leaves can make an astringent tea to treat diarrhoea.

Comments: Often confused with blackberry. Native raspberry is not invasive and is not a weed threat. Prefers moist well-drained soil and semi-shade. Very hardy and drought tolerant.



Sclerolaena muricata var. *semiglabra* — Black Roly-poly

(syn. *Bassia quinquecuspis*) *Also:* Spiny Roly-poly.

Family: Chenopodiaceae — Chenopod family.

Occurrence: Common west of the Olympic Highway.

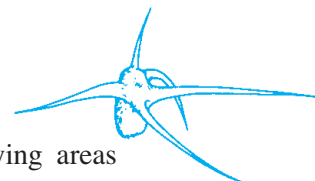
Habitat: A wide range of soils and vegetation types, including low-lying areas subject to occasional inundation.

Habit: Hemispherical, sometimes short-lived perennial herb to about 1.5 m high with hairy branches.

Propagation: From seed.

Values or Uses: Rarely grazed by stock and can cause problems during shearing. However, it colonises bare soil such as scalds, collects soil around it and provides protection for other plants to establish beneath it.

Comments: Often on overgrazed or overstocked land, on heavier soils.



Spyridium parvifolium — Dusty Miller

Family: Rhamnaceae — Buckthorn family.

Occurrence: Noted in the areas Upper Yaven and Lower Tarcutta.

Habitat: Well-drained soils in sheltered sites, in various forests.



- Habit:** Dense upright shrub to 3 m high with distinctive floral leaves and white flowers, Jul-Oct.
- Propagation:** From cuttings, which strike readily. Also from seed. Hormone treatment should enhance rooting.
- Values or Uses:** Good habitat. Flowers are a food for native wasps and bees. Attractive ornamental for a light screen.
- Comments:** Suitable for dry shady areas.

Stypandra glauca — Nodding Blue-lily

Also: Graceful blue-lily, Grass lily.

- Family:** Phormiaceae
- Occurrence:** Noted in the areas: Burrumbuttock-West Hume; Bowna-Jindera and Mullengandra. Probably also in similar country in surrounding areas.
- Habitat:** Sclerophyll forest and woodland. Abundant in some areas.
- Habit:** Tufted or shrubby perennial herb to about 1.5 m high, with fibrous roots and a creeping rootstock. Bright blue flowers, mainly spring.
- Seed Collection:** Dec-Jan. Monitor closely, as mature seeds soon shed.
- Propagation:** From seed, or division in autumn. Seeds should germinate in 3-4 weeks. May be difficult to grow from seed.
- Values or Uses:** Useful for revegetating disturbed and eroded sites, as it is a coloniser (regenerates vigorously after fire). Attractive ornamental, spectacular in flower. Plant in groups for best effect. Prune regularly to prevent straggly growth and to rejuvenate old plants. Apply small quantities of native plant fertiliser to encourage new growth.
- Comments:** Prefers moist, well-drained soil in semi-shade. Drought tolerant.





(G. Datson)

Daphne Heath, *Brachyloma daphnoides*.



(P. Branwhite)

Common Beard-heath, *Leucopogon virgatus*.



(G. Datson)

Common Hovea, *Hovea linearis*.



(C. van der Paal)

Twining Glycine, *Glycine clandestina*.



(G. Datson)

Guinea-flower, *Hibbertia riparia*.



(G. Datson)

Clustered Everlasting, *Chrysocephalum semipapposum*.



(P. Branwhite)

Many-flowered Mat-rush, *Lomandra multiflora*.



(M. Baker)

Spreading Flax-lily, *Dianella revoluta*.



Hop Bitter pea, *Daviesia latifolia*.

(P. Branwhite)



Mountain Mirbelia, *Mirbelia oxylobioides*.

(G. Johnson)



Handsome Flat-pea, *Platylobium formosum*.

(P. Branwhite)



Bush-pea, *Pultenaea foliolosa*.

(P. Branwhite)



Parrot-pea, *Dillwynia retorta*.

(P. Branwhite)



Gorse Bitter-pea, *Daviesia ulicifolia*.

(D. Martin)



Cat's Claws, *Grevillea alpina*.

(P. Seely)



Daphne Heath, *Brachyloma daphnoides*.

(G. Dawson)

Templetonia stenophylla — Leafy Templetonia

Family: Fabaceae — Pea family

Occurrence: Noted in the areas Burrumbuttock-West Hume and Thugga-Culcairn East. Probably previously more widespread in similar country across region, prior to pressure from grazing.

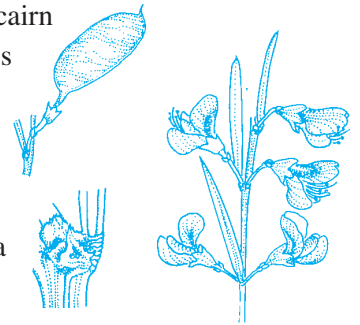
Habitat: Mostly dry sclerophyll forest, often on riverbanks.

Habit: Small straggling shrub, with one to several stems less than 50 cm long, with leaves 1-7 cm long. Large, deep red and brown pea flowers in spring.

Seed Collection: Late Oct to late Feb. Monitor closely as mature seeds shed immediately or in 1-2 days.

Propagation: Pour very hot water over seeds and soak until water cools, before drying and sowing.

Values or Uses: Legume — improves soil fertility through ‘fixing’ nitrogen. Important component of understorey.



Tetradthea ciliata — Pink Bells

Also: Black-eyed Susan, Pink Eye

Family: Tremandraceae

Occurrence: Noted east of the Hume Highway, in areas receiving at least 900 mm rainfall per year.

Habitat: Heath or sclerophyll forest.

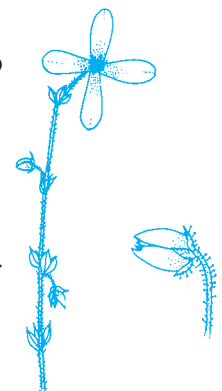
Habit: Slender shrub to 1 m high with cylindrical stems and profuse, fragrant deep lilac-pink flowers, mostly Oct-Nov.

Seed Collection: Early Jan to late Feb. Monitor closely, as mature seeds soon shed.

Propagation: From cuttings. *Tetradthea* seed is difficult to germinate.

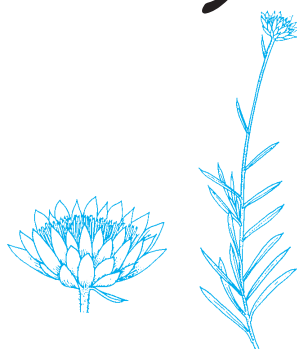
Values or Uses: Attractive specimen for gardens and containers. Extra water in summer benefits plants.

Comments: Requires well-drained soil.



Plant Descriptions

Non-woody Herbs



Common Name	Botanical Name	Page
Australian Bindweed	<i>Convolvulus erubescens</i>	381
Austral Cranesbill/Native Geranium	<i>Geranium solanderi</i>	384
Billy Buttons/Drumsticks	<i>Craspedia</i> species	382
Blue Pincushion	<i>Brunonia australis</i>	378
Bulbine Lily	<i>Bulbine bulbosa</i>	379
Chocolate Lily	<i>Dichopogon strictus</i>	383
Climbing Saltbush	<i>Einadia nutans</i>	384
Clustered Everlasting	<i>Chrysocephalum semipapposum</i>	381
Cranesbill	<i>Geranium</i> species	385
Creeping Saltbush/Berry Saltbush	<i>Atriplex semibaccata</i>	376
Creamy Candles	<i>Stackhousia monogyna</i>	389
Daisies	<i>Brachycome</i> species	377
Early Nancy	<i>Wurmbea dioica</i> subsp. <i>dioica</i>	390
Fuzzweed	<i>Vittadinia cuneata</i>	389
Golden Everlasting	<i>Bracteantha bracteata</i>	376
Many-flowered Mat-rush	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	388
Milkmaids	<i>Burchardia umbellata</i>	379
Native Storksbill	<i>Pelargonium australe</i>	388
Pale Everlasting	<i>Helichrysum rutidolepsis</i>	385
Purple Burr-daisy	<i>Calotis cuneifolia</i>	380
Rock Isotome/Showy Isotome	<i>Isotoma axillaris</i>	386
Rough Burr-daisy	<i>Calotis scabiosifolia</i>	380
Running Postman	<i>Kennedia prostrata</i>	386
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Small Vanilla Lily	<i>Arthropodium minus</i>	375
Smooth Flax-lily	<i>Dianella longifolia</i>	382
Spiny-headed Mat-rush	<i>Lomandra longifolia</i>	387
Spiny-fruit Saltbush	<i>Atriplex spinibractea</i>	376
Spreading Flax-lily	<i>Dianella revoluta</i>	382
Sticky Everlasting	<i>Bracteantha viscosa</i>	377
Tall Bluebell	<i>Wahlenbergia stricta</i>	390
Vanilla Lily	<i>Arthropodium milleflorum</i>	375
Wattle Mat-rush	<i>Lomandra filiformis</i>	387
Yellow Buttons/Common Everlasting	<i>Chrysocephalum apiculatum</i>	380

Arthropodium milleflorum — Vanilla Lily

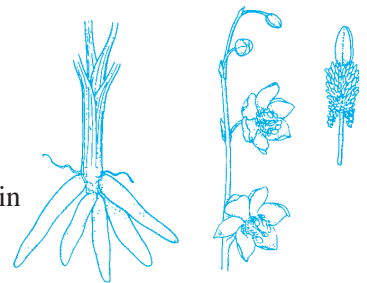
(syn. *Arthropodium paniculatum*) *Also:* Pale Vanilla-lily

- Family:** Anthericaceae (previously Liliaceae)
- Habitat:** Various habitats.
- Habit:** Tufted perennial herb with leaves 3-60 cm long with white to pale blue or pink fragrant flowers, Nov-Feb. Tuber-like roots.
- Seed Collection:** Summer. Monitor closely as mature seeds soon shed.
- Propagation:** From seed or division.
- Values or Uses:** Excellent for gardens and containers.
- Comments:** Prefers dappled shade or partial sun. Tolerates frost and full sun.



Arthropodium minus — Small Vanilla Lily

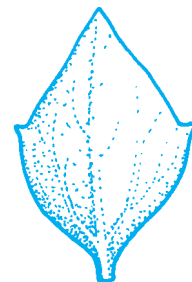
- Family:** Anthericaceae (previously Liliaceae).
- Occurrence:** Widespread through most areas in region.
- Habitat:** Various habitats, including open grasslands and woodlands, in well-drained to seasonally inundated sites.
- Habit:** Slender upright perennial herb or lily to about 30 cm high, often forming tussock of blue-green grass-like leaves. Underground tubers. Nodding, rich-purple, sweetly scented flowers, Aug-Dec, opening in succession along stems. Dies down to tubers in summer and re-shoots in autumn.
- Seed Collection:** Late Nov to early Feb. Monitor closely as seeds released 3-14 days after maturity.
- Propagation:** From seed or division. Seeds germinate readily within 4-8 weeks after 2-3 month dormancy. Try germinating at cooler temperatures such as 16°C. Can be direct seeded into pots.
- Values or Uses:** Good habitat. Seeds seem to be dispersed by ants locally, and by birds over longer distances. Attractive for containers, rockeries, grasslands and under trees. Plant in groups for best effect. Tubers can be eaten raw or roasted throughout year, and probably eaten by Kooris. Apply small quantities of native plant fertiliser to encourage growth. Extend flowering by removing stems before seedheads form.
- Comments:** Prefers protected position in moist, well-drained soil and semi-shade. Tolerates drought, wet winter and dry summer soil. Resents permanently poor drainage.



Atriplex semibaccata — Creeping Saltbush

Also: Berry Saltbush.

- Family:** Chenopodiaceae — Chenopod family.
- Occurrence:** Mainly west of the Olympic Highway.
- Habitat:** Widespread in drier country.
- Habit:** Prostrate, perennial, small shrub or groundcover with conspicuous red fruits. Forms dense mats.
- Seed Collection:** Early Jan to mid Feb. Monitor closely as mature seeds shed in 3-14 days. Gather from canvas sheet beneath plants or use portable vacuum cleaner.
- Propagation:** From seed or cuttings.
- Values or Uses:** Forage for dry areas. Perhaps most readily grazed saltbush, as source of dietary variety or major dietary component. Useful for colonising bare areas, scalds, eroding and saline sites. Good habitat. Small native birds and ants eat berries. Useful firebreak. Useful groundcover for gardens beneath other plants, cascading over rocks or walls, on slopes, embankments or road median strips.
- Comments:** Extremely hardy. Tolerates drought and salt. Frequently hybridises with Spiny-fruit Saltbush (*A. spinibractea*).



Atriplex spinibractea — Spiny-fruit Saltbush

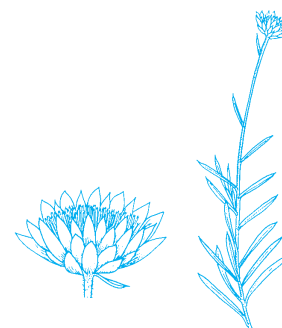
- Family:** Chenopodiaceae — Chenopod family.
- Occurrence:** Mainly west of Olympic Highway.
- Habitat:** Various drier country habitats.
- Habit:** Small perennial prostrate or trailing herb, to 30 cm high.
- Values or Uses:** Relatively palatable and generally readily grazed by stock, but doesn't contribute greatly as a fodder. Useful for colonising eroding soils. Provides cover for establishment of other species.
- Comments:** Short-lived. Seldom abundant. Readily hybridises with Creeping Saltbush (*A. semibaccata*).



Bracteantha bracteata — Golden Everlasting

(syn. *Helichrysum bracteatum*)

- Family:** Asteraceae — Daisy family.
- Occurrence:** Widespread through most areas in region.
- Habitat:** Open woodland or forest, usually on sandy to sandy loam soils.



- Habit:** Erect, usually annual herb, 20-80 cm high. Rarely branched at base, with yellow flowers, mostly spring.
- Seed Collection:** Dec-Jan. Monitor closely as mature seeds dispersed by wind.
- Propagation:** From seed sown late-summer. Germinates in 7-30 days and grows rapidly. Strikes within 3 weeks from tip cuttings 7-10 cm long, under mist.
- Values or Uses:** Spectacular. Mass plant for best effect, and prune or replace each year to prevent legginess. Cut flowers long-lasting. Good habitat. Flowers provide nectar for native butterflies and moths.
- Comments:** Grows mainly during autumn and spring, and also summer if favourable conditions. Palatable to stock and damaged by grazing. Frost hardy. Distinguish Golden Everlasting from Sticky Everlasting by its fewer stems and grey-green or light-green leaves. Golden Everlasting generally more bushy, has varnished-looking stems and dark-green leaves.

Bracteantha viscosa — Sticky Everlasting

(syn. *Helichrysum viscosum*)

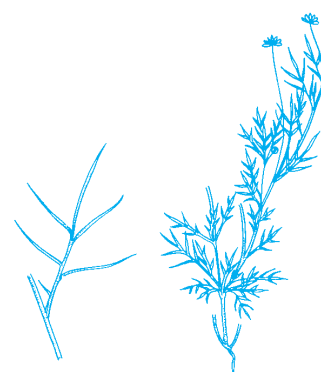
- Family:** Asteraceae family — Daisy family.
- Occurrence:** Widespread through most areas in region.
- Habitat:** Open woodland and sclerophyll forest, usually on sandy to sandy loams.
- Habit:** Erect, sticky, usually annual herb 20-80 cm high. Usually multi-branched, with yellow flowers, spring.
- Seed Collection:** Dec-Jan. Monitor closely as mature seeds dispersed by wind.
- Propagation:** From seed sown late-summer. Germinates in 7-30 days and grows rapidly. Strikes rapidly and readily from cuttings.
- Values or Uses:** Spectacular. Mass plant for best effect. Good habitat. Flowers provide nectar for native butterflies and moths.



Brachycome species — Daisies

(syn. *Brachyscome*)

- Family:** Asteraceae — Daisy family
- Occurrence:** Various *Brachycome* species are found across the region.
- Habitat:** Various communities and situations.
- Habit:** Annual or perennial herbs or small shrubs.
- Seed Collection:** Generally summer.
- Propagation:** Generally from seed in autumn.



Values or Uses: Daisies in region include: Field Daisy — *B. decipiens*; Tufted Daisy — *B. scapigera*; Daisy — *B. gracilis*; Hard-headed Daisy — *B. lineariloba*; Cut-leaved Daisy — *B. multifida* var. *multifida*; Mossgiel Daisy — *B. papillosa*; Tiny Daisy/Rayless Daisy — *B. perpusilla*; and Daisy — *B. spathulata*. Most species provide nectar for native butterflies or moths.

Field Daisy — *B. decipiens*; Perennial herb to 20 cm high with pale blue flowers, Sep-Nov. Habitat subalpine and montane woodland and swamps. Excellent for containers or rockeries. Propagate from seed or division of rootstock. Prefers moist soils in full sun. Tolerates semi-shade.

Tufted Daisy — *B. scapigera*; Erect, hairless perennial herb to 40 cm high, with white or mauve flowers, Nov-Mar. Becomes dormant when dry. Habitat sclerophyll forest, often swamp ground. Useful hardy plant for rockeries and containers. Propagate from seed, or division of roots.

Cut-leaved Daisy — *B. multifida* var. *multifida*; Low, spreading, rounded annual herb to 45 cm high with mauve, pink or white flowers, Sep-Jun. Habitat sclerophyll forest to grassland. Popular ornamental for rockeries and edges, pots and baskets. Propagate from stem cuttings, which strike readily, or from seed or root division. Fast-growing and easily maintained. Watering over summer, and pruning over winter beneficial. Regenerates from underground suckers and roots at nodes, useful in soil binding. Requires moist clay soils. Tolerates dryness once established.

Brunonia australis — Blue Pincushion

Family: Brunoniaceae — Brunonia family.

Occurrence: Noted in most areas in region.

Habitat: Dry sclerophyll forest, woodland and open sand dune communities.

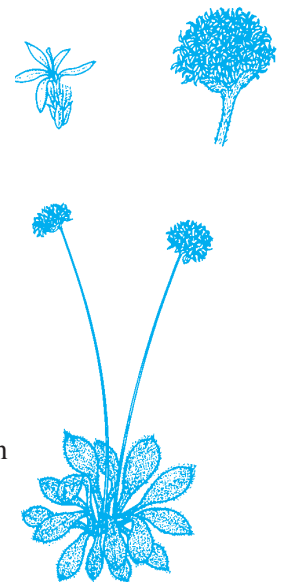
Habit: Perennial herb with short stem to 30 cm and small rosette of soft silky leaves. Striking deep blue pin-cushion-shaped flowers, spring.

Seed Collection: Mid Dec to mid Mar. Monitor closely as seeds released 3-14 days after mature.

Propagation: From fresh seed, or division in Aug.

Values or Uses: Outstanding ornamental. Excellent for containers and informal garden drifts. Plant in groups for best effect. Good habitat. Nectar for native butterflies or moths. Summer watering kills plants. May be difficult to establish, with plants dying after one year. Treat as annual by collecting seed for replanting.

Comments: Prefers open position in dry well-drained soil and full sun. Tolerates wet winter soil and semi-shade. Tolerates drought. Lifespan 3 years maximum.



Bulbine bulbosa — Bulbine Lily

Also: Golden Lily

Family: Asphodelaceae

Occurrence: Widespread in region.

Habitat: Damp sites in woodland, grassland, and sclerophyll forest.

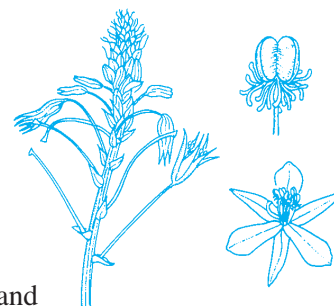
Habit: Small tufted perennial herb, 27-75 cm high. Thick roots and succulent strap-like leaves.

Seed Collection: Late Nov to late Dec. Monitor closely as seeds shed 3-14 days after maturity. Mature seeds dark brown.

Propagation: From seed sown in autumn, or by division in autumn. Transplants readily. Seeds germinate readily in 4-8 weeks after 2-3 month dormancy. Try germinating at cooler temperatures such as 16°C. Can be direct seeded into pots.

Values or Uses: Very attractive ornamental for rockeries and containers. Plant in groups for best effect. Regenerates readily from seed. Kooris ate bulbous roots year-round.

Comments: Requires well-drained soil. Tolerates frost. Sensitive to drought. Dies down to underground tuber after flowering and re-shoots in autumn. Apply small quantities of native plant fertiliser to encourage growth. Susceptible to garden snails and slugs.



Burchardia umbellata — Milkmaids

Also: Star-of-Bethlehem.

Family: Colchicaceae

Occurrence: Widespread. Less common in higher rainfall areas.

Habitat: Swamps and heaths.

Habit: Small tufted perennial herb or lily with 1 or 2 inconspicuous basal leaves and stem to 50 cm high. White and reddish honey-scented star-shaped flowers, Sep-Dec. Dies down after flowering and re-shoots in autumn.

Seed Collection: Late Nov to early Feb. Monitor closely as mature seeds shed within 3-14 days.

Propagation: From seed sown in autumn. Has 2-3 month after-ripening period. Smoking seed enhances germination. Seedlings may grow poorly. Adding soil from beneath parent plants should improve growth.

Values or Uses: Very attractive, fragrant ornamental for rockeries, containers and informal garden drifts. Plant in groups for best effect. Kooris ate tuberous starchy roots. Roots are tapering, carrot-like and available year-round.



Comments: Prefers open position in well-drained soil. Tolerates drought and frost. Resents poor drainage but accepts semi-shade. Watering during flowering is beneficial. Watering dormant plants rots tubers.

Calotis cuneifolia — Purple Burr-daisy

Also: Burr-daisy, Bindi-eye, Blue Burr-daisy

Family: Asteraceae — Daisy family

Habitat: Various soils and situations.

Habit: Perennial erect or prostrate herb to 60 cm high, more or less woody at base. Flowers throughout year, but mainly spring. Flowers lilac, purple or white with yellow centres.

Propagation: From seed or cuttings.

Values or Uses: Regarded as useful stock forage, especially for cattle, although barbed seeds can be problematic.

Comments: Regenerates from seed or from old plants in autumn. Other species in region include Yellow Burr Daisy — *Calotis lappulacea*.



Calotis scabiosifolia — Rough Burr-daisy

Family: Asteraceae — Daisy family

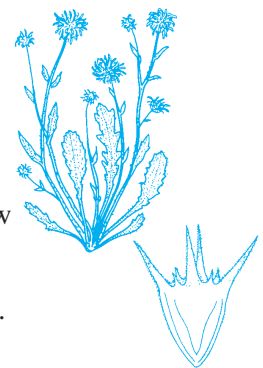
Habitat: Open woodland and grassland, often on heavy clay soils.

Habit: Erect or ascending, stoloniferous, perennial herb to 45 cm high. Flowers throughout year, but mainly spring. Flowers white or mauve with yellow centres.

Seed Collection: Early Jan to late Feb. Monitor closely as mature seeds shed in 3-14 days.

Propagation: From seed or cuttings.

Comments: Usually dries off over summer but may persist in moist conditions. Burrs may irritate stock.



Chrysocephalum apiculatum — Yellow Buttons

(syn. *Helichrysum apiculatum*) **Also:** Common Everlasting

Family: Asteraceae — Daisy family.

Habitat: Various communities and vegetation types on range of soils.



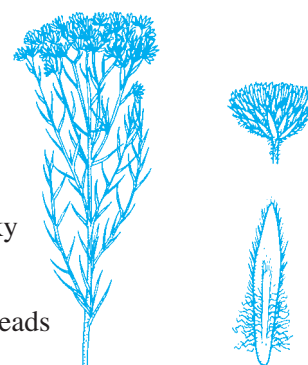
- Habit:** Variable perennial herb 7-60 cm high forming loose clumps of woolly silver-leafed stems. Golden-yellow flowers, mostly spring.
- Seed Collection:** Dec-Jan. Monitor closely as mature seeds dispersed by wind.
- Propagation:** From surface-sown seed. Germinates in 2-5 weeks. Capillary watering recommended. Also from cuttings.
- Values or Uses:** Ornamental for groundcover, rockeries, slopes, containers, hanging baskets and for cut and dried flowers. Excellent groundcover for bare or disturbed sites. Good habitat. Flowers are a nectar source for butterflies. Insect-eating birds attracted. Plant in groups for best effect, at 60-70 cm spacing. Prune old stems to ground when plants start growing in autumn. May die back in dry conditions, but re-shoots after rain. Used by European settlers to kill intestinal worms.
- Comments:** Main growth autumn and spring. Palatable to stock. Eliminated by overgrazing.

Chrysocephalum semipapposum — Clustered Everlasting

(syn. *Helichrysum semipapposum*)

Also: Yellow Buttons.

- Family:** Asteraceae — Daisy family.
- Occurrence:** Widespread in most areas of region. Less common in western areas.
- Habitat:** Woodland and grassland of hills or mountains, or on isolated rocky rises.
- Habit:** Variable aromatic perennial herb 15-60 cm high. Yellow flowerheads most of year, and mainly spring-early summer.
- Seed Collection:** Dec-Jan. Monitor closely as mature seeds soon dispersed by wind.
- Propagation:** From seed.
- Values or Uses:** Ornamental for groundcover, rockeries, slopes, containers, hanging baskets and for cut and dried flowers. Excellent groundcover for bare and disturbed sites. Good habitat. Flowers are a nectar source for butterflies. Insect-eating birds attracted. Plant in groups for best effect, at 60-70 cm spacing. May die back in dry conditions, and re-shoot after rain.
- Comments:** Main growth in autumn and spring. Not highly palatable to stock.



Convolvulus erubescens — Australian Bindweed

Also: Blushing Bindweed

- Family:** Convolvulaceae — *Convolvulus* family
- Habitat:** Sclerophyll forest, woodland and grassland.



- Habit:** Perennial with trailing and twining stems, with highly variable leaves. Pink flowers throughout year, mainly spring-summer.
- Seed Collection:** Mid Jan to late Feb.
- Propagation:** From cuttings, which strike readily. Also from seed, which may require scarifying.
- Values or Uses:** Useful small climber or trailer for gardens. Highly attractive in flower.
- Comments:** Prefers well-drained soil and full sun. Kooris boiled plant parts and used extract to treat diarrhoea and stomach ache. Grazed readily by stock.

Craspedia species — Billy Buttons/Drumsticks

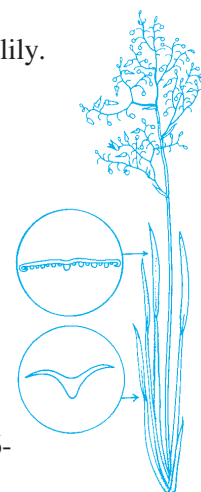
- Family:** Asteraceae — Daisy family.
- Habitat:** *C. canens* — sclerophyll forest, grassland and swamps. *C. variabilis* — sclerophyll forest, woodland & grassland.
- Habit:** Herbs with flower stems up to about 65 cm high, and yellowish flowers spring-summer.
- Propagation:** From seed or cuttings. Germinates in 1-3 weeks.



Dianella longifolia — Smooth Flax-lily

(syn. *Dianella laevis*) *Also:* Pale Flax-lily, Smooth-leaved Flax-lily, Greater Blueberry lily.

- Family:** Phormiaceae
- Occurrence:** Noted in most areas of region.
- Habitat:** Sclerophyll forest.
- Habit:** Tufted perennial herb with fleshy-fibrous or tuberous roots. Strap-like leaves to 80 cm long and inflorescence beyond foliage up to 1.5 m high. Pale blue flowers with orange or yellow anthers, spring-summer, and globular pale blue berries.
- Seed Collection:** Late Dec to mid Jan when ripe berries pale blue. Seeds remain viable for 6-12 months.
- Propagation:** From seed (preferably fresh); by division (which is easy), or from aerial growths. Remove fleshy fruit from seeds before sowing by soaking in sugary solution.
- Values or Uses:** Good habitat. Seed-eating birds attracted to berries. Attractive ornamental for rockeries, groundcover, mingling with small shrubs, containers and under trees. Tough leaves yield silky fibre which Kooris used for baskets and cord. Edible fruit tasty.



Comments: Hardy. Long-lived once established. Prefers protected position in moist, well-drained soil and semi-shade. Tolerates frost. Resents extended wet periods. Susceptible to heavy grazing.

Dianella revoluta — Spreading Flax-lily

Also: Murmbal (Koori name), Black-anther Flax-lily

Family: Phormiaceae

Occurrence: In most areas of region. Less common in higher rainfall areas.

Habitat: Sclerophyll forest, woodland and mallee.

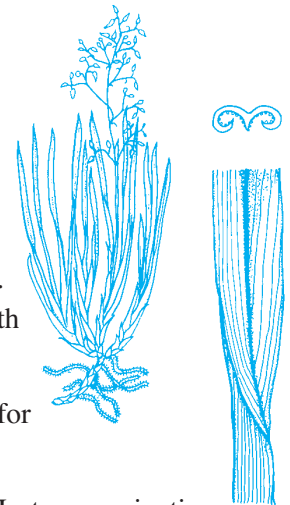
Habit: Tufted perennial herb to 1 m high, forming mats with fibrous roots. Strap-like leaves to 85 cm long and dark blue or violet flowers with black anthers, chiefly spring-summer.

Seed Collection: Late Dec to mid Jan when ripe berries pale blue. Seeds remain viable for 6-12 months.

Propagation: From fresh seed; by division (which is easy), or from aerial growths. Hasten germination by removing fleshy fruit from seed and ferment by soaking in sugary solution.

Values or Uses: Good habitat. Seed-eating birds attracted to berries. Attractive ornamental for rockeries, groundcover, mingling with small shrubs, containers and under trees. Tough leaves yield silky fibre which Kooris used for baskets and cord. Edible fruit tasty.

Comments: Hardy. Long-lived once established. Prefers protected position in moist, well-drained soil in semi-shade. Tolerates frost and drought. Resents extended wet periods.



Dichopogon strictus — Chocolate-lily

(syn. *Arthropodium strictum*)

Family: Anthericaceae (previously Liliaceae)

Occurrence: Widespread through most areas in region.

Habitat: Forest, woodland and open country, on wide range of soils and aspects.

Habit: Upright herb to about 1 m high with tuberous roots. Linear leaves and chocolate-scented blue to violet, star-shaped flowers, Aug-Jan. Dies down to tubers in summer and re-shoots in autumn.

Seed Collection: Dec-Jan. Monitor closely as ripe seeds shed very soon after maturity. Harvest stalks containing capsules by hand or secateurs, and place upside-down in large paper bags. Dry until capsules open fully. Thresh lightly to extract seed.

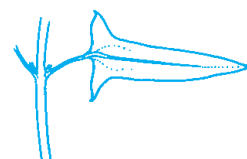


- Propagation:** By division of tubers, or from seed sown autumn. Seeds germinate readily after 2-3 month dormancy. Transplant and/or divide tubers, which may be some distance from rootstock.
- Values or Uses:** Excellent adaptable specimen for rockeries, among small shrubs or containers. Plant in groups for best effect. Tubers can be eaten raw, or roasted throughout year, and probably eaten by Kooris. Apply small quantities of native plant fertiliser to encourage growth. Extend flowering by removing stems before seedheads form.
- Comments:** Prefers well-drained to seasonally inundated soils. Long-lived. Regenerates from seed.

Einadia nutans — Climbing Saltbush

(syn. *Rhagodia nutans*)

Also: Nodding Saltbush

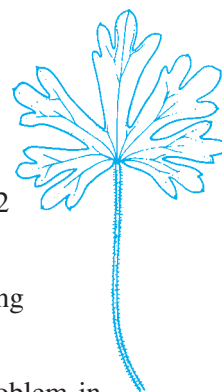


- Family:** Chenopodiaceae — Chenopod family.
- Habitat:** Wide range of soils, in most vegetation communities.
- Habit:** Herbaceous perennial with weak trailing or climbing stems, flowering mainly summer-autumn. Red or orange berry.
- Propagation:** From seed or cuttings. Should germinate in 2-5 weeks.
- Values or Uses:** Useful, relatively palatable forage.

Geranium solanderi — Austral Cranesbill

Also: Native Geranium, Cut-leaf Cranesbill.

- Family:** Geraniaceae — Geranium family.
- Occurrence:** Noted in most areas throughout region.
- Habitat:** Woodland and grassland.
- Habit:** Perennial prostrate or ascending herb to 50 cm high. Turnip-like taproot, and pink flowers throughout year but mainly Aug-Dec. Sometimes roots at nodes. Old leaves orange-red.
- Seed Collection:** Late Dec to mid Feb. Monitor closely as seeds shed immediately or 1-2 days after mature.
- Propagation:** From seed, which germinate readily. Enhance germination by treating seeds with hot water at 60°C for 30 minutes.
- Values or Uses:** Plant where space to fully develop and regenerate. May become a problem in permanently moist soil.



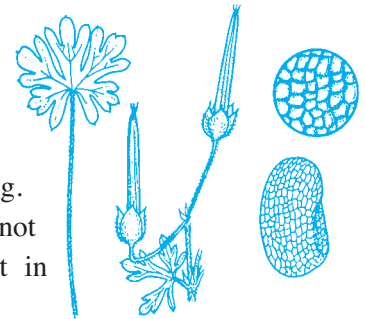
Comments: Starch-rich tuberous roots roasted and eaten by Kooris. Probably grazed by stock. More prevalent in stock-free areas.

Geranium retrorsum — Cranesbill

Family: Geraniaceae — Geranium family.

Occurrence: Noted in most areas of region.

Habit: Perennial prostrate or ascending herb with stems to 50 cm long. Turnip-like taproot and pink flowers mainly Jun-Feb. Does not self-layer. Dies off over summer, re-shooting from taproot in autumn.



Seed Collection: Late Dec to mid Feb. Monitor closely as seeds shed immediately or 1-2 days after mature.

Propagation: From seed. Enhance germination by treating seeds with hot water at 60°C for 30 minutes.

Comments: The starch-rich tuberous roots roasted and eaten by Kooris.

Helichrysum rutidolepsis — Pale Everlasting

Family: Asteraceae — Daisy family.

Occurrence: Noted in Upper Gilmore. Probably also in similar country elsewhere in region.

Habitat: Usually moist sites, sclerophyll forest and woodland.

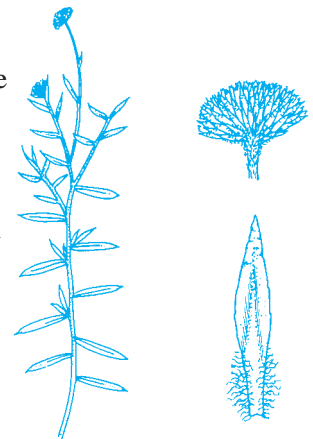
Habit: Loosely woolly upright perennial, much-branched herb 15-40 cm high. Soft woolly leaves on suckering stems, and golden brown to deep yellow flowers mostly summer to early autumn. Long flowering period.

Seed Collection: Late Nov to early Jan. Monitor closely as seeds shed 3-14 days after mature.

Propagation: From seed or cuttings of firm young basal growth.

Values or Uses: Attractive hardy groundcover for rockeries, bog gardens and cut flowers. Good habitat. Nectar attracts native butterflies and other insects. Remove old flowerheads in winter to encourage flowering and dense growth. Rejuvenate by cutting to ground level.

Comments: Prefers moist, poorly-drained soil in full sun. Tolerates moderate frost, dry summer soil and semi-shade. Grows mainly during cooler months, but in favourable conditions may remain green over summer.



Isotoma axillaris — Showy Isotome

(syn. *Laurentia axillaris*)

Also: Australian Harebell, Rock Isotome.

Family: Lobeliaceae

Occurrence: Noted mainly east of the Olympic Highway.

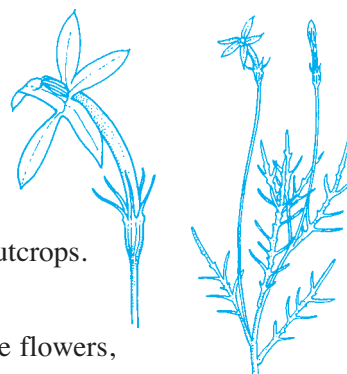
Habitat: Crevices on rocky cliffs, especially granite and sandstone outcrops. Shallow sandy soils of slopes and around rocky waterholes.

Habit: Low bushy perennial herb to 50 cm high. Bright blue to mauve flowers, Sep-May.

Propagation: From fresh seed; cuttings of firm growth (which root readily); or from division. Germinates in 4-6 weeks.

Values or Uses: Excellent attractive ornamental for rockeries and containers. Regenerates well in gardens. Produces spectacular informal effect. Rejuvenate plants over 2 years by harsh pruning in autumn.

Comments: Tolerates frost and extended dry periods. Milky sap can irritate skin and eyes.



Kennedia prostrata — Running Postman

Also: Scarlet Coral Pea, Scarlet Runner

Family: Fabaceae — Pea family.

Occurrence: Noted in Buckaringah district. Probably also on similar country elsewhere in region.

Habitat: Rocky outcrops, mainly coastal or inland districts.

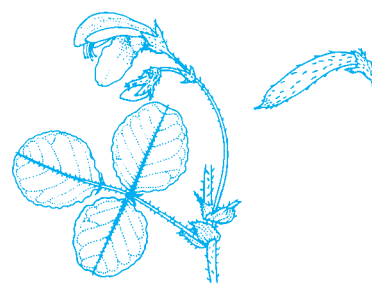
Habit: Prostrate or twining perennial herb with single scarlet flowers along stems, late winter to spring.

Seed Collection: Mid Dec to early Feb. Monitor closely as seeds shed soon after mature.

Propagation: From scarified seed (\pm 20 viable seeds per gram), which should germinate 11-30 days after sowing. Also from cuttings, which strike readily. Pour very hot or boiling water over seeds and soak until water cools before drying and sowing.

Values or Uses: Useful groundcover for rockeries, embankments, slight slopes, containers and hanging baskets. Legume — improves soil fertility through 'fixing' nitrogen. Good habitat. A food plant for caterpillars of native butterflies and moths. Kooris sucked nectar and used stems as twine.

Comments: Recolonises bare areas after fire. Prefers well-drained soil and full sun. Tolerates limited inundation, dappled shade, extended dry periods and most frost. May die back to rootstock during harsh conditions and re-shoot later.



Lomandra effusa — Scented Mat-rush

Also: Irongrass, Cocky's bootlace

Family: Lomandraceae — Lomandra family.

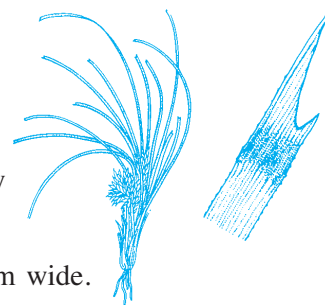
Habitat: Wide range of vegetation types, in sandy soil. Sometimes in clay or near salt pans and granite outcrops.

Habit: Robust, perennial tussocky herb 20-50 cm high and up to 60 cm wide. Flat, bluish-grey leaves up to 50 cm long, a much-branched inflorescence and strongly scented flowers.

Propagation: From seed or by division of clumps.

Values or Uses: Useful for stabilising soil and reducing erosion. Ornamental for gardens and containers. Attracts seed-eating native birds.

Comments: Requires well-drained soil. Tolerates heavy frost. Grazed by stock in exceptionally poor years.



Lomandra filiformis — Wattle Mat-rush

Also: Wattle Mat-lily.

Family: Lomandraceae — Lomandra family.

Occurrence: Noted mainly in the drier areas west of the Hume Highway.

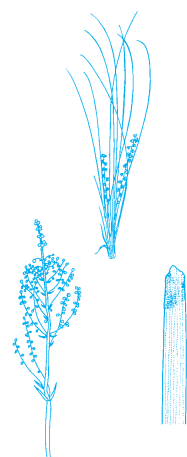
Habitat: Dry sclerophyll forest, usually on well-drained, often sandy or rocky soil.

Habit: Perennial tussock with blue-grey or light-green leaves, in short dense mats to 20 cm diameter. Yellow or cream wattle-like flowers, chiefly Oct-Nov.

Seed Collection: Late Jan to late Feb. Monitor closely as mature seeds shed quickly.

Values or Uses: Good habitat. Food for butterfly caterpillars and insect-eating birds. Useful in rockeries, among small shrubs or in containers. Attracts seed-eating native birds. Food plant for caterpillars of native butterflies and moths.

Comments: Requires very well-drained soil. Tolerates full sun to semi-shade.



Lomandra longifolia — Spiny-headed Mat-rush

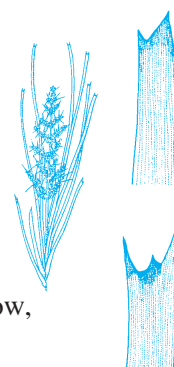
Also: Cockies bootlaces

Family: Lomandraceae — Lomandra family.

Occurrence: Noted on the drier sites of most areas in region.

Habitat: Various habitats.

Habit: Tufted perennial herb with leaves usually 50-100 cm long. Creamy or yellow, strongly honey-scented flowers in spring.

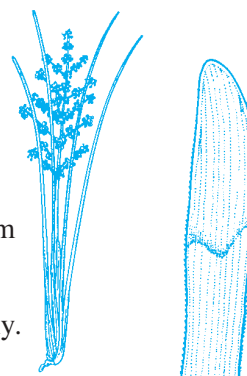


- Seed Collection:** Mid Dec to early Mar. Monitor closely as mature seeds shed quickly.
- Propagation:** From seed, or division of clumps using garden fork. Germinates in 8-10 weeks from fresh seed. Seedlings usually grow strongly.
- Values or Uses:** Excellent habitat for ground fauna. Food for butterfly caterpillars and insect-eating birds. Low-level shelter and excellent for stabilising banks. Useful 'accent' plant in mixed groupings with shrubs, beside ponds and under trees. Feature in open spaces, such as traffic islands and around large buildings. Excellent in containers. Attracts seed-eating native birds. Food plant for caterpillars of native butterflies and moths. Tough leaves used by Kooris for fine baskets, mats, eel traps and for binding wounds.
- Comments:** Very hardy. Prefers moist well-drained soil and semi-shade. Tolerates dryness, poor drainage, waterlogging to 10 cm deep, and full sun to full shade. Nectar and leaf bases edible.

Lomandra multiflora subsp. *multiflora* — Many-flowered Mat-rush

Also: Many-flowered Mat-lily.

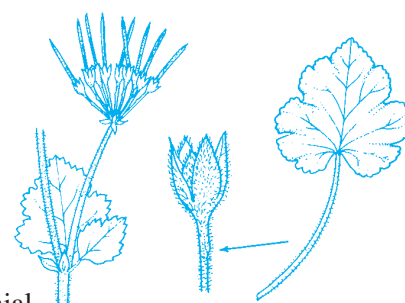
- Family:** Lomandraceae — Lomandra family.
- Occurrence:** Widespread in the drier sites of most areas in region.
- Habitat:** Chiefly in woodland and forest, on various soils.
- Habit:** Rigid, tufted, perennial herb with slender to robust leaves 25-90 cm long. Flowers Jun-Jan.
- Seed Collection:** Early Oct to mid Mar. Monitor closely as mature seeds shed quickly.
- Propagation:** From seed, or division of clumps.
- Values or Uses:** Striking inflorescences. Excellent container plant. May form sparse clumps. Attracts seed-eating native birds. Food plant for caterpillars of native butterflies and moths.



Pelargonium australe — Native Storksbill

Also: Austral Storksbill, Native Pelargonium.

- Family:** Geraniaceae — Geranium family.
- Occurrence:** Predominantly east of Olympic Highway.
- Habitat:** Generally rocky outcrops.
- Habit:** Slightly aromatic, rounded, soft, sprawling or erect perennial herb to 50 cm high. Hairy stems and fleshy taproot. Pink flowers Oct-Mar, and sporadically (often profuse and conspicuous).
- Seed Collection:** Late Dec to late Mar. Monitor closely as mature seeds shed quickly.



- Propagation:** Readily propagated from seed and cuttings.
- Values or Uses:** Useful soil binder for rockeries, groundcover, borders and containers. Kooris reputedly ate astringent red taproot.
- Comments:** Prefers dry well-drained soil and full sun. Tolerates drought, frost and moist well-drained soil in semi-shade. May die down to rootstock in harsh summers, and re-shoot in autumn. Prune severely to rejuvenate old plants

Stackhousia monogyna — Creamy Candles

Also: Creamy Stackhousia, Candles.

- Family:** Stackhousiaceae — Stackhousia family.
- Occurrence:** Noted from the west to the central areas of region. Probably also occurs further east.
- Habitat:** Heath, grassland, woodland and sclerophyll forest, rarely in swamps.
- Habit:** Upright perennial herb generally to 40 cm high. Short leaves on few to numerous slender stems arising from rhizome. Sweet-scented creamy flowers, late winter to early summer.
- Seed Collection:** Early to late Dec. Monitor closely as mature seeds shed quickly.
- Propagation:** From cuttings of new leafy stems emerging from rootstock. Difficult from seed.
- Values or Uses:** Useful in rockeries and containers. Plant in groups for best effect. Provides nectar for native butterflies and moths.
- Comments:** Prefers moist, well-drained soil and semi-shade. Tolerates wet winter / dry summer soil; full sun to full shade, and drought. May die down in hot dry summers and re-shoot in autumn. Flowers may emit strong unpleasant odour at night.



Vittadinia cuneata — Fuzzweed

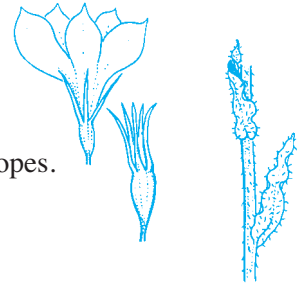
- Family:** Asteraceae — Daisy family
- Habitat:** Various 'natural' and disturbed habitats.
- Habit:** Woody annual or perennial herb, 10-40 cm high. Rigidly erect stems and pale blue to mauve flowers throughout year.
- Seed Collection:** Late Nov to late Jan. Monitor closely, as mature seeds shed within 3-14 days.
- Comments:** Not particularly palatable, but eaten by stock when alternative feed is scarce. *V. gracilis* also occurs in region.



Wahlenbergia stricta — Tall Bluebell

Also: Common Bluebell, Austral Bluebell

- Family:** Campanulaceae
- Occurrence:** Widespread throughout region.
- Habitat:** Various plant communities, including shallow stony soils on hillslopes. Also loams and clay loams in open woodlands and grasslands.
- Habit:** Perennial tufted herb, 10-90 cm high. Blue flowers throughout year.
- Seed Collection:** Late Dec to late Jan. Monitor closely as mature seeds shed within 3-14 days.
- Propagation:** From seed or cuttings. Seeds may have a 4-6 month after-ripening period. Stratification for 3 months at 3-5°C may improve germination. Germination takes about 3-4 weeks.
- Values or Uses:** Ornamental.
- Comments:** Readily grazed by stock. On dry sites, plants may dry off during summer. Other *Wahlenbergias* in region include: Tufted Bluebell — *W. communis*; Annual Bluebell — *W. gracilentata*; and Sprawling or Australian Bluebell — *W. gracilis*.



Wurmbea dioica subsp. *dioica* — Early Nancy

(syn. *Anguillaria dioica*)

- Family:** Colchicaceae
- Occurrence:** Widespread. Noted in most areas of region.
- Habitat:** Forest and woodland.
- Habit:** Small, tufted, perennial lily 5-30 cm high. Long narrow leaves and honey-scented whitish flowers are Aug-Sep, for about 3 weeks.
- Seed Collection:** Early Nov to early Dec. Mature seeds shed within 3-14 days.
- Propagation:** From fresh seed sown autumn. Germinates in 3-5 weeks.
- Values or Uses:** Attractive ornamental for rockeries and containers. Plant in groups for best effect. Generally takes 3 years to flower. May be difficult to grow outside preferred conditions. Encourage growth by applying small amounts of native plant fertiliser. Dies down to tubers over summer and re-shoots in autumn. Kooris ate starchy corms.
- Comments:** Prefers open position in moist well-drained soil and full sun.



Plant Descriptions

Climbers



Common Name	Botanical Name	Page
Common Apple-berry	<i>Billardiera scandens</i> var. <i>scandens</i>	392
Gargaloo	<i>Parsonia eucalyptophylla</i>	395
Old Man's Beard	<i>Clematis aristata</i>	392
Purple Coral Pea/Sarsaparilla	<i>Hardenbergia violacea</i>	395
Silky Glycine	<i>Glycine canescens</i>	393
Small Leaf Clematis	<i>Clematis microphylla</i>	393
Twining Glycine	<i>Glycine clandestina</i>	394
Variable Glycine	<i>Glycine tabacina</i>	394

Billardiera scandens var. *scandens* — Common Apple-berry

Also: Appleberry, Snotberry, Apple Dumplings.

Family: Pittosporaceae — Pittosporum family.

Occurrence: Noted east of the Hume Highway in the areas: Bringenbrong-Khancoban; Yaven Creek and Carabost. Probably also in similar country elsewhere in the region. Abbreviated to *Billardiera scandens* in the General Native Vegetation Profiles in this Guide.



Habitat: Sclerophyll forest and woodland. Occasionally coastal scrub or heath.

Habit: Shrubby climber or scrambler with stems to 3 m long. Cream to greenish-yellow or rarely orange flowers, spring-summer.

Seed Collection: Collect berry when pale yellow and pulpy. Ripe seed red-brown. Extract seeds by soaking fruits in water, mashing (possibly allowing some fermentation) and shaking to separate pulp and skin from seeds. Rinse.

Propagation: From fresh seed or cuttings. May take 8-10 weeks or many months to germinate. Take cuttings of firm new growth in spring (from bushland plants) or autumn (from garden plants).

Values or Uses: Good habitat. Flowers (nectar) and fruit are food for birds including the Eastern Spinebill and Silvereye. Attractive under established eucalypts and other garden situations. Shrubby if in open. Flowers, leaves and stems produce lemon-coloured dye with alum as mordant. Kooris ate ripe fruit, said to taste like kiwi-fruit.

Comments: Prefers well-drained soil in full or partial sun. Tolerates moderate frost.

Clematis aristata — Old Man's Beard

Family: Ranunculaceae — Buttercup family.

Occurrence: In higher rainfall areas east of the Hume Highway.

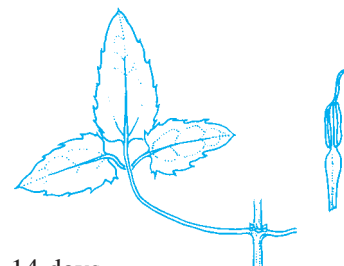
Habitat: Moist or sheltered sites, usually in forest.

Habit: Vigorous woody climber to 6 m high. Prolific attractive white flowers, Sep-Dec.

Seed Collection: Late Dec to mid Mar. Monitor closely as mature seeds shed in 3-14 days.

Propagation: From stem cuttings or fresh seed. Germinates in 1-3 months.

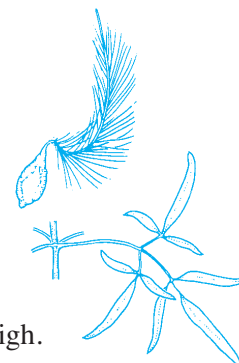
Values or Uses: Excellent attractive climber for gardens, amongst shrubs, on trellises or walls, or under established trees.



Clematis microphylla — Small-leaved Clematis

Also: Old Man's Beard.

- Family:** Ranunculaceae — Buttercup family.
- Occurrence:** On sandy soils predominantly west of the Olympic Highway.
- Habitat:** Highlands and woodlands, climbing on trees and shrubs.
- Habit:** Slender-stemmed, woody climber or groundcover to about 3 m high. Densely massed leaves and profuse creamy-white flowers, Jul-Dec.
- Seed Collection:** Early Dec to early Mar. Monitor closely as seeds released 3-14 days after maturity. Attractive balls of feathery plumed seed.
- Propagation:** From seed or stem cuttings. Fresh seeds germinate in 1-3 months. Older seeds take longer.
- Values or Uses:** Good habitat. Native birds line nests with fluffy seedheads. Attractive ornamental for screening, groundcover, cascading over rocks, walls and in containers. Climbs trees without causing damage. Easily cultivated. Kooris cooked and made dough from tough starchy roots. In some areas leaves bruised and rubbed over skin sores and areas with rheumatism. Leaves used in steam baths to treat arthritis.
- Comments:** Prefers open position in dry well-drained soil. Hardy. Tolerates drought and moderate frost. Resents permanently poor drainage. Tolerates wet winter and dry summer soil, and full sun to full shade. Moderate growth rate. Lifespan up to several decades.



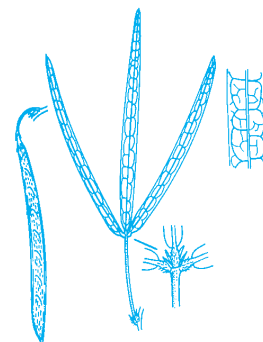
Glycine canescens — Silky Glycine

- Family:** Fabaceae — Pea family.
- Occurrence:** Noted west of the Olympic Highway in the areas: Narrandera-Morundah-Galore-Collingullie and Urangeline. Probably also in similar country elsewhere in region.
- Habitat:** Various habitats, including skeletal soils in woodland.
- Habit:** Small twiner with greyish hairs. Pinkish-purple or mauve flowers fading to blue all year, particularly Jul-Nov.
- Seed Collection:** Early Oct to late Feb. Monitor closely as seeds released very soon after maturity.
- Propagation:** From scarified seed or cuttings. Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seeds per pot).
- Values or Uses:** One of showiest Glycines. Plant to climb over garden logs and fences. Legume — improves soil fertility through 'fixing' nitrogen.
- Comments:** Heavily grazed by stock as nutritious and palatable. Generally observed only where grazing excluded. Tolerates moderate frost. Grows mostly over warmer months with rainfall.



Glycine clandestina — Twining Glycine

- Family:** Fabaceae — Pea family.
- Occurrence:** Quite widespread across the drier slopes and hills of the region.
- Habit:** Slender climber with fine leaves. Mauve to rose-purple or white flowers mainly spring, arising from stout woody rootstock.
- Seed Collection:** Early Oct to late Feb. Monitor closely as seeds released very soon after maturity.
- Propagation:** From scarified seed or cuttings. Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seed per pot). Take cuttings of firm wood over summer. Strikes readily.
- Values or Uses:** Good habitat. Flowers a nectar and pollen source for native insects, including bees and wasps. Attractive light climber for gardens, on fences and logs. Very hardy when established, and responds to pruning. Legume — improves soil fertility through ‘fixing’ nitrogen
- Comments:** Heavily grazed by stock as nutritious and palatable. Generally observed only where grazing excluded. Tolerates moderate frost, and dry periods once established. Prefers root protection. Regenerates from seed and suckers, particularly after fire.



Glycine tabacina — Variable Glycine

Also: Vanilla Glycine

- Family:** Fabaceae — Pea family.
- Occurrence:** Quite widespread in lower slopes and plains of the region. Previously more common prior to grazing pressures.
- Habitat:** Amongst grasses, in open situations and woodland.
- Habit:** Small delicate scrambler or climber. Blue to mauve flowers, mainly spring-autumn.
- Seed Collection:** Early Oct to late Feb. Monitor closely as seeds released very soon after maturity.
- Propagation:** From scarified seed or cuttings. Pour boiling or very hot water over seeds and soak until water cools. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seed per pot).
- Values or Uses:** Good habitat. Eaten by butterfly caterpillars. Attractive groundcover for rockeries. Licorice-flavoured taproot reputedly eaten by Kooris. Legume — improves soil fertility through ‘fixing’ nitrogen.
- Comments:** Prefers open position in dry, well-drained soil and full sun. Tolerates drought. Heavy frost may damage. Heavily grazed by stock as nutritious and palatable. Generally observed only where grazing is excluded.



Hardenbergia violacea — Purple Coral Pea

Also: False Sarsaparilla, Native Sarsaparilla.



Family: Fabaceae — Pea family.

Occurrence: Widespread. Found across region.

Habitat: Various habitats, from near sea-level to high mountains, on well-drained soils.

Habit: Climbing or prostrate scrambler, stems often to 2 m long. Green leathery leaves and purplish flowers, mostly spring.

Seed Collection: Early Oct to late Feb. Monitor closely as seeds released very soon after mature. Ripe seeds hard and grey. Seed often collected with seed-eating insects. Ensure collected seed insect-free before storing.

Propagation: From scarified seed or cuttings. Pour boiling or very hot water over seeds and soak for several hours. Dry to prevent rotting and sow. Germination takes 3-4 weeks. Suitable for direct seeding in pots (2-3 seed per pot).

Values or Uses: Good habitat. Flowers nectar and pollen source for native insects, including moths, butterflies, bees and wasps. Native insects and birds feed on seed. Foliage good refuge for reptiles and insects.

Comments: Attractive ornamental for rockeries, embankments, under trees, in containers or for light screen. Hardy, fast-growing and easily maintained. Responds to mulching. Avoid over-watering. Prune severely to rejuvenate old plants. Flowers produce grey-blue dye with alum as mordant. Edible roots.

Parsonia eucalyptophylla — Gargaloo

Also: Monkey Vine, Woodbine, Vinetree.

Family: Apocynaceae

Occurrence: Noted west of the Olympic Highway in the area Narrandera-Morundah-Galore-Collingullie.

Habitat: Woodland and scrub in inland areas.

Habit: Tall, vigorous, woody climber with linear leaves. Sweetly-scented pale yellow flowers in spring-autumn. Young shoots climb by clinging roots, and older plants with twining stems.

Seed Collection: Collect pods when dry but not split.

Comments: Grazed by cattle and sheep, particularly in dry periods. Cut for fodder in drought.



Plant Descriptions

Ferns



Common Name	Botanical Name	Page
Alpine Water Fern	<i>Blechnum penna-marina</i>	398
Common Maidenhair	<i>Adiantum aethiopicum</i>	397
Fishbone Water Fern	<i>Blechnum nudum</i>	398
Necklace Fern	<i>Asplenium flabellifolium</i>	397
Rock Ferns	<i>Cheilanthes</i> species	399
Soft Water Fern	<i>Blechnum minus</i>	397

Adiantum aethiopicum — Common Maidenhair

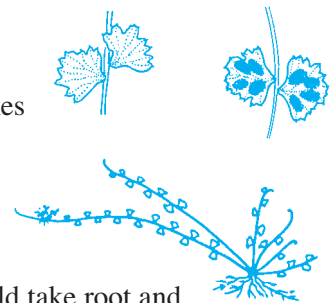
Also: Small Maidenhair Fern

- Family:** Adiantaceae — Maidenhair family.
- Occurrence:** Noted east of the Olympic Highway, mainly in higher rainfall areas.
- Habitat:** Damp open situations, sheltered rock crevices, shaded hillsides, flats near creeks. Often along creeks in large colonies.
- Habit:** Perennial ground fern mostly 20-50 cm high. Rhizome-creeping and much-branched with soft, lacy, light-green fronds on black wiry stems.
- Propagation:** By division. For in-ground plants, sever the underground runners with a sharp spade and pot each section. For potted plants, tip out and divide by hand, or cut runners off with sharp knife.
- Values or Uses:** Excellent for containers, indoors, rock crevices, groundcover and near ponds. Useful in floral displays and bouquets, and easily cultivated. Apply small amounts of native plant fertiliser to encourage growth.
- Comments:** Prefers moist, sheltered position in full shade. Tolerates heavy clay soil. Resents sun and wind. May die back in summer and re-shoot in autumn. Fast-growing and easily maintained.



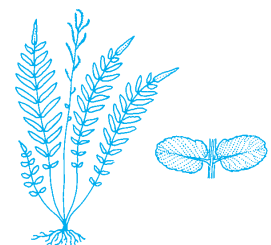
Asplenium flabellifolium — Necklace Fern

- Family:** Aspleniaceae
- Habitat:** Chiefly rock crevices, caves, creekbanks or fallen logs. Sometimes epiphytic in rainforest or open forest.
- Habit:** Trailing small fern with short rhizome. Fronds mostly 10-20 cm long.
- Propagation:** Bend frond and pin securely to ground. Keep moist. Plantlets should take root and grow rapidly. Sever from parent plant and transplant. Easily grown.
- Values or Uses:** Attractive in pots, hanging baskets, rockeries and sheltered gardens. Can spread rapidly to form large colonies from rooting tips.
- Comments:** Requires well-drained soil and some sun. Snails and slugs may damage.



Blechnum minus — Soft Water Fern

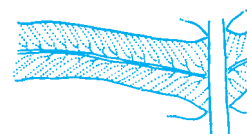
- Family:** Blechnaceae — Fern family.
- Occurrence:** Predominantly east of the Hume Highway.
- Habitat:** Various habitats in open forest, along creek beds and banks.
- Habit:** Ground fern with rhizome. Fronds mostly 25-70 cm long, bright shiny-green when mature. Forms dense patches, bushy to ground level.



-
- Propagation:** From offsets of rootstock or from spore.
- Values or Uses:** Popular attractive fern for pots and sheltered gardens.
- Comments:** Prefers wet clay.

Blechnum nudum — Fishbone Water Fern

- Family:** Blechnaceae — Fern family.
- Occurrence:** Predominantly east of the Hume Highway.
- Habitat:** Often creekbanks in open forest, or low-lying poorly-drained areas on slopes.
- Habit:** Tufted ground fern with rhizome and erect fronds 25-60 cm long. Sometimes forms black fibrous trunk to 1 m high. Often forms colonies.
- Propagation:** From offsets of rootstock or from spore.
- Values or Uses:** Excellent and popular container or fernery plant. Hardy and easily grown. Probably provides refuge for frogs and native insects. Useful for stabilising streambanks where naturally occurring.
- Comments:** Prefers moist soil and semi-shade.



Blechnum penna-marina — Alpine Water Fern

- Family:** Blechnaceae — Fern family.
- Occurrence:** Predominantly east of the Hume Highway.
- Habitat:** Cooler high altitude regions, commonly in sphagnum bogs.
- Habit:** Ground fern with rhizomes. Slightly leathery fronds, usually 8-25 cm long. Often forms low mats or small colonies.
- Propagation:** By division of rhizomes or from spore.
- Values or Uses:** Hardy and useful in cultivation. Forms low dense groundcover. Allow space to spread, and water well.
- Comments:** Grows over summer after winter dormancy. New erect bronze-pink fronds conspicuous after winter.



Cheilanthes species — Rock Ferns

Family: Sinopteridaceae (previously Adiantaceae).

Occurrence: Widespread. Throughout most areas of region. *Cheilanthes* species in region are:

Rock fern *C. austrotenuifolia* (previously *C. tenuifolia* var. *tenuifolia*)

Bristly Cloak Fern *C. distans*

Rock fern *C. sieberi* subsp. *sieberi* (most common *Cheilanthes* in region)

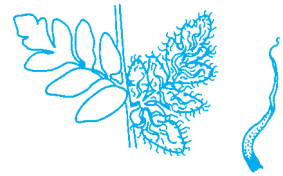
Habitat: Rocky ground in open forest, woodland, or exposed rocky slopes.

Habit: Ground ferns up to 30 cm high, rhizome-tufted or short-creeping.

Propagation: From division or spore.

Values or Uses: Attractive small fern for rockeries and pots. Generally prefers moist, well-drained soil in full or semi-sun.

Comments: May die back over summer and re-shoot in autumn.



Plant Descriptions

Grasses



Common Name	Botanical Name	Page
Common Wheat-grass	<i>Elymus scaber</i>	404
Cotton Panic Grass	<i>Digitaria brownii</i>	403
Curly Windmill Grass	<i>Enteropogon acicularis</i>	404
Fairy Grass	<i>Sporobolus caroli</i>	406
Kangaroo Grass	<i>Themeda triandra</i>	406
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Red-leg Grass/Red Grass	<i>Bothriochloa macra</i>	401
Spear Grasses	<i>Austrostipa</i> species	401
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Umbrella Grass	<i>Digitaria divaricatissima</i>	403
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Weeping Grass	<i>Microlaena stipoides</i>	405
Windmill Grass	<i>Chloris truncata</i>	402
Wire Grasses	<i>Aristida</i> species	401

Aristida species — Wire Grasses

Also: Threeawn grasses, Kerosene grasses.

Family: Poaceae — Grass family.

Occurrence: Widespread across region (although not necessarily recorded on General Native Vegetation Profiles).

Habitat: Frequently in low rainfall areas on poor soils.

Habit: Tufted annuals or perennials, usually with slender wiry culms, narrow leaves. Three awns on seed.

Seed Collection: Mature seeds are reddish-purple and fall to the ground in a tangled mass.

Values or Uses: Not valuable as fodder except during drought. ‘Seeds’ sharp, damage animal hides and contaminate wool.

Comments: Tolerate severe drought. Species in region include Purple Wiregrass — *A. ramosa*; Brush Wiregrass — *A. behriana*, and Wiregrass — *A. jerichoensis*.



Austrostipa species — Spear Grasses

(syn. *Stipa* species)

Family: Poaceae — Grass family.

Occurrence: Widespread and common throughout region.

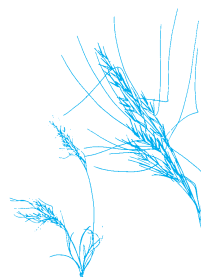
Habitat: Temperate regions.

Habit: Generally coarsely tufted perennial grasses up to about 1 m high. Leaves rough to touch. Seed with long awns and ‘corkscrew’ twists.

Seed Collection: Collect when hard, dark seeds part from heads easily. Monitor closely as mature seeds quickly shed.

Propagation: From one-year old seed. Store in cool dry place. Sow autumn or spring.

Values or Uses: Moderate forage. Sharp awns cause eye, wool and carcass contamination. Problems potentially overcome through managing grazing. Good habitat. Food for seed-eating birds, such as finches. Moths and butterflies attracted. Very attractive ornamental for specimens, groundcovers, rockeries and under trees. Rejuvenate old plants by pruning severely, and watering afterwards to encourage growth. Species in the region include: Crested speargrass — *A. blackii*; Foxtail speargrass — *A. densiflora*; Feather speargrass — *A. elegantissima*; Soft speargrass — *A. mollis*; Speargrass — *A. nodosa*; Rough speargrass — *A. scabra* subsp. *falcata*; and Corkscrew grass — *A. setacea*.

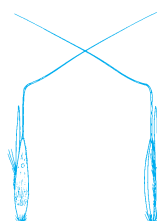


Bothriochloa macra — Red-leg Grass

Also: Red Grass

Family: Poaceae — Grass family.

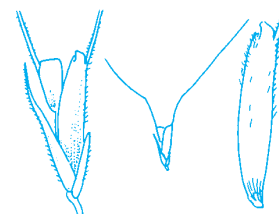
Occurrence: Widespread throughout region.



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- Habitat:** Drier open forests. Also low-lying sites prone to brief, infrequent flooding.
- Habit:** Perennial, tufted grass with basal leaves. Numerous wiry stems and reddish purple flowering stems, 30-50 cm high, mostly summer.
- Seed Collection:** Late Dec to early Feb.
- Propagation:** From seed, or division of tussock. Seedlings may establish slowly.
- Values or Uses:** Moderate forage value. Increases under grazing pressure and increased fertility (widespread in overgrazed pastures). Useful garden ornamental. Rejuvenate old plants by pruning severely or burning, and water heavily to encourage new growth.
- Comments:** Summer-growing. Tolerates severe drought. Low to moderate frost tolerance. Appears red/purple after frost.

Chloris truncata — Windmill Grass

Also: Umbrella Grass, Star Grass, Blow-away Grass.

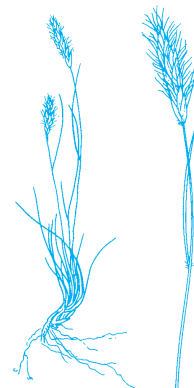


- Family:** Poaceae — Grass family.
- Occurrence:** Widespread, throughout most areas of region.
- Habitat:** Many soil and community types. More common on red or black earths.
- Habit:** Erect, hairless perennial to 50 cm high, forming dense low crown of small fibrous leaves. Sometimes with short, branched stolons, and distinctive flower spike, late winter to summer.
- Seed Collection:** Early Jan to mid Mar. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** Store for 12 months before sowing due to after-ripening period, or overcome dormancy by removing structures enclosing seeds. Germinates at 15-35°C. Suited to direct seeding into pots (2-3 per pot), and in the field. Germinates in 2-3 weeks.
- Values or Uses:** High forage value but does not appear to be readily grazed, unless young growth. Increases in response to grazing and raised fertility. Good habitat. Seed eaten by native birds, including finches. Cover for small reptiles. Useful resilient lawn grass, or spectacular ornamental. Plant in groups for best effect. Rejuvenate old plants by severe trimming or burning, and water afterwards to encourage growth.
- Comments:** Relatively short-lived. Moderate drought tolerance. Low frost tolerance.

Danthonia species — Wallaby Grasses

- Family:** Poaceae — Grass family.
- Occurrence:** Widespread and common throughout region.
- Habitat:** Well-drained infertile soils.
- Habit:** Tufted perennial grasses with fine leaves and fluffy seedheads. Grow year-round.

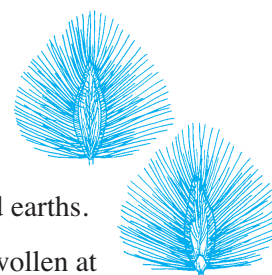
- Seed Collection:** When seedheads turn off-white, dry out and start to disintegrate.
- Propagation:** From surface-sown seed, division of clumps, or from transplants.
- Values or Uses:** Excellent grazing value. Important components of natural pastures in temperate areas. Pasture for large proportion of Australian wool industry. Valued for persistence, palatability and productivity. Tend to produce high quality forage in winter and withstand seasonal grazing. Excellent habitat. Food for seed-eating birds, including finches, and the Turquoise Parrot. Birds including the Speckled Warbler and Rufous Songlark nest in and under tussocks. Tussocks good cover for reptiles, including legless lizards. Food source for native grazers and butterfly larvae. Excellent 'contrast' plants in native landscaping, and for rockeries. Plant in groups for best effect. Rejuvenate old plants by severe trimming or burning, and water afterwards to encourage growth.
- Comments:** Tolerate severe frost and drought. Species in region include White-top — *D. caespitosa*; Hill Wallaby Grass — *D. eriantha*; Wallaby Grass — *D. laevis*; Wallaby Grass — *D. linkii* var *linkii*; Wallaby Grass — *D. monticola*; Velvet Wallaby Grass — *D. pilosa*; Wallaby Grass — *D. racemosa*; Wallaby Grass — *D. semiannularis*; and Small-flowered Wallaby-grass — *D. setacea*. Note that the *Danthonia* genus is in the process of being divided into *Notodanthonia* and *Rytidosperma*.



Digitaria brownii — Cotton Panic Grass

Also: Woolly finger, Cotton Grass, Silver Spike Grass

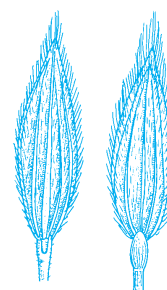
- Family:** Poaceae — Grass family.
- Habitat:** Various soils and vegetation types. Commonly sandy to clay loamy red earths.
- Habit:** Rhizomatous perennial grass to 80 cm high. Often hairy and slightly swollen at base. Flowers summer.
- Seed Collection:** Cut entire seedheads when mature.
- Values or Uses:** Readily eaten by stock. One of more desirable summer-growing grasses.
- Comments:** Requires extended heavy summer rainfall to establish.



Digitaria divaricatissima — Umbrella Grass

Also: Spreading Umbrella Grass, Spider Grass, Spider Panic, Star Grass.

- Family:** Poaceae — Grass family.
- Habitat:** Woodland, on better soils.
- Habit:** Erect, loosely tufted perennial grass to 80 cm high. Swollen, densely hairy base. Flowers summer.



- Seed Collection:** Cut entire seedheads when mature.
- Propagation:** From seed. Seeds have after-ripening period.
- Values or Uses:** Valuable part of pasture where abundant, producing green leaf when other green feed scarce.
- Comments:** Summer-growing and drought-resistant.

Elymus scaber — Common Wheat-grass

- Family:** Poaceae — Grass family.
- Habit:** Loosely tufted perennial grass to 1.1 m high. Distinctive seedheads, summer. Leaves narrow, rough along one edge, and have 'half-twist'.
- Seed Collection:** Early to late Dec. Mature seeds easily part from seedheads.
- Propagation:** From seed or by division. Seeds have 6 month after-ripening period.
- Values or Uses:** High forage value. One of first native grasses to grow in spring, providing early green forage. Increases under grazing and rising fertility. Seed injures eyes and contaminates wool.
- Comments:** Tolerates frost and moderate drought.



Enteropogon acicularis — Curly Windmill Grass

(syn. *Chloris acicularis*)

- Family:** Poaceae — Grass family.
- Habitat:** Often cracking clay soils.
- Habit:** Tufted perennial grass to about 40 cm high. Generally bluish-green leaves. Flowers after rain.
- Seed Collection:** Harvest entire seedheads by hand, or cut with secateurs.
- Propagation:** From seed. Some *Enteropogon* species have after-ripening period.
- Values or Uses:** Stabilises sandy soils. Young growth quite palatable. Old growth harsh and unpalatable (on ungrazed plants).
- Comments:** Tolerates drought and floods. Grows abundantly after warm-season rains. Quickly eliminated by heavy grazing.

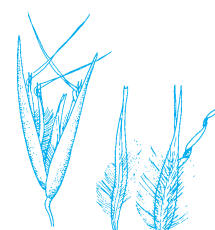


Joycea pallida — Red-anther Wallaby Grass

(syn. *Danthonia pallida*; *Chionochloa pallida*)

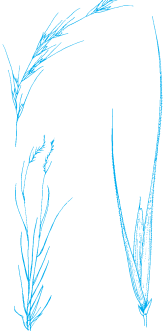
Also: Silvertop Wallaby Grass

- Family:** Poaceae — Grass family.




-
- Occurrence:** Predominantly east of the Hume Highway.
- Habitat:** Generally upland areas of low fertility acid soils.
- Habit:** Robust, coarse, perennial tussock grass to 1.2 m high. Attractive red-anther flowers, spring-summer.
- Seed Collection:** Early to late Dec. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** From seed. Store for 4 months before sowing, due to after-ripening period. Smoke treatment enhances germination.
- Values or Uses:** Valuable summer grazing, catchment and slope protection and shelter.

Microlaena stipoides — Weeping Grass

- Family:** Poaceae — Grass family.
- Occurrence:** Predominantly east of the Olympic Highway.
- Habitat:** Moist, well-drained soils moderately to highly fertile, in semi-shaded areas. Common along creeklines.
- Habit:** Tufted slender perennial grass to 70 cm high. Green all year, with rhizomes. Slender green drooping flowerhead, summer-autumn and throughout year.
- Seed Collection:** May be difficult to harvest because mature seed drop from flower spike. Run stems lightly between fingers. Light-brown ripe seed come off easily.
- Propagation:** From seed, which germinates readily, or from division.
- Values or Uses:** Good forage and highly competitive. Increases under grazing and rising fertility. Good habitat. Cover for ground-dwelling reptiles, such as legless lizards and skinks, and seed for native birds including parrots. Food for butterfly caterpillars. Decorative ornamental for rockeries, or groundcover under trees. Plant in groups for best effect. One of best low-maintenance native lawns. Can be mown occasionally.
- Comments:** Tolerates drought and frost.
- 

Poa species — Tussock Grasses

- Family:** Poaceae — Grass family.
- Occurrence:** Widespread and common throughout region.
- Habit:** Tufted annuals or perennials, often forming large tussocks. Sometimes with rhizomes or stolons, generally flowering spring.
- Seed Collection:** Small seeds in tall finely-branched seedheads turn from green to light brown as seeds mature.
- Propagation:** From seed, or division which is easier. Stratifying seed for 3 weeks may improve germination.
- 

Values or Uses: Some species valuable fodder, and useful for controlling soil erosion. Good habitat. Useful refuge for small native birds and reptiles. Important habitat for insects, including butterflies, and seeds are a food for native birds. Attractive grasses for rockeries and other gardens. Plant in groups for best effect. Rejuvenate old plants by cutting back severely, or burning. Water heavily afterwards to encourage growth. Species in the region include *P. labillardieri* — Tussock Grass and *P. sieberiana* — Fine-leaf Tussock Grass.

Sporobolus caroli — Fairy Grass

Also: Yakka Grass, Small pepper grass.

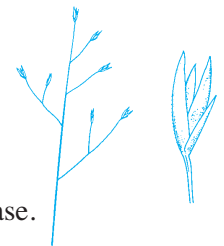
Family: Poaceae — Grass family.

Habitat: Floodplains of inland rivers and creeks.

Habit: Slender annual or perennial grass to 60 cm high. Often dense and leafy at base. Flowers mostly summer-autumn, and after rain.

Propagation: From seed. *Sporobolus* species have after-ripening period.

Values or Uses: Useful summer-growing grass. Quality feed, often when other feed scarce. Useful coloniser of scalds, as seeds prolifically.



Themeda triandra — Kangaroo Grass

(syn. *Themeda australis*)

Family: Poaceae — Grass family.

Occurrence: Widespread throughout region.

Habitat: Various habitats including moist, well-drained soils.

Habit: Tufted perennial deep-rooted grass to 1.2 m high. Often tinted red.

Seed Collection: Summer, when seedheads dark and seed, dark red-brown. Seeds ripe if they release with very gentle pressure when awn pulled.

Propagation: From seed, stored 6-11 months to overcome dormancy. Also by division in spring, when plants growing after winter dormancy.

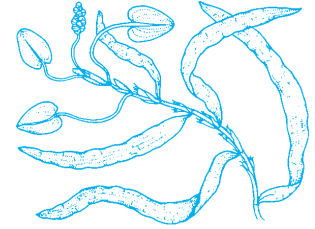
Values or Uses: Moderate forage. Useful 'green pick' during summer after rain. Does not persist under heavy grazing or increased soil fertility. Excellent habitat. Seeds important food for finches and parrots. Cover for skinks, legless lizards, frogs, native insects and mammals. Attracts butterfly caterpillars. Very attractive ornamental for rockeries and native landscapes. Plant in groups for best effect. Rejuvenate old tussocks by severe pruning or burning, followed by heavy watering to encourage growth. Seed can be ground and baked.

Comments: Tolerates drought. Low to moderate frost tolerance. Plants burnt in spring green over summer and low fire hazard.



Plant Descriptions

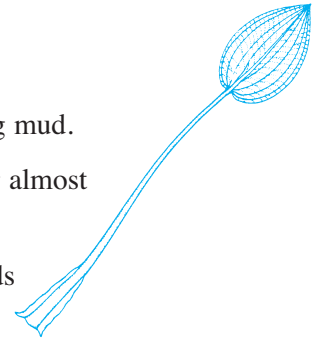
Rushes, Sedges and Water plants



Common Name	Botanical Name	Page
Blunt Pondweed	<i>Potamogeton ochreatus</i>	412
Common Reed/Phragmites	<i>Phragmites australis</i>	411
Common Watermilfoil	<i>Myriophyllum papillosum</i>	410
Cumbungi	<i>Typha</i> species	413
Floating Pondweed	<i>Potamogeton tricarlinatus</i>	412
Leafy Flat-sedge	<i>Cyperus lucidus</i>	408
Ribbonweed	<i>Vallisneria gigantea</i>	413
Rushes	<i>Juncus</i> species	409
Sedges	<i>Carex</i> species	408
Starfruit	<i>Damasonium minus</i>	409
Swamp-lily	<i>Ottelia ovalifolia</i>	411
Tall Spike-rush	<i>Eleocharis sphacelata</i>	409
Water Plantain	<i>Alisma plantago-aquatica</i>	408
Water Primrose	<i>Ludwigia peploides</i>	410
Water Ribbons	<i>Triglochin procerum</i>	412
Wavy Marshwort	<i>Nymphoides crenata</i>	410

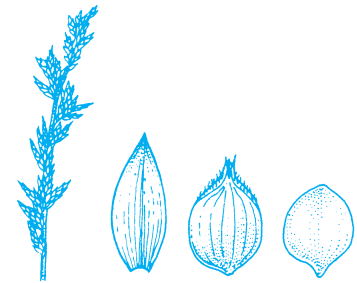
Alisma plantago-aquatica — Water Plantain

- Family:** Alismataceae — Alisma family
- Habitat:** Shallow margins of creeks and swamps to 50 cm deep, and drying mud.
- Habit:** Erect emergent aquatic perennial to 1.5 m high with pale pink or almost white flowers in summer.
- Seed Collection:** Mid Dec to late Jan. Monitor closely as mature tan-brown seeds shed in 3-14 days.
- Propagation:** Division of rootstock or from seed using the bog method.
- Values or Uses:** Valuable part of aquatic environment. Fruit and leaves a food source for native wildlife. Useful in farm dams. Ornamental for garden ponds.
- Comments:** Easily grown.



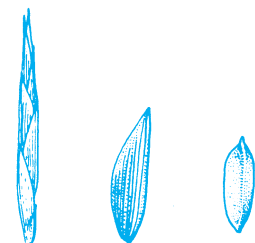
Carex species — Sedges

- Family:** Cyperaceae — Sedge family
- Occurrence:** Widespread and common throughout region.
- Habitat:** Poorly-drained areas, along watercourses and swamp margins.
- Habit:** Perennial grass or rush-like tussocky plants.
- Seed Collection:** Cut seedheads when dry and golden-brown. Place stalks upside-down in paper bags. Dry and rub heads to extract seed.
- Propagation:** By division of rhizome or from seed, using the Bog method. Stand seed tray in container of water to keep moist.
- Values or Uses:** Valuable in preventing creekbank erosion at the bank/water interface due to fibrous soil-binding roots. Also useful for slowing water movement in drainage lines. Excellent habitat and cover for frogs and various insects. Some species are ornamental particularly nearby garden ponds. Food plants for caterpillars of native butterflies and moths.
- Comments:** Species in the region include Tall Sedge — *C. appressa*; Sedge — *C. breviculmus*; Knob Sedge — *C. inversa* and Sedge — *C. tereticaulis*.



Cyperus lucidus — Leafy Flat-sedge

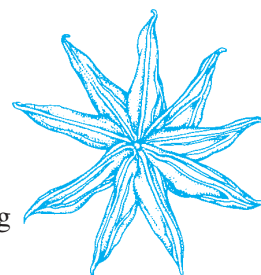
- Family:** Cyperaceae — Sedge family
- Habitat:** Poorly-drained soils in wet swampy areas or along watercourses in open situations.
- Habit:** Perennial herb up to 1.6 m high and about 1 m wide.



- Seed Collection:** Early Jan to late Feb. Mature seedheads are brown and release smooth nuts readily.
- Propagation:** From seed or by division of rhizome.
- Values or Uses:** Valuable in soil erosion control along streamsides due to fibrous roots. Good habitat for small birds and frogs, and food for caterpillars of native butterflies and moths. Ornamental for wet garden positions or as an emergent aquatic.

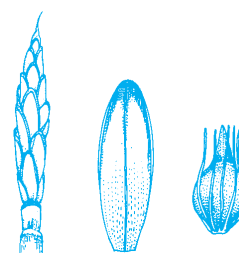
Damasonium minus — Starfruit

- Family:** Alismataceae — Alisma family
- Habitat:** Shallow stationary or slow-moving fresh water to 30 cm deep, in a range of habitats.
- Habit:** Erect emergent annual or short-lived perennial to 1 m high, with floating and/or emergent leaves, and white or pink flowers, early summer.
- Seed Collection:** Late Dec to late Jan. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** From seed or transplants.
- Values or Uses:** Attractive ornamental for garden ponds. Useful in farm dams.
- Comments:** Occasionally grazed by cattle only sparingly.



Eleocharis sphacelata — Tall spike-rush

- Family:** Cyperaceae — Sedge family
- Habitat:** Relatively still water to 2 m deep, but commonly 90 cm deep.
- Habit:** Very robust perennial aquatic with stout rhizome with big hollow stems 4-12 mm wide, forming dense stands.
- Seed Collection:** Mid-late Jan. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** By division.
- Values or Uses:** Excellent cover for waterfowl and fish in dams. Ornamental for garden ponds. Good summer-growing stock forage.



Juncus species — Rushes

- Family:** Juncaceae — Rush family
- Occurrence:** Widespread and common throughout region.
- Habitat:** In or near water in seasonally wet places. Common on clays and clay loams.
- Habit:** Annual or perennial erect or spreading tussocky herbs.



-
- Seed Collection:** Early Dec to early Mar, when seedheads fully formed and brown. Monitor closely as mature seeds shed in 3-14 days. Dry in paper bag and sieve to extract.
- Propagation:** From seed, using the Bog method. Stand seed tray in water to keep moist. Fresh seed usually germinates readily. Also from division of rhizomes in clumps 5-10 cm diameter or larger. Keep moist.
- Values or Uses:** Useful for soil erosion control along watercourses and around dams due to soil-binding fibrous roots. Excellent habitat for small birds, frogs, fish and crustaceans. Seed probably eaten by finches, pigeons and parrots. Ornamental potential for wet places in the garden.

Ludwigia peploides — Water Primrose

Also: Clovestrip

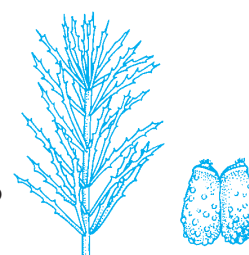
- Family:** Onagraceae
- Habitat:** Low areas subject to flooding, margins of lakes and streamsides.
- Habit:** Prostrate, often villous herb 10 cm to 1 m high, rooting at nodes or floating with ascending flowering stems, with glossy green leaves on floating stems to 4 m long and prolific bright yellow flowers summer-autumn.
- Propagation:** Cuttings which strike readily or from seed.
- Values or Uses:** Useful in dams. Highly ornamental due to attractive leaves and flowers.
- Comments:** Grazed sparingly by stock.



Myriophyllum papillosum — Common Watermilfoil

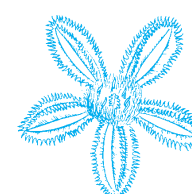
Also: Milfoil, Water-milfoil

- Family:** Haloragaceae
- Habitat:** Still or slow-moving fresh water to 1 m deep, with stems extending into deeper water, or on mud. Also in damp areas around lakes and swamps.
- Habit:** Aquatic or fully emergent perennial herb rooting at nodes, with trailing stems to about 2 m long, erect stems to about 20 cm high and inconspicuous flowers.
- Seed Collection:** Early Dec to mid Mar.
- Propagation:** By cuttings, from seed or division of layered stems.
- Values or Uses:** Useful for dams and attractive ornamental for garden ponds.



Nymphoides crenata — Wavy Marshwort

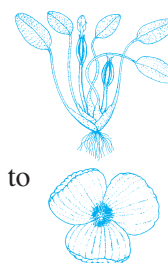
- Family:** Menyanthaceae
- Habitat:** Mud and drying mud or in slow-moving water to about 1.5 m deep.



- Habit:** Robust perennial with floating bright green waxy leaves, more or less floating stolons to 2 m long and fringed yellow flowers about 3 cm across, spring-autumn.
- Propagation:** By division.
- Values or Uses:** Useful in dams. Ornamental for garden ponds.
- Comments:** May be frost sensitive.

Ottelia ovalifolia — Swamp-lily

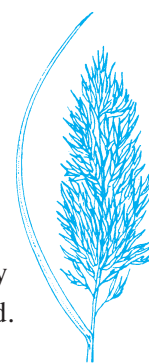
- Family:** Hydrocharitaceae
- Habitat:** Slow-moving fresh water, or stationary water of ponds, dams and lagoons to about 1 m deep. Often in water with high nutrient levels.
- Habit:** Tufted aquatic perennial herb with submerged and floating leaves and flowers.
- Seed Collection:** Early Dec to late May. Immature fruit is withdrawn under water where it matures and produces numerous finely-hairy seeds, 2-3 mm long.
- Propagation:** From seed. Germinates readily on mud and in warm shallow water. Keep seedling leaves submerged.
- Values or Uses:** Useful in dams. Attractive ornamental for garden ponds or aquariums.
- Comments:** Not known to be grazed by stock. Frost resistant.



Phragmites australis — Common Reed

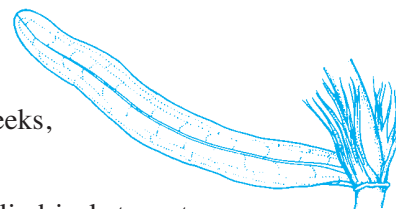
(syn. *Phragmites communis*)

- Family:** Poaceae — Grass family
- Occurrence:** Widespread and common throughout region.
- Habitat:** Permanently or seasonally inundated areas with high watertable, including marshes and lagoons, and along creek and river banks. Prefers fresh or slightly brackish water up to 2 m deep, mainly on mud substrate but occasionally on sand.
- Habit:** Semi-aquatic, bamboo-like perennial grass with strongly creeping rhizomes (underground stems) up to 4 m high.
- Seed Collection:** Late autumn to mid winter.
- Propagation:** By division in spring or from seed using the Bog method. Stand seed tray in container of water to keep moist. Can also be propagated by layering, stem cuttings in spring and rhizome cuttings.
- Values or Uses:** Excellent for streambank erosion control, protecting beds and banks from erosive flows. A good siltation filter and sediment trap. Excellent wildlife habitat, as cover for small birds and waterbirds such as the Australian Reed-Warbler, and important fish refuge, providing an aquatic food source. Attractive waterside plant for large garden ponds. Cut back in winter to rejuvenate.
- Comments:** Fast-growing.



Potamogeton ochreatus — Blunt Pondweed

- Family:** Potamogetonaceae — Potamogeton family
- Habitat:** Stationary and slow-moving water up to 5 m deep in creeks, rivers, channels and lakes, usually on deep silt or gravel.
- Habit:** Submerged rhizomatous annual or perennial aquatic with cylindrical stems to 4 m long and linear leaves to 10 cm long.
- Seed Collection:** Early Dec to late Jan. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** By division or cuttings placed in submerged sand.
- Values or Uses:** Useful in dams. Valuable to waterfowl and fish.
- Comments:** Tolerates slightly saline water. May obstruct irrigation channels early spring/summer.



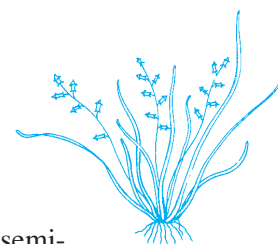
Potamogeton tricarinatus — Floating Pondweed

- Family:** Potamogetonaceae — Potamogeton family
- Habitat:** Slow-moving water of rivers and creeks to 3 m deep. Also ponds or dams.
- Habit:** Rhizomatous aquatic perennial with submerged and floating leaves and emergent inflorescences and stems to 4 m long.
- Seed Collection:** Early Dec to late Jan. Monitor closely as mature seeds shed in 3-14 days.
- Propagation:** From seed using Bog method, cuttings or division of rhizome.
- Values or Uses:** Useful in dams. Valuable food and shelter source for freshwater wildlife.
- Comments:** Useful indicator plant for water pollution. May obstruct water flow in small streams/channels.



Triglochin procerum — Water Ribbons

- Family:** Juncaginaceae
- Habitat:** Most freshwater situations in water to 2 m deep, including muddy billabongs, soaks, flooded hollows, sluggish rivers and fast-flowing mountain streams.
- Habit:** Robust rhizomatous emergent perennial aquatic with tuberous roots, semi-erect or floating leaves, and tall greenish cylindrical flower/seed spike.
- Seed Collection:** Late Jan to late May. Monitor closely as mature seeds shed in 3-14 days. Fruit consist of 6 elongated chambers 5-10 mm long, which eventually separate and fall.



- Propagation:** From seed or transplants. Seeds germinate readily in shallow water in autumn.
- Values or Uses:** Habitat for waterbirds and fish. Useful in dams.
- Comments:** Kooris roasted and pounded the edible starchy tubers.

***Typha domingensis* — Cumbungi**
***Typha orientalis* — Cumbungi**

Also: Typha

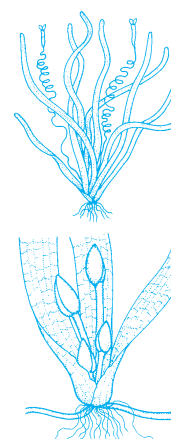
- Family:** Typhaceae — Typha family
- Occurrence:** Widespread and common throughout region.
- Habitat:** Streams, swamps, lakes and local water-filled depressions, in fresh or slightly brackish water to 2 m deep.
- Habit:** Erect robust semi-aquatic perennial.
- Seed Collection:** Seed is dispersed by wind and water. One seed spike can contain around 200,000 seeds, with a high percentage viable.
- Propagation:** From seed or by division.
- Values or Uses:** Useful to extract pollutants from waste or drainage water. Excellent habitat for waterfowl and frogs. Reduces evaporation from swamps or shallow lakes as plants shelter the water surface from wind.
- Comments:** Vigorous, particularly during summer. Salt tolerant. A major weed of irrigation channels west of the guide area. In shallow creeks dense stands slow water movement and cause flooding of surrounding land during high flows. To reduce the size of cumbungi stands, cut plants below the waterline in autumn.



***Vallisneria gigantea* — Ribbonweed**

Also: Eelweed

- Family:** Hydrocharitaceae
- Habitat:** Stationary or flowing fresh water to about 4 m deep.
- Habit:** Submerged tufted stoloniferous perennial aquatic with strap-like leaves and inconspicuous flowers during warmer months.
- Propagation:** By division. Reproduces mainly from stolons.
- Values or Uses:** Wildlife value. Black Swans feed on the rhizomes.
- Comments:** Weed in irrigation channels.



Appendix 1

Fire retarders — locally native plants

While all plants will eventually burn, some are slow to ignite and burn. To reduce fire danger around houses and buildings, consider planting species shown on the following list. Choosing fire retarders, in conjunction with removing dry or dead material from around plants and designing plantings to deflect wind, arrest sparks and absorb radiant heat, fire danger can be reduced. When developing a fire risk reduction plan, seek assistance from your local authorities.

The following list has been extracted from *Grow What Where* (1980), Australian Plant Study Group, Penguin Books Australia.

TREES

<i>Acacia dealbata</i>	Silver Wattle
<i>A. melanoxylon</i>	Blackwood
<i>Allocasuarina verticillata</i>	Drooping Sheoak
<i>Banksia marginata</i>	Silver Banksia
<i>Brachychiton populneus</i>	Kurrajong
<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	River Sheoak
<i>Pittosporum angustifolium</i>	Butterbush/Weeping Pittosporum

SHRUBS & GROUNDCOVERS

<i>Acacia pravissima</i>	Ovens Wattle
<i>Bursaria spinosa</i>	Sweet Bursaria
* <i>Bursaria lasiophylla</i>	Hairy Bursaria
<i>Einadia nutans</i>	Climbing Saltbush
<i>Maireana breviflora</i>	Yanga Bush/Bluebush
* Probably a fire retarder as a similar species to <i>Bursaria spinosa</i> .	

Appendix 2

Phytophthora fungus

The fungus *Phytophthora cinnamomi* is known to damage many native plants through infecting the roots. Thought to have originated in Indonesia, it has been introduced to many parts of Australia by movements of soil and plants. Precautions to avoid introducing the fungus include buying disease-free stock from plant nurseries, avoiding moving soil around properties, and not planting susceptible species in water-gaining sites. The following lists have been extracted from *Grow What Where* (1980), Australian Plant Study Group, Penguin Books Australia.

Locally native plants known to be relatively tolerant of the fungus *Phytophthora cinnamomi*:

TREES

<i>Acacia dealbata</i>	Silver Wattle
<i>A. melanoxylon</i>	Blackwood
<i>A. salicina</i>	Cooba
<i>Brachychiton populneus</i>	Kurrajong
<i>Casuarina cunninghamiana</i>	River Sheoak
<i>Eucalyptus camaldulensis</i>	River Red Gum
<i>E. camphora</i>	Mountain Swamp Gum
<i>E. cinerea</i>	Argyle Apple
<i>E. dwyeri</i>	Dwyer's Red Gum
<i>E. globulus</i>	Blue Gum
<i>E. goniocalyx</i>	Long-leaf Box
<i>E. mannifera</i> subsp. <i>maculosa</i>	Brittle Gum
<i>E. melliodora</i>	Yellow Box
<i>E. pauciflora</i>	White Sallee/Snow Gum
<i>E. rubida</i>	Candlebark
<i>E. sideroxylon</i>	Mugga/Red Ironbark
<i>E. viminalis</i>	Manna Gum
<i>Pittosporum angustifolium</i>	Butterbush/Weeping Pittosporum

SHRUBS

<i>Acacia acinacea</i>	Gold-dust Wattle
<i>A. pravissima</i>	Ovens Wattle
<i>A. pycnantha</i>	Golden Wattle
<i>A. verniciflua</i>	Varnish Wattle
<i>Callistemon ptyoides</i>	Alpine Bottlebrush
<i>Epacris microphylla</i>	Mallee Bush Pea
<i>Grevillea rosmarinifolia</i>	Rosemary Grevillea
<i>Indigofera australis</i>	Austral Indigo
<i>Leptospermum grandifolium</i>	Mountain Tea-tree
<i>L. lanigerum</i>	Woolly Tea-tree
<i>Pultenaea daphnoides</i>	Bush-pea

GROUNDCOVERS/GRASSES

Austrostipa aristigulmis

Bothriochloa macra

Carex appressa

Chionochloa pallida

Chloris truncata

Danthonia caespitosa

D. eriantha

D. pilosa

Enteropogon acicularis

Microlaena stipoides

Phragmites australis

Poa labillardieri

P. sieberiana

Themeda triandra

Spear Grass

Red Leg Grass

Sedge

Red Anther Wallaby Grass

Windmill Grass

Wallaby Grass

Wallaby Grass

Wallaby Grass

Curly Windmill Grass

Weeping Grass

Common Reed

Tussock Grass

Tussock Grass

Kangaroo Grass

Locally native plants known to be susceptible to the fungus *Phytophthora cinnamomi*:

TREES

Eucalyptus dives

Broad-leaved Peppermint

SHRUBS

Acacia lanigera

A. leprosa

Grevillea alpina

Woolly Wattle

Cinnamon Wattle

Cat's Claws Grevillea

GROUNDCOVERS/ GRASSES

Hardenbergia violacea

Xanthorrhoea species

Purple Coral-pea/Sarsaparilla

Grass-tree

Appendix 3

Scientific names for fauna

BIRDS

Honeyeater	<i>Acanthagenys</i> spp.; <i>Xanthomyza</i> spp.; <i>Entomyzon</i> spp. etc
Thornbill	<i>Acanthiza</i> spp.
Clamorous Reed-Warbler	<i>Acrocephalus stentoreus</i>
Chestnut Teal	<i>Anas castanea</i>
Grey Teal	<i>Anas gibberifrons</i>
Australian Shoveler	<i>Anas rhynchotis</i>
Pacific Black Duck	<i>Anas superciliosa</i>
Great Egret	<i>Ardea alba</i>
Little Egret	<i>Ardea garzetta</i>
Intermediate Egret	<i>Ardea intermedia</i>
White-faced Heron	<i>Ardea novaehollandiae</i>
Pacific Heron	<i>Ardea pacifica</i>
Hardhead	<i>Aythya australis</i>
Stone-curlew (Bush Thickknee)	<i>Burchinus grallarius</i>
Golden-headed Cisticola	<i>Cisticola exilis</i>
Treecreeper	<i>Climacteris</i> spp.; <i>Cormobates</i> spp.
Grey Shrike-thrush	<i>Colluricincla harmonica</i>
Cuckoo Shrike	<i>Coracina</i> spp.
Black Swan	<i>Cygnus atratus</i>
Sittella	<i>Daphoenositta chrysoptera</i>
Plumed Whistling-Duck	<i>Dendrocygna eytoni</i>
Firetail	eg. <i>Emblema</i> spp.
Red-kneed Dotteral	<i>Erythronyctes cinctus</i>
Crested Shrike-tit	<i>Falcunculus frontatus</i>
Eurasian Coot	<i>Fulica atra</i>
Dusky Moorhen	<i>Gallinula tenebrosa</i>
Black-tailed Native-hen	<i>Gallinula ventralis</i>
Peaceful Dove	<i>Geopelia placida</i>
Brolga	<i>Grus rubicundrus</i>
White-winged Triller	<i>Lalage tricolor</i>
Little Grassbird	<i>Megalurus gramineus</i>
Jacky Winter	<i>Microeca leucophaea</i>
Restless Flycatcher	<i>Myiagra inquieta</i>
Owl	<i>Ninox</i> spp.; <i>Tyto</i> spp.
Blue-billed Duck	<i>Oxyura australis</i>
Golden Whistler	<i>Pachycephala pectoralis</i>
Rufous Whistler	<i>Pachycephala rufiventris</i>
Pardalote	<i>Pardalotus</i> spp.
Robin	<i>Petroica</i> spp.; <i>Melanodryas</i> spp.; <i>Eopsaltria</i> spp.
Great Cormorant	<i>Phalacrocorax carbo</i>

Little Pied Cormorant
Little Black Cormorant
Pied Cormorant
Yellow-billed Spoonbill
Superb Parrot
Babbler
Grey-crowned Babbler

Phalacrocorax melanoleucos
Phalacrocorax sulcirostris
Phalacrocorax varius
Platalea flavipes
Polytelis swainsonii
Pomatostomus spp.
Pomatostomus temporalis

Purple Swamphen
Grey Fantail
Apostlebird
Australasian Grebe/Little Grebe
Australian Shelduck
Sacred Ibis
Straw-necked Ibis
Kingfisher
Regent Honeyeater
Silvereye

Porphyrio porphyrio
Rhipidura fuliginosa
Struthidea cinerea
Tachybaptus novaehollandiae
Tadorna tadornoides
Threskiornis aethiopicus
Threskiornis spinicollis
Todiramphus spp.; *Alcedo* spp.
Xanthomyza phrygia
Zosterops lateralis

OTHER FAUNA

Squirrel Glider
Brush-tailed Phascogale
Platypus
Carpet Python

Petaurus norfolcensis
Phascogale tapoatafa
Ornithorhynchus anatinus
Morelia spilota variegata

Appendix 4

Native plant field guides

- *Along the Bush Tracks — Albury Wodonga*, 1997, Monument hill Parklands Assoc. & Albury Wodonga Field Naturalists, Albury, NSW.
- *The Forgotten Forests. A Field Guide to Victoria's Box and Ironbark Country*, 1994, Victorian National Parks Association, East Melbourne.
- *Trees of Victoria and Adjoining Areas*, 1994, L. Costermans, Costermans Publishing, Frankston, Victoria.
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- *Grasses of Temperate Australia. A Field Guide*, 1990, C.A. Lamp, S.J. Forbes & J.W. Cade, Inkata Press, Melbourne.
- *The Identification of Some Common Native Grasses in Victoria*, 1991, M. Mitchell & M. Miller, Dept. Agriculture, Rutherglen, Vic.
- *Field Guide to Victoria's Native Grasslands*, 1992, N.H. Scarlett, S.J. Wallbrink & K. McDougall, Victoria Press, South Melbourne.
- *A Field Guide to Native Peaflowers of Victoria and Southeastern Australia*, D.A. Woolcock, Kangaroo Press, Kenthurst, NSW.

Appendix 5

Revegetation costs

The cost of planting trees and shrubs depends on the:

- size and shape of the area (refer to Practical Information Note — Stretching the Fencing);
- establishment technique;
- soil type;
- seasonal conditions;
- species;
- type of planting stock eg. tubestock; hikos; bare rooted etc;
- pests including rabbits, hares and insects;
- type of fence and treeguard used;
- degree of establishment success; and
- availability and cost of labour.

Given the above factors, it is difficult to give estimates of costs involved. Projects will range from the very cheap to the very expensive depending on the circumstances. However, approximate figures are provided in Table 1.

Table 1. APPROXIMATE COSTS OF PLANTING

Item	Cost Range	Approximate Cost
Seedling purchase		
Tubes	\$0.50-\$1.00 each	\$0.70
Cells		\$0.35
• 95cc's eg. Hiko	\$0.30-\$0.55 each	\$0.40
• 45cc's eg. Lannen	\$0.25-\$0.40 each	\$0.35
Herbicide	\$0.01-\$0.05 per seedling	\$0.05
Deep-ripping	\$0.05-\$0.15 per seedling	\$0.10
Treeguards (rabbits/ hares)	\$0.15-\$2.00 per seedling	\$0.15 (milk carton guards)
Labour		
planting*	\$0.15-\$1.00 per seedling	\$0.20
guarding	\$0.25-\$1.00 per seedling	\$0.40
Total cost per seedling (to rip, spray, plant & guard)	\$1.11-\$5.20	\$1.95

* if machine planting, cost is less than 10 cents per seedling.

DIRECT SEEDING

Direct seeding is estimated at 10-20% of the cost involved in planting. The cost depends on factors including cost of seed and establishment rate.

FENCING

Electric

Costs are \$300-\$900 per km, including labour.

Conventional prefab or plain wire.

Costs are \$1000-\$3000 per km, including labour. Cost depends on the region and number of posts and wires.

Netting.

Costs are \$3000-\$5000 per km, including labour.

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PERSONAL COMMUNICATION

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glossary

Agroforestry	A sustainable land management practice that integrates agriculture and tree-growing on farms.
Aquatic	living in water.
Arboreal	of, living in, trees.
Biodiversity	The diversity of living things, the sum of species, ecosystem and genetic diversity.
Bipinnate	A leaf twice pinnately divided, the first divisions themselves again divided, as in the bipinnate wattles.
Bog Method	A method of propagation where the seed tray is placed in a container of water, to keep the seed continually waterlogged or boggy. It is highly recommended for species with fine seed.
Capsule	A dry fruit which opens or splits to release seeds when ripe.
Community	All the living things (normally including plants and animals) in a particular area, which together with the non-living components of the environment form an ecosystem.
Coppice	Regrowth that grows from dormant buds under the bark of tree stumps after the tree has been felled.
Corridor	A linear habitat. A corridor may link patches of habitat in the landscape and be a pathway for movement of wildlife.
Cubic metre (m³)	The unit of measurement used for wood volume; 1m x 1m x 1m.
Dioecious	With unisexual flowers, male and female on different plants.
Discharge	Area where ground water reaches the soil surface.
Drupe	A stone-fruit, composed of a single hard-coated seed surrounded by a fleshy pulp or leathery layer, and an outer skin.
Ecosystem	The complex relationship between all the living and decaying organisms (including plants and animals) and the non-living components (including soil, water, air, light) in a defined environment.
Epicormic shoots	New shoots that grow on the trunk after damage such as grazing, burning or pruning.
Exotic	Introduced from abroad, i.e., a plant not native to Australia.
Funicle	The stalk of an ovule or seed.
Genus	A classification group composed of closely related species.
Glaucous	Coated with a bluish-white 'bloom' (a powdery waxy secretion), sometimes giving leaves a grey or silvery appearance.
Habit	The general appearance of a plant, including size, shape and growth-form.
Habitat	The environment in which a plant or animal lives.
Hybrid	The offspring of two different species.

Indigenous	Native to a particular area; not introduced.
Juvenile	Applied to the leaves on the young plant, especially when these differ from the mature leaves, as in most eucalypts.
Legume	(i) A dry fruit formed from one carpel and splitting along two longitudinal lines; more commonly referred to as a pod, as in wattles. (ii) A general term for members of the families Fabaceae, Mimosaceae, and Caesalpiniaceae (Leguminaceae).
Lignotuber	A woody swelling, partly or wholly underground at the base of the stem of certain plants, notably many eucalypts. Composed of food reserves and shoots which can emerge for survival if the plant's aerial parts are destroyed.
Mordant	A substance that fixes colour (in dyeing).
Naturalised	The term used to describe exotic species which have become established in the wild outside their natural range.
Node	The portion of the stem (often a 'joint') from which a leaf, or whorl of leaves, or bract, arises.
Operculum	A lid or cap, especially that which initially covers the flower parts in the buds of all eucalypts.
Perennial	Living for at least several years, and usually flowering each year.
Phyllode	The leaf-stalk enlarged and commonly flattened, and performing the functions of a leaf, as in many wattle species.
Pioneer	Describing plants which colonise an exposed site in early stages of succession.
Pricking out	The method of transplanting seedlings from trays to individual containers.
Provenance	The place of origin of a species, subspecies or variety.
Recharge	Area in which surface water enters the soil to become ground water.
Remnant vegetation	Native vegetation remaining in the landscape.
Riparian	Growing on a river-bank or stream bank.
Shelterbelt	A linear planting of closely spaced trees and shrubs designed and strategically located to reduce wind speed.
Species	(abbrev. sp. — singular; spp. — plural). A unit of classification of genetically similar organisms potentially capable of interbreeding to produce fertile offspring for many generations.
Subspecies	(abbrev. subsp.) A subgrouping used to describe variants of a species.
Succession	The process in which the same area is progressively occupied by different plant communities, while other environmental factors are reasonably constant.
Understorey	A general term for the plants (usually shrubs) of a community occurring at levels lower than the top stratum (usually trees).
Viability (of seed)	Having the potential to germinate.

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