

## Regional ecosystems: Dry Vine Forest



### RE 12.8.21

## Semi-evergreen vine thicket with Narrow-leaved Bottle Trees on basalt

Softwood scrub is one of those uniquely Queensland terms. Early European settlers gave this name to the dark green patches of low, dense scrubby vegetation that grew on the subcoastal hills and ranges in South East Queensland (SEQ). Regional Ecosystem (RE) 12.8.21 is considered part of the softwood scrub. Softwood scrub is a type of dry rainforest and contains many different trees, shrubs and vines. Plants are often small-leaved due to the relatively low rainfall and some have thorns or spines.

Tall trees of Narrow-leaved Bottle Tree (*Brachychiton rupestris*), Crows Ash (*Flindersia australis*), Rosewood (*Acacia fasciculifera*) and Small-leaved Fig (*Ficus obliqua*) rise above the canopy. While Narrow-leaved Bottle Tree and Crows Ash may be as tall as 25-30 m, the canopy itself is uneven and ranges in height from 2-12 m and is composed of densely packed small trees and shrubs. Scattered trees of Brigalow (*Acacia harpophylla*) may also be present.

Vines are very common in RE 12.8.21. They climb and drape over trees and often hang down to near ground level, one of the reasons why these ecological communities are referred to as 'vine thickets'. The ground layer largely comprises soil, rock and leaf litter but some shade tolerant grasses, forbs and ferns may occur. Soils supporting softwood scrub are usually fertile and well-drained.

RE 12.8.21 is formally defined as semi-evergreen vine thicket (SEVT) with Narrow-leaved Bottle Tree and microphyll vine forest in which Hoop Pine (*Araucaria cunninghamii*) may be present, growing on Cainozoic igneous (basalt) rocks. The term 'semi-evergreen' refers to the tendency for plants to shed leaves during the dry spring season and during drought. The term 'microphyll' refers to the average size of the leaves of canopy trees when they are exposed to sunlight (not those in the shade). Microphyll-sized leaves are relatively small – up to 7.5 cm long and 3.5 cm wide.



**In SEQ, RE 12.8.21 typically occurs on steep slopes and rocky screes (left). Cleared softwood scrub country where only the bottle trees remain can be commonly seen. This bottle tree (right) would have once been surrounded by semi-evergreen vine thickets, not grasses.**

Regional Ecosystems, or REs for short, are used in Queensland to describe native vegetation types based on where they grow, the plant species in the tallest layer and the underlying geology. There are about 150 different REs in SEQ, all of which have a unique three-part number usually starting with '12'.

For more information on REs visit [www.qld.gov.au/environment/plants-animals/plants/ecosystems](http://www.qld.gov.au/environment/plants-animals/plants/ecosystems)



## Distribution

In South East Queensland, RE 12.8.21 occurs on plateau, crests and steep hillsides receiving an average rainfall of 700-900 mm of rainfall per year.

RE 12.8.21 occurs on dark brown to reddish loamy soils derived principally from basalt rocks. The soils can be very stony.

***Surviving patches of RE 12.8.21 often occupy steep rocky slopes in the landscape affording them some protection from clearing for other land uses.***

## Variations and similarities

The presence of Narrow-leaved Bottle Tree distinguishes semi- evergreen vine thickets from Hoop Pine vine forests. Hoop Pine vine forests occur in slightly moister situations (eg. sheltered slopes) and Hoop Pine is often present.

Within SEQ, semi-evergreen vine thickets grow on a range of geologies. Consequently, four different REs, including RE 12.8.21, are recognised based upon the type of country where they grow.

Similar vegetation communities that occur on geologies different from RE 12.8.21 are:

- **RE 12.9-10.15** - Semi-evergreen vine thicket on sedimentary rocks.
- **RE 12.11.13** - Semi-evergreen vine thicket on metamorphics +/- interbedded volcanics.
- **RE 12.12.17** - Semi-evergreen vine thicket on Mesozoic to Proterozoic igneous rocks.

***RE 12.8.21 occurs on basalt geology in the SEQ region, here displaying distinctive hexagonal column structure (right).***



***Animal foraging reveals the rich red volcanic soils (left) that attracted early dairy and small crop farmers to vine thickets. This resulted in the widespread clearing of RE 12.8.21 on all but steep, stony slopes.***

## Distribution map 12.8.21

RE 12.8.21 occurs along the western margins of the SEQ region on the plateaux, crests and steep hillsides associated with the basalt flows of the Great Dividing Range and its spurs. It can co-occur with 12.9-10.15 which grows on the sedimentary rocks that underlie the basalt flows. The vegetation has been cleared for dairy pasture and cropping and current mapping indicates that only 13% of the pre-clearing extent remains today, and thus RE 12.8.21 is listed as 'endangered' under Queensland legislation. Semi-evergreen vine thicket remnants are small and scattered and some are tucked away in unusual places such as cemetery and road reserves. Some significant patches have been conserved as a result of community interest in keeping some of the original country for future generations.

### 1. Redwood Conservation Park, Warrego Highway, Toowoomba

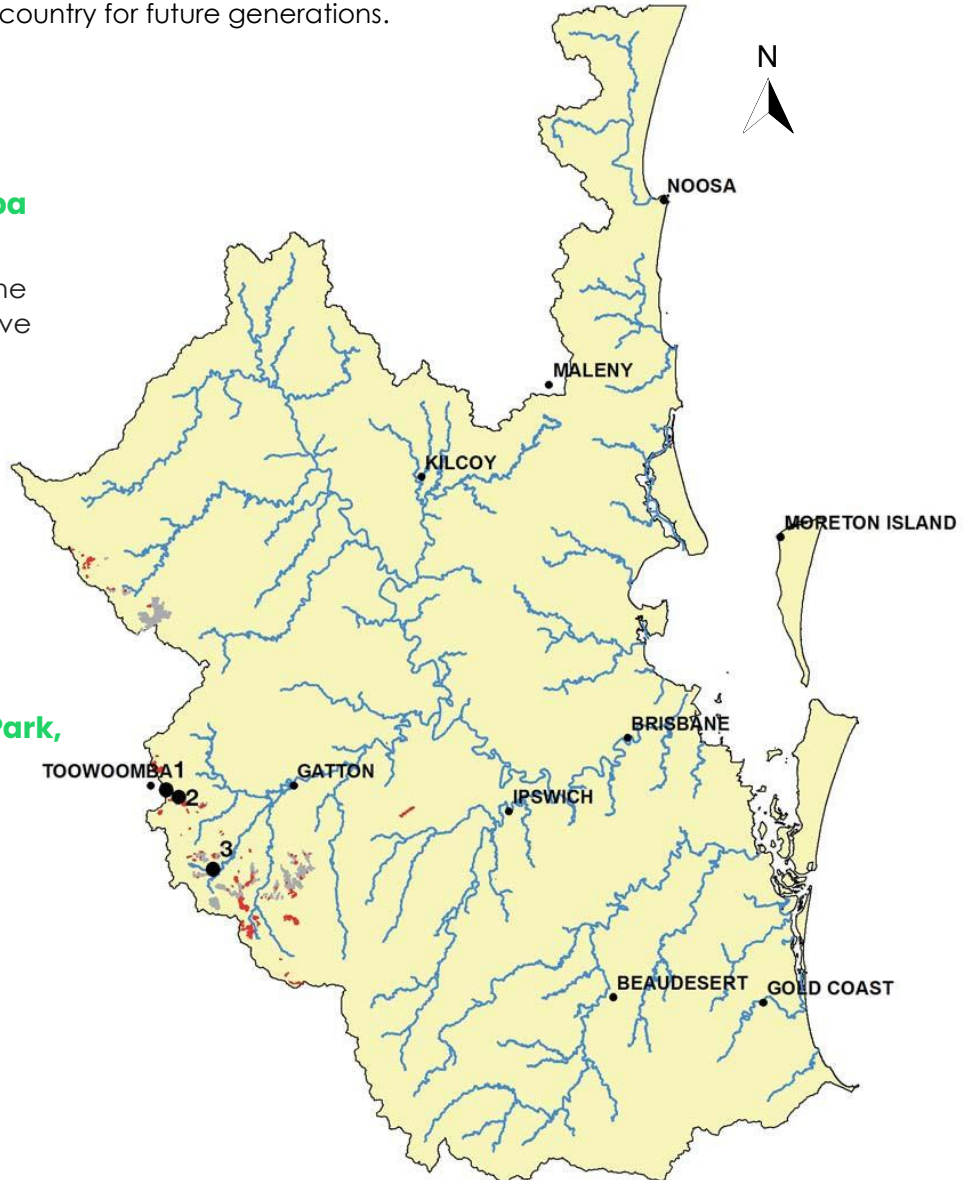
An example of RE 12.8.21 that is undergoing restoration through the removal and control of the invasive Cat's Claw Creeper and Privet.

### 2. Mt Tabletop, South Street, Toowoomba

An example of a more open type of semi-evergreen vine thicket that grows on steep, bouldery scree slopes.

### 3. Dwyer's Scrub Conservation Park, Fordsdale

This is a great place to view Narrow-leaved Bottle Trees in their natural habitat with their spreading crowns rising above a dense sea of smaller trees and shrubs.



Pre-clearing (~180 years ago)  
 Today's distribution

*\*Map is indicative only - Due to scale, some RE occurrences may not be visible.*

**Vegetation Management Act (1999) status: Endangered**  
**Level of Protection (extent in protected areas): Medium**

	Pre-clearing extent, or estimated amount ~180 years ago (hectares)	Current extent (hectares)	Percent of pre-clearing extent remaining	Amount protected in reserves (hectares)
<b>12.8.21</b>	<b>25,076</b>	<b>3,300</b>	<b>13%</b>	<b>1,149</b>



## Past to present

The early European explorers of SEQ noted the presence of very dense 'brushes' (a historical term for rainforest that remains in use in NSW) as they traversed the country between Brisbane and the Great Dividing Range. The patches on the eastern flank of the Toowoomba Range and the Marburg Range were described as being between 10 and 30 feet tall and were difficult to traverse, often requiring a detour.

The Traditional Owners of the country used pathways to facilitate movement through the scrub country, which provided material for domestic items such as dillybags and weapons.

The vine thickets were of little interest to the first pastoralists of the region and it wasn't until the mid to late 1800s that the fertile soils received attention. The softwood scrubs were felled for small farms used for dairying and cropping.

Over the years, the farms were combined into larger areas to maintain viability. Today many of those old farms have been subdivided into rural lifestyle blocks or are used for cattle grazing and seasonal cropping.



***An emergent Narrow-leaved Bottle Tree towering above the surrounding vine forest. Given past disturbances of logging, fire, grazing and roads, this site is now severely degraded with both canopy trees and the understorey covered in weeds, mainly Cat's Claw Creeper.***

## Natural values and functions

Semi-evergreen vine thicket is a structurally complex and biologically productive ecosystem that performs a wide range of ecological functions at varying scales.

The diversity of plant life forms play a prominent role in intercepting, generating, storing and recycling energy, carbon, nutrients and pollutants.

Vine thickets also protect soil from rainwash and erosion, and they filter and trap sediments.

Vine thicket patches act as cool shady islands surrounded by hotter open pasture and woodland habitats and are used for shelter and food by a wide range of birds and small to medium-sized mammals.

Many plant species are bird-dispersed and some of the fruit-eating species use vine thickets as stepping stones on seasonal and annual migration routes.

Butterflies, bats, litter-foraging vertebrates and a broad range of insects, land snails and other invertebrates are associated with pollination and decomposition cycles.

Remnant patches also play an important role as reservoirs or source populations for plant and animal species that can recolonise adjacent areas when conditions are suitable.

The threatened ground-dwelling Black-breasted Button Quail is a sedentary bird that lives in semi-evergreen vine thicket patches across SEQ.



**The occurrence of RE 12.8.21 often provides a cool shady patch in otherwise dry landscapes, such as this rainforest gorge (right) surrounded by dry Eucalypt forest.**



Softwood scrub is also a preferred roosting place for Grey-headed Flying Foxes.

Bailey's Callitris (*Callitris baileyi*) is a threatened native conifer that grows on the margins of RE 12.8.21 along with the small threatened shrubs Edge Senna (*Senna acclinis*) and Brush Sophora (*Sophora fraseri*).

**The semi-evergreen vine thicket at Dwyer's Scrub Conservation Park. Here, the Narrow-leaved Bottle Tree (bark shown on the right) can be seen in its natural habitat with other vine thicket plants.**

## Management

Much of the Hoop Pine scrub country in SEQ has been in agricultural production for well over one hundred years. However, it is still relatively easy to determine where the scrubs once grew, as many of the original trees, shrubs and vines persist as scattered individuals in paddocks and as small clumps along fencelines, road reserves and around outbuildings and cattle yards.

Softwood scrub species tend to be slow growing and the survivors in paddocks may be very old. Their growth may now be restricted by competition from pasture grasses and Lantana (*Lantana camara*), browsing and trampling by cattle and macropods, and even the occasional fire. This often gives them a stunted, clumped appearance. However, it demonstrates a capacity for resilience amongst the species that can be used to good effect in restoration and rehabilitation



**Privet (left) is an invasive weed of RE 12.8.21, forming dense monocultures that exclude native species and prevent regrowth. Cat's Claw Creeper (right) is a huge threat to semi-evergreen vine thickets as it can smother and kill mature trees.**

The manner in which species have managed to survive after wide-scale clearing is attributable to a number of factors. Some species such as Crow's Apple (*Owenia venosa*) survive by root suckering whilst other species regularly flower and set fruit, which is dispersed by wind (e.g. Crows Ash) or animals such as birds. Old paddock trees such as native figs provide perches and act as a focus for bird-dispersed seed to establish. A similar effect can be seen along fencelines, especially where Lantana provides some cover.

Hoop Pine scrub patches that have been retained or re-established in the landscape require proactive management and attention including control of weeds and exclusion of cattle and fire.

A number of serious environmental weeds are associated with vine thickets. They include introduced trees such as Chinese Elm (*Ulmus parviflora*), Privet (*Ligustrum spp.*) and shade tolerant vines that can invade intact remnants. Foremost amongst these are Madeira Vine (*Anredera cordifolia*), Cat's Claw Creeper (*Dolichandra unguis-cati*), Climbing Asparagus (*Asparagus plumosus*), Climbing Nightshade (*Solanum seforthianum*) and Dutchman's Pipe (*Aristolochia spp.*). These aggressively competitive vines smother plants and form dense clumps that exclude native plants. Dense clumps of Lantana can also form in canopy gaps and on edges.

The introduced pasture grass Green Panic (*Megathyrsus maximus*) is a prolific seed regenerator which establishes in semi-shade along the margins of semi-evergreen vine thickets. It becomes highly flammable when dry and increases the risk of damage from fire. Fire normally burns to the edge of vine thicket patches under moist or cool conditions. However, under dry conditions fires will burn some distance into softwood scrub and can creep through the leaf litter on the forest floor. While some edge species will sucker, fire usually causes a great deal of stem death and damage. Fire also promotes weed invasion by Lantana, Green Panic, introduced members of the passionfruit family (*Passiflora spp.*) and other weedy grasses, vines and herbs. Softwood scrubs have limited value as fodder for cattle; however, cattle will use patches for camps resulting in trampling and spread of weeds. Coral Berry (*Rivina humilis*) often forms dense clumps in areas used by cattle.



**Madeira Vine and Dutchman's Pipe vines will invade the shady interior of vine thickets.**



**The edges of semi-evergreen vine thickets are vulnerable to weed and fire incursion. A restoration approach should work systematically to consolidate the core habitat, and gradually increase the patch size and resilience.**

## Restoration and regeneration

Activities that aim to restore the ecosystem to an approximation of original condition will require different approaches depending upon the condition of the site. For example a degraded patch that retains much of its canopy may require intensive weed control, while restoring a bare paddock will require a carefully planned and staged planting over a long period of time.

Some native species will be present and these can be used to advantage in restoration by providing a basic framework or skeleton for the project. Pioneer species can be used to good effect in restoration projects as they tend to be the fastest growing species and will assist with providing shade and reducing exposure to wind. Shade is also beneficial in reducing weed vigour. Lantana and pasture grasses will be the main weeds competing with regenerating species in more open situations. Weed control will be necessary until the developing canopy is dense enough to provide shade. However, there will always be a potential for birds and wind to carry new weed species to the site and early control of infestations will save a lot of work later on.

Severe infestations of weed vines, such as Cat's Claw Creeper, Madeira Vine, Climbing Asparagus and Dutchman's Pipe in degraded semi-evergreen vine thickets are very labour intensive to control. A systematic approach may be the most effective in these situations, gradually working away from the starting point in small stages. A suitable starting point could be an area where risk or rate of re-infestation is judged to be relatively low, for example the edge of the infestation.

Fire and grazing are not recommended in semi-evergreen vine thicket restoration projects due to the potential damage these agents can cause to young plants. Consequently fencing and fire breaks are recommended where there is a risk of damage. Browsing from macropods and possums may also be an issue and tree guards may be needed around palatable species.

## Restoration tips

- Plan the project thoroughly, as ecological restoration of softwood scrub is slow and requires major inputs.
- Make use of the huge volume of information about softwood scrub in SEQ and nearby areas available on the internet.
- Become familiar with the local flora by observing the species surviving in gullies, roadsides etc. Also bear in mind that those prickly looking plants in the paddock are probably native species that will make a contribution to the project.
- If your project is going to need lots of planting, try growing your own! Most softwood scrub and dry rainforest trees and shrubs are much easier to germinate than eucalypts and bottlebrushes. The seed you collect doesn't usually stay viable for long so remember, fresh is best.
- Don't get carried away planting vines too early in the project. They tend to become rampant and smother trees and shrubs.
- Control or limit use of fire and grazing to avoid damage to the regeneration.
- Protect the genetic resources of local wild populations of plants by reducing the risk of cross pollination with planted species sourced from outside the local area or planting species that did not occur within your local area.

## Some native plants of RE 12.8.21

### Trees and shrubs

Bailey's Callitris	<i>Callitris baileyi</i>
Bastard Crow's Ash	<i>Pentaceras australis</i>
Black-fruited Thornbush	<i>Pittosporum viscidum</i>
Broad-leaved Leopard Ash	<i>Flindersia collina</i>
Brush Hovea	<i>Hovea longipes</i>
Celerywood	<i>Polyscias elegans</i>
Chain Fruit	<i>Alyxia ruscifolia</i>
Currant Bush	<i>Carissa ovata</i>
Daisy Bush	<i>Olearia canescens</i>
Deep Yellowwood	<i>Rhodosphaera rhodanthema</i>
Diplospora	<i>Triflorensa cameronii</i>
Hard Alectryon	<i>Alectryon subdentatus</i>
Holly-leaved Pittosporum	<i>Auranticarpa rhombifolia</i>
Mock Orange	<i>Notelaea macrocarpa</i>
Native Holly	<i>Alchornea ilicifolia</i>
Native Witch Hazel	<i>Turraea pubescens</i>
Native Pomegranate	<i>Capparis arborea</i>
Orange Bark	<i>Maytenus bilocularis</i>
Pavetta	<i>Pavetta australiensis</i>
Prickly Pine	<i>Bursaria incana</i>
Python Tree	<i>Gossia bidwillii</i>
Red Olive Plum	<i>Elaeodendron australe</i>

Scaly Ebony	<i>Diospyros geminata</i>
Scrub Whitewood	<i>Atalaya salicifolia</i>
Scrub Ironbark	<i>Bridelea exaltata</i>
Scrub Poison Tree	<i>Excoecaria dallachyana</i>
Scrub Wilga	<i>Geijera salicifolia</i>
Shiny-leaved Canthium	<i>Psydrax odorata form buxifolia</i>
Shrubby Deeringia	<i>Deeringia amaranthoides</i>
Small-leaved Acalypha	<i>Acalypha capillipes</i>
Small-leaved Canthium	<i>Everistia vacciniifolia</i>
Small-leaved Coondoo	<i>Pouteria cotinifolia</i>
Small-leaved Phyllanthus	<i>Phyllanthus microcladus</i>
Small-leaved Tuckeroo	<i>Cupaniopsis parvifolia</i>
Southern Erythroxylon	<i>Erythroxylon</i> sp. 'Splityard Creek'
Strychnine Tree	<i>Strychnos psilosperma</i>
Thorny Yellow Wood	<i>Zanthoxylum brachyacanthum</i>
Turkey Bush	<i>Acalypha eremorum</i>
Veiny Denhamia	<i>Denhamia pittosporoides</i>
Weeping Pittosporum	<i>Pittosporum angustifolium</i>
Whalebone Tree	<i>Streblus brunonianus</i>
White Tamarind	<i>Elaeostachys xylocarpa</i>

### Tall trees

Crows Ash	<i>Flindersia australis</i>
Crow's Apple	<i>Owenia venosa</i>
Ivorywood	<i>Siphonodon australis</i>
Moreton Bay Fig	<i>Ficus macrophylla</i>
Narrow-leaved Bottle Tree	<i>Brachychiton rupestris</i>

Pine Mountain Coral Tree	<i>Erythrina numerosa</i>
Rosewood	<i>Acacia fasciculifera</i>
Silky Oak	<i>Grevillea robusta</i>
Small-leaved Fig	<i>Ficus obliqua</i>
Yellowwood	<i>Flindersia xanthoxyla</i>

### Pioneer species

Bellfruit Tree	<i>Codonocarpus attenuatus</i>
Bitter Bark	<i>Alstonia constricta</i>
Flannel Weed	<i>Abutilon oxycarpum</i>
Green Kamala	<i>Mallotus claoxyloides</i>
Hickory Wattle	<i>Acacia disparrima</i> subsp. <i>disparrima</i>
Lolly Bush	<i>Clerodendrum floribundum</i>
Maiden's Wattle	<i>Acacia maidenii</i>

Native Cascarilla	<i>Croton insularis</i>
Native Rosella	<i>Hibiscus heterophyllus</i>
Native Peach	<i>Trema tomentosa</i>
Peach Bush	<i>Ehretia membranifolia</i>
Red Kamala	<i>Mallotus philippensis</i>
Scrub Boonaree	<i>Alectryon diversifolius</i>
White Cedar	<i>Melia azedarach</i>

## Grasses, forbs, ferns and epiphytes

Dwarf Sickie Fern	<i>Pellaea nana</i>
Felt Fern	<i>Pyrosia confluens</i>
Hooky Grass	<i>Ancistrachne uncinulata</i>
Rough Maidenhair Fern	<i>Adiantum hispidulum</i>

Stout Bamboo Grass	<i>Austrostipa ramosissima</i>
Square-stemmed Broom	<i>Spartothamnella juncea</i>

## Vines and scramblers

Black Silkpod	<i>Parsonsia leichhardtii</i>
Blood Vine	<i>Austrosteensia blackii</i>
Bower Vine	<i>Pandorea pandorana</i>
Burney Vine	<i>Trophis scandens</i>
Corky Prickle Vine	<i>Caesalpinia subtropica</i>
Hairy Silkpod	<i>Parsonsia velutina</i>
Hairy Water Vine	<i>Cayratia acris</i>
Hoya	<i>Hoya australis</i>
Kangaroo Vine	<i>Cissus antarctica</i>
Lloyd's Milk Vine	<i>Marsdenia lloydii</i>

Native Grape	<i>Tetrastigma nitens</i>
Native Jasmine	<i>Jasminum didymum</i> subsp. <i>racemosum</i>
Pleogyne	<i>Pleogyne australis</i>
Scrambling Caper	<i>Capparis sarmentosa</i>
Stiff Jasmine	<i>Jasminum volubile</i>
Stinging Vine	<i>Tragia novae-hollandiae</i>
Wombat Berry	<i>Eustrephus latifolius</i>
Zig Zag Vine	<i>Melodorum leichhardtii</i>

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Information provided in the Regional Ecosystems of South East Queensland series provide a general guide and should not be taken to replace professional advice or a formal recommendation of land management.

### Further Reading

SEQ Healthy Land & Water Ecological Restoration Framework - [www.hlw.org.au](http://www.hlw.org.au)

SEQ Land for Wildlife Notes - [www.lfwseq.org.au](http://www.lfwseq.org.au)

Queensland Government - [www.qld.gov.au](http://www.qld.gov.au) (search Regional Ecosystems and Planned Burn Guidelines)



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