



REGIONAL ECOSYSTEMS OF SOUTH EAST QUEENSLAND

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RE 12.11.13

Semi-evergreen vine thicket with Hoop Pine on metamorphic rocks.

Softwood scrub and Hoop Pine scrubs are uniquely Queensland terms. Early European settlers and timber getters gave these names to the dark green patches of dark, dense scrubby vegetation that grew on the subcoastal hills and ranges in South East Queensland (SEQ). Both are types of dry rainforest and contain many different trees, shrubs and vines. Regional Ecosystem (RE) 12.11.13 is considered a dry rainforest as well as part of both softwood scrubs and Hoop Pine scrubs.

Plants are often small-leaved due to the relatively low rainfall and some have thorns and spines. Tall trees of Crows Ash (*Flindersia australis*), Rosewood (*Acacia fasciculifera*), Small-

leaved Fig (*Ficus obliqua*) and Hoop Pine (*Araucaria cunninghamii*) (where present) rise above the canopy, which is composed of densely packed small and medium trees and shrubs.

While Crows Ash and other trees may be as tall as 25-30 metres, the canopy itself is uneven and ranges in height from 6-15 m. Vines are very common in RE 12.11.13. They climb and drape over trees and often hang down to near ground level, one of the reasons why these ecosystems 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 be present. The soils supporting these scrubs are often relatively fertile and well-drained, but

can be quite stony.

RE 12.11.13 is formally defined as semi-evergreen vine thicket (SEVT) and low microphyll vine forest with Hoop Pine growing on metamorphic 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 leaves in the shade). Microphyll-sized leaves are relatively small – up to 7.5 cm long and 3.5 cm wide.

In SEQ, RE 12.11.13 is highly restricted to the Pine Mountain area of Ipswich.

RE 12.11.13 is a dense low growing forest with some tall emergent trees that grow above the canopy. Within the forest, vines are common, as are plants with spines and prickles.



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



Distribution

RE 12.11.13 grows in hilly country on stony loamy soils around the Pine Mountain district. The rainfall is around 900 mm per year.

Variations and Similarities

Within SEQ, semi-evergreen vine thickets grow on a range of geologies. Consequently, four different Regional Ecosystems, including RE 12.11.13, are recognised based upon the type of country where they grow. Similar vegetation communities that occur on geologies different from RE 12.11.13 are:

- RE 12.8.21 - Semi-evergreen vine thicket / low microphyll vine forest on Cainozoic igneous rocks (especially basalt).
- RE 12.9-10.15 - Semi-evergreen vine thicket on sedimentary rocks.
- RE 12.12.17 - Semi-evergreen vine thicket on Mesozoic to Proterozoic igneous rocks.

The soils and geology of RE 12.11.13 typically comprise a thin layer of red to brown loamy soil, with heavily fractured rock beneath. Road cuttings (right) and recent excavation works (above right) are a great place to see the geology exposed.

Pine Mountain along the Brisbane River at Ipswich is so named for the presence of Hoop Pines that emerge above the scrubs of RE 12.11.13.



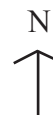
RE 12.11.13*

Distribution Map - Past and Present

In SEQ, RE 12.11.13 is restricted to a small area around Pine Mountain – Sapling Pocket near the Brisbane River north-west of Ipswich. In places, RE 12.11.13 merges into RE 12.11.11 (Complex Hoop Pine vine forest on metamorphics or volcanics), which has a taller canopy. The plant species composition also alters in RE 12.11.11 due to shelter (e.g. gullies) and associated higher levels of moisture. Some of the vegetation around this area has been altered by clearing and logging of Hoop Pine. Due to the restricted nature of this ecosystem, RE 12.11.13 is considered 'of concern' under Queensland legislation.

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

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



1. Sapling Pocket, Pine Mountain.

RE 12.11.13 can be seen covering the hills in this vicinity, growing alongside RE 12.11.11, which can appear quite similar. Public viewing is best achieved from McMullen Road and Riverside Drive in this vicinity. Access to the Ipswich City Council reserve and Nature Refuge require permissions.



RE 12.11.13 - Facts and Figures (as of 2014)

Vegetation Management Act (1999) status: **Of Concern**

Level of Protection (extent in protected areas): **High**

	Pre-clearing Extent, or estimated amount ~180 years ago (hectares)	Current Extent (hectares)	Percent of Pre-clearing Extent Remaining	Amount Protected in Reserves (hectares)
12.11.13	4,316	1,942	45%	1,618



Sapling Pocket (above) has long been recognised as an area of botanical interest with early field naturalist expeditions accessing the scrubs by boat along the Brisbane River. The Brisbane River can be seen in the above photo, in the middle right, as a patch of blue.

Past to Present

The early European explorers of SEQ used the Brisbane River to access the country lying inland of the coastal country of Moreton Bay. The Hoop Pine scrubs of the Sapling Pocket - Pine Mountain area were readily accessed by boat and have a special place in the botanical exploration of SEQ. Many plant specimens were collected from the area, and Hoop Pines were greatly admired because of their size, height and majestic appearance.



RE 12.11.13 has always had a very restricted distribution in SEQ. Today, about half of the original extent remains, with much of the remaining patches of vegetation in some kind of reserve. Remaining roadside vegetation gives a clue to the extent of RE 12.11.13 prior to European settlement.





Coral Berry is a low growing weed that is commonly found in dry rainforests and vine thickets such as RE 12.11.13, as shown above.

It is important to control introduced grasses such as Green Panic around the edges of RE 12.11.13, as the dry grass is highly flammable, and can increase fire intensity, which can kill the fire intolerant scrub 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.

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 seaforthianum*) 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.

Natural Values and Functions

Semi-evergreen vine thickets / Hoop Pine scrubs are structurally complex and biologically productive ecosystems that perform 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 rain-wash 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 the pollination and decomposition cycles. Remnant patches also play an important role as reservoirs or source populations for plant and animal species that are able to 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. Softwood scrub is also a preferred roosting place for Grey-headed Flying Foxes.



Grease Nut (*Hernandia bivalvis*) is a threatened tree that grows within patches of RE 12.11.13.



Giant Ironwood (*Choricarpia subargentea*), is a large, slow growing tree with distinctively patterned bark that grows in RE 12.11.13.

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 the 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.



Vine thicket edges are vulnerable to weed and fire incursion, so these threats must be well managed to ensure that the health and size of the scrub is not reduced.

Restoration of vine thickets should focus on weed control and fire exclusion from the core patch and then gradually increase the patch size and resilience through planting or natural regeneration on the edges.

Restoration & 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.

to carry new weed species to the site and early control of infestations will save a lot of work later on.

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

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.

Some Native Plants of RE 12.11.13

Tall Trees

Crow’s Ash	<i>Flindersia australis</i>
Crow’s Apple	<i>Owenia venosa</i>
Giant Ironwood	<i>Choricarpia subargentea</i>
Ivorywood	<i>Siphonodon australis</i>
Moreton Bay Fig	<i>Ficus macrophylla</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 attenuates</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>

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>
Celerywood	<i>Polyscias elegans</i>
Chain Fruit	<i>Alyxia ruscifolia</i>
Currant Bush	<i>Carissa ovata</i>
Deep Yellowwood	<i>Rhodospaera rhodanthema</i>
Diplospora	<i>Triflorensa cameronii</i>
Hard Alectryon	<i>Alectryon subdentatus</i>
Holly-leaved Pittosporum	<i>Auranticarpa rhombifolia</i>
Mock Olive	<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</i> form <i>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>Elattostachys xylocarpa</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>
Lloyd's Milk Vine	<i>Marsdenia lloydii</i>

Scrambling Caper	<i>Capparis sarmentosa</i>
Native Grape	<i>Tetrastigma nitens</i>
Native Jasmine	<i>Jasminum didymum</i> subsp. <i>racemosum</i>
Pleogyne	<i>Pleogyne australis</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>

Grasses, Forbs, Ferns, Epiphytes

Dwarf Sickle 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>

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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 Ecological Restoration Framework - www.seqcatchments.com.au/seq-ecological-restoration-framework

SEQ Land for Wildlife Notes - www.lfwseq.org.au

Queensland Government - Regional Ecosystems - www.ehp.qld.gov.au/ecosystems/biodiversity/re_introduction.html

Queensland Government - Planned Burn Guidelines - www.nprsr.qld.gov.au/managing/pdf/pbg-seq.pdf



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