Healthy land & water

"Revelling in the Dry"

Dry Rainforests and Semi-evergreen Vine Thickets of South East Queensland

Vines climb and drape over trees and often hang down to near ground level. Early explorers often detoured around these vine thickets, rather than undertake a difficult traverse.

The term "rainforest" often conjures up images of luxuriant, dense, evergreen forest thriving in humid, high rainfall zones and filled with wildlife. However some of the most interesting, resilient and equally diverse rainforest communities are our dry rainforests and semi-evergreen vine thickets.

They both have a similar structure and the mixture of trees, shrubs, vines and epiphytes that form a rich and diverse habitat for a wide variety of insects, reptiles, birds, and mammals, which use the forest as cool shady refuges for shelter and food. Looking after remaining areas is therefore very important.

The threatened Black-breasted Button-quail is a ground-dwelling bird that has suffered a major population decline due to clearing and fragmentation of its habitat.

Dry rainforest and semi-evergreen vine thickets, commonly referred to as "dry scrub" or "softwood scrub", are found in lower rainfall (<1,000 mm/ year) areas, typically on soils of moderate to higher fertility.

They are adapted to drier climatic conditions and include trees and shrubs with small, hard leaves, thorns or spines, or that are semi-deciduous, like the iconic bottle trees.

- **Dry rainforest** typically has a taller, more even canopy, 6-18 m high with emergent trees like Hoop Pine *(Araucaria cunninghamii)* shooting up above the canopy.
- **Semi-evergreen vine thicket** has a lower, often uneven canopy up to 6 m tall, with scattered bottle trees, Crows Ash *(Flindersia australis)*, native pines, and even eucalypts emerging above.

Plants

Threatened plants found in these rainforest communities include Bailey's Cypress Pine *(Callitris baileyi)*, Ormeau Bottle Tree *(Brachychiton sp. Ormeau)*, Shiny-leaved Condoo *(Planchonella eerwah)* and Stinking Laurel *(Cryptocarya foetida)*.

Wildlife

These rainforests are home to a diversity of animals including snails, skinks, Carpet Pythons, Australian Brush-turkey, bowerbirds, pigeons and fruit doves, scrub-wrens, Eastern Whipbird, Pied Currawong, bandicoots, Mountain Brushtail possums and pademelons.

Threatened wildlife are also found here including the Black-breasted Button-quail *(Turnix melanogaster)*, Spotted-tailed Quoll *(Dasyurus maculatus)*, Little Pied Bat *(Chalinolobus picatus)*, and Grey-headed Flying-fox *(Pteropus poliocephalus)*.

Biggest threats - weeds, fire and grazing

Dry rainforest and semi-evergreen vine thickets were once more extensive, buffered and connected by other forest types. They are now highly fragmented, isolated and surrounded by cleared country, making it difficult for smaller wildlife, seeds and pollen to move from one patch to another.

Increasing the extent of dry rainforests, buffering their edges, and increasing their connectivity with other forests, will improve their resilience and persistence in the landscape.

Weeds

The small area to edge ratio of remaining dry areas makes them extremely susceptible to weed invasion, greatly impacting the structure and condition of the forest and reducing habitat and food sources for native animals.

Lantana

Lantana *(Lantana camara)* is the most common weed found in dry rainforest. It spreads readily, tolerates shade, and can form dense thickets that exclude native species.

Because it can grow in dense clumps, lantana grows readily in canopy gaps and along the forest edges. These dense infestations can persist over time as native plants struggle to compete.

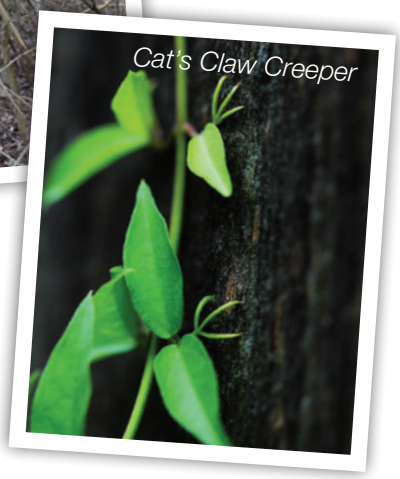
During drier weather, lantana infestations increase the risk of fire as the dry leaves and stems become flammable.

Introduced vines

Introduced vines spread very quickly, climb up, smother and kill native trees and shrubs. They destroy the forest structure and integrity, out-compete native plants, allow other weeds to invade, increase the risk of fire and replace habitat and food sources for wildlife.

Canopy killers include Madeira Vine *(Anredera cordifolia)*, Cat's Claw Creeper *(Dolichandra unguis-cati)*, Climbing Asparagus Fern *(Asparagus africanus)* and Dutchman's Pipe *(Aristolochia elegans)*.


Lantana


Cat's Claw Creeper

It is important to manage the edges of dry rainforest for weeds such as lantana. Lantana can persist in the dense shade of the vine forest patch itself, reducing its vigour and resilience.

Introduced grasses

Where the remaining dry rainforest patches are bordered by pastures for grazing, you can often find Green Panic grass *(Megathyrsus maximus var. pubiglumis)*, a prolific seed generator that loves the semi-shade along forest margins invading undisturbed patches.

Green Panic and other introduced grasses often sown for pasture, such as Rhodes Grass *(Chloris gayana)* can become highly flammable when dry and increase the risk of damage from wildfire.

Introduced trees

Exotic trees typically found in this ecosystem include Chinese Elm *(Ulmus sinensis)* and Privet *(Ligustrum spp)*. Birds feed on and spread the seeds of these trees, making their control a long-term challenge.

Fire

Dry rainforest and semi-evergreen vine thicket have some resistance to fire when intact and in good condition. When isolated, however, the edges of dry rainforest are exposed to the drying effects of wind and sun, increasing fire risk.

The presence of introduced pasture grasses and other weeds within dry rainforest, allows fire to penetrate the forest and can also increase the intensity of fires, especially during dry conditions.

After a fire, weeds regenerate more quickly than rainforest species which allows them to spread and colonise additional areas.

Grazing and pest animals

While cattle, horses and sheep can prevent regeneration by eating new seedlings, softwood scrubs are generally of limited value as fodder. The main damage arises when domestic grazing animals like cattle use these areas for camping and shade resulting in trampling, damaging young plants and spreading weeds. Coral Berry *(Rivina humilis)* often forms dense clumps as an understorey in areas used by cattle.

Goats, horses and other browsing animals like feral deer will cause more damage than sheep or cattle by eating a wider range of species.

Feral pigs frequently shelter in these scrubs and cause significant damage through digging for roots, grazing and disturbing and preying on ground dwelling fauna.

Wild dogs, foxes and feral cats pose a significant threat to wildlife living or sheltering in these dry rainforests, with their predation impacts magnified in small, isolated or fragmented patches.


Coral Berry

Photo by Tatters, Flickr https://flic.kr/p/7JNnyy

Restoration and regeneration

If you have patches of this forest type on your property, you can help by retaining all remaining patches and working to re-connect them through targeted weed control, excluding livestock, or managing fire.

Weed control

A degraded patch that retains much of its canopy may require intensive weed control, while restoring a bare paddock with scattered scrub trees will require a carefully planned and staged planting over a longer period.

Staying on top of weeds early on will save you a lot of work down the track and will allow the canopy to develop so that it is dense enough to provide shade, which slows weed growth.

Severe infestations of exotic vines, such as Cat's Claw Creeper and Climbing Asparagus, in degraded areas are very labour intensive to control.

A systematic approach will be the most effective in these situations, methodically working out from areas of low weed infestation in small stages using mechanical methods or herbicides to foster natural regeneration. In certain areas with difficult access, the strategic release of appropriate biological control agents may assist with reducing the extent or advance of particular weeds.

When it comes to weed control, start with the lowest hanging fruit. The Bradley Method for bush regeneration involves securing the best areas first by working out from the least weedy areas.

The edges of these dry rainforest communities are vulnerable to weeds and fire.

Fire management

You can avoid the risk of fire by carrying out cool burns of adjacent grassy woodlands or pasture when moisture levels are high and using slashed or graded breaks around the buffered patch to protect dry rainforest from wildfire during high-risk times. If you are burning a break around the patch always light the fire close to the forest edge and let it burn away to your control line.

Contact the SEQ Fire and Biodiversity Consortium or Land for Wildlife, who may be able to advise you on the best fire regime for your local area and help you develop a fire management plan. Always make sure you follow legislative requirements in relation to lighting fires.

Manage your livestock

When it comes to managing impacts from livestock, fencing off the dry rainforest patches to prevent access from your cattle and other livestock will give you the biggest chance of preventing damage to existing plants and reduce the spread of weeds.

Controlling pest animals

Look for signs of pest animals and work with your neighbours and local Council officers to control pests such as feral pigs, deer, wild dogs, foxes, cats and rabbits which may be living on or frequenting the property.

Restoration summary:
Follow the 3 R's

Retain and protect the dry rainforest and semi-evergreen vine thicket by creating a buffer around the patch to allow regeneration and expansion over time and manage fire threats.

Restore dry rainforest through removal of invasive weeds to assist natural regeneration, establishing strategic fencing to restrict access from domestic animals, and controlling pest animals.

Revegetate key areas in stages using local pioneer and keystone species to improve the diversity, integrity and condition of the dry rainforest and semi-evergreen vine thicket.

Top 10 restoration tips

Restore

1. **Always concentrate your efforts on weeds which pose the greatest threat to the dry rainforest and semi-evergreen vine thicket – in many cases this will mean canopy killer vines will be a higher priority than Lantana and exotic trees and shrubs like Privet, and seasonal weeds.**
2. **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.** It is always best to start by working on a small area that you can effectively maintain over time – having adequate resources for maintenance is critical.
3. **Where there are gaps in the canopy, they are probably filled with Lantana, which can be gradually replaced by natural regeneration and strategic planting.** Given the critical nature of the edge as a buffer, it is often best to work on weeds inside the patch, leaving the lantana on the edge until it can be replaced in stages with suitable native edge-sealing species.

Revegetate

4. **Select species to match the type of dry rainforest and semi-evergreen vine thicket that you have.** Look at existing patches to pick suitable species.
5. **If planting is required, try growing your own!** Most softwood scrub and dry rainforest species are much easier to germinate than eucalypts and bottlebrushes. Collect seed locally and use within one year. Store seeds in a cool environment, as many seeds don't usually stay viable for long. Fresh is best!
6. **Fast-growing, short-lived shrubs and small trees (commonly referred to as pioneer plants) such as Acacia sp., Kangaroo Apple, Alphitonia sp., Flindersia sp., Foambark Tree and Mallotus sp., can be used to good effect in restoration projects as they tend to be the fastest growing species and will provide dappled shade and will reduce exposure to wind.**

Protect

7. **Exclude fire as it will kill young plants.** Create a buffer around the edge of existing patches to encourage regeneration and expansion of the patch.
8. **Grazing livestock and pest animals also need to be excluded or controlled as it may result in damage to the forest through trampling, browsing and introduction of weed species.**

General

9. **Regularly monitor and keep a record of progress and note interesting occurrences such as the arrival of new plants and animals to the site.** Establish photo-monitoring sites to record changes over time. Be prepared to share your findings with others.
10. **Lastly be persistent but patient!** Remember that rainforests have taken decades to hundreds of years to develop through a process of natural succession you cannot create overnight – build on what you have with pioneers and nature will do the rest.

Where do you normally find this forest type in South East Queensland?

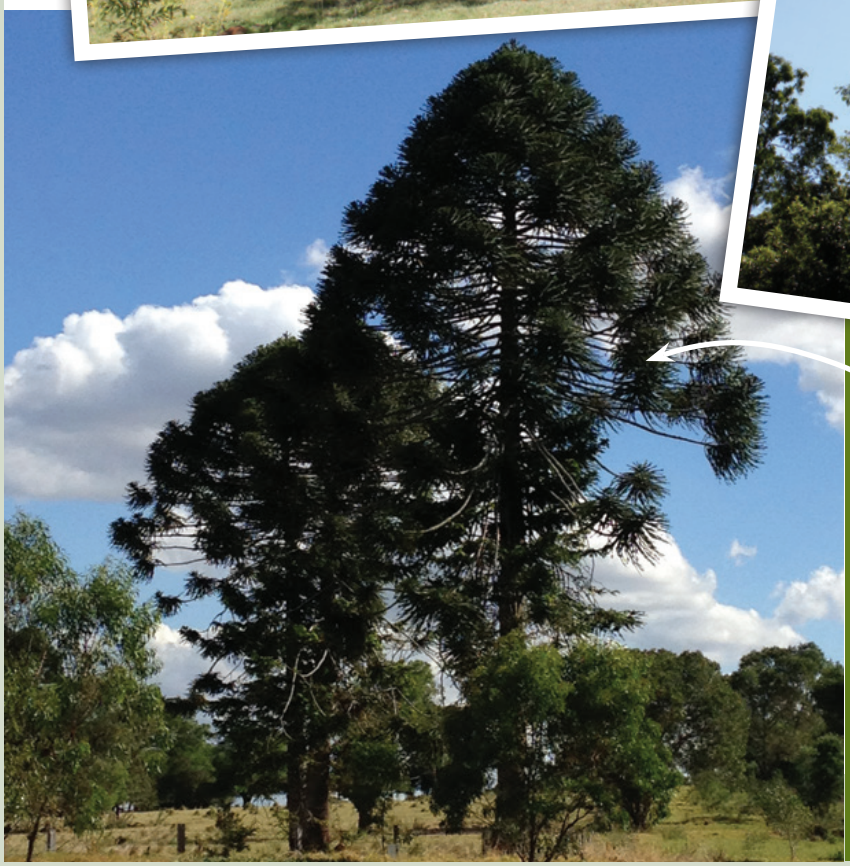
The fertile soils and prized rainforest timbers of dry rainforest and semi-evergreen vine thicket, has unfortunately led to their extensive clearing for agriculture and Hoop Pine plantations. Many of the remaining, often small, patches are restricted to inaccessible, steep rocky areas and are listed as Endangered in Queensland. Remaining patches tend to be isolated from each other and scattered between national parks, state forest and private land.

In areas where dry rainforest has been cleared, many of the original trees, shrubs and vines persist as scattered individuals in paddocks and as small clumps along fence lines, road reserves and around outbuildings and cattle yards.

Interesting Fact: 20% of the original dry rainforest extent remains across SEQ. This includes 167 patches of semi-evergreen vine thicket spanning close to 3,000 ha.

The small size and isolated nature of many remaining dry rainforest patches means weed incursion, fire, livestock and pest animals have a greater impact.

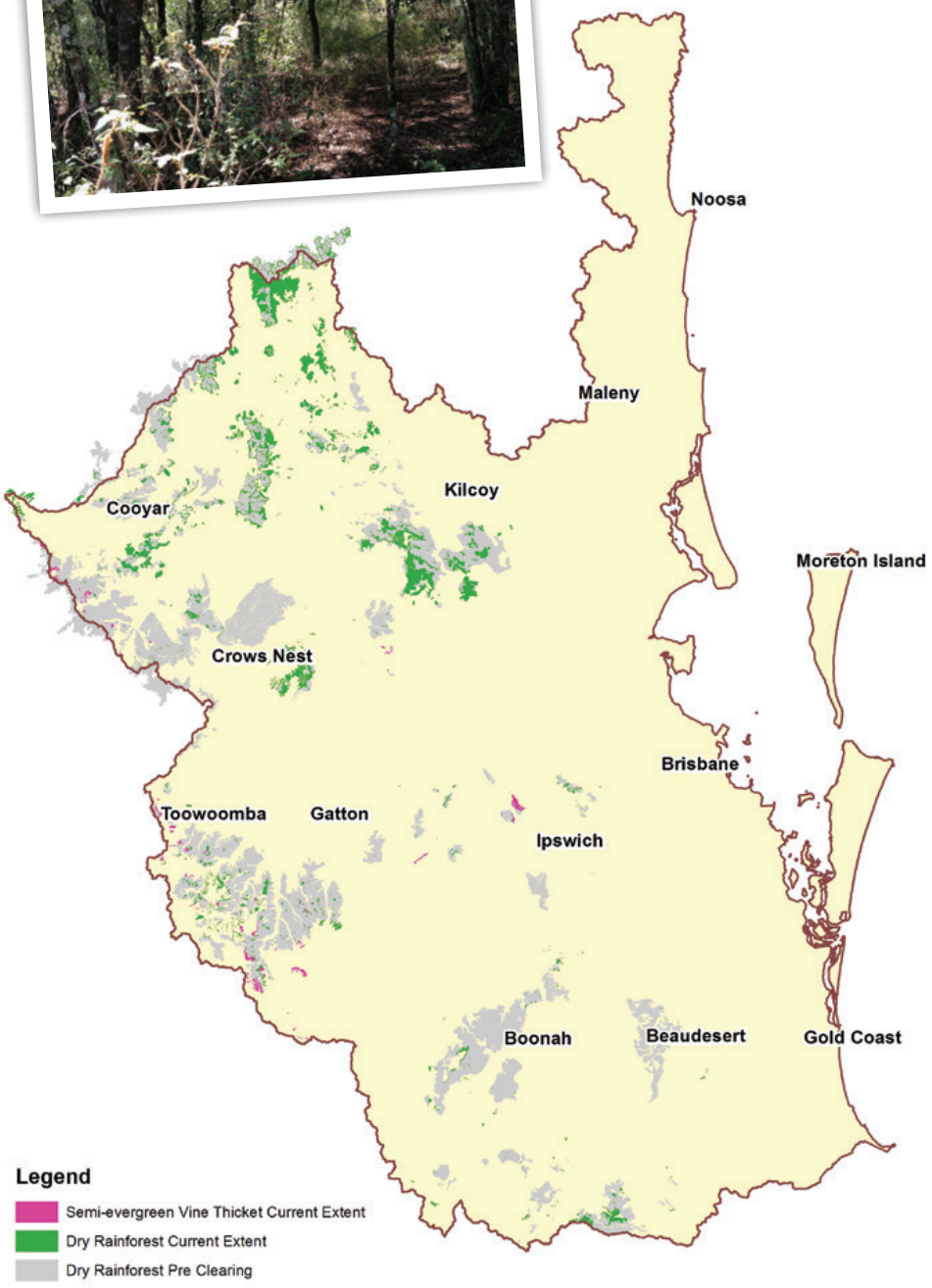
In some dry rainforest, the Hoop Pine (Araucaria cunninghamii) is abundant. This tall and ancient tree can form dense stands that tower above a closed canopy of smaller rainforest trees. It has been a highly valued and important timber since European settlement. It is one of the few native conifers that occur naturally in South East Queensland.



The Bunya Pine *(Araucaria bidwillii)*, less common in dry rainforest, is a culturally important tree to the indigenous people of South East Queensland, with festivals and feasts recorded in the Blackall Ranges and Bunya Mountains. The fierce protection of the trees and recognition of the value of the timber, led to early authorities prohibiting settlers from cutting the trees in 1842. Apart from consuming the bunya nuts, indigenous people ate new shoots and utilised the bark as kindling.

Where can I get more information?

Distribution of dry rainforest and semi-evergreen vine thickets throughout SEQ



SEQ Catchments

If you are interested in finding out more about ways to manage dry rainforest and semi-evergreen vine thickets, our Area Managers can provide information and advice, as well as funding options for the South East Queensland Region.

Ph: 07 3177 9100

Email: admin@hlw.org.au

Land for Wildlife

Land for Wildlife is a voluntary conservation program for private landholders.

www.lfwseq.com.au

SEQ Fire and Biodiversity Consortium

The SEQ Fire and Biodiversity Consortium is a network of land managers and stakeholders devoted to providing a coordinated response and best-practice recommendations for fire management, fire ecology and the conservation of biodiversity in South East Queensland.

www.fireandbiodiversity.org.au

Helpful Resources

Australian Government: Search for "Semi-evergreen vine thickets" at www.environment.gov.au

Other useful resources

- South East Queensland Ecological Restoration Framework, 2012 www.seqcatchments.com.au/seq-ecological-restoration-framework
- Weeds of Southern Queensland 3rd edition, the Weed Society of Queensland – please contact Healthy Land & Water for a copy.

Content in this factsheet was sourced from:

Semi-evergeen Vine Thicket, Catchment Management Authority, Border Ranges: www.agbiolinks.com.au/uploads/docs/TECfact_SEVT_WebReady.pdf

Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar bioregions, NSW Government, Environment Climate Change and Water. http://www.environment.nsw.gov.au/resources/threatenedspecies/SvetEECweb.pdf

Healthy Land & Water's Regional Ecosystem factsheets:

RE 12.5.13
RE 12.8.13
RE 12.8.21
RE 12.9-10.15
RE 12.9-10.16
RE 12.11.11
RE 12.11.13
RE 12.12.13

McDonald, W.J.F. 2010. National recovery plan for the "Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions" ecological community. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

Harden G, McDonald B, Williams J. 2006. "Rainforest trees and shrubs – A field guide to their identification".

For more information

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