



# Plants Under Pressure

The threatened species in our collection.

*Mackay Regional Botanic Gardens is home to a large, diverse collection of native plants.*

*Several of our native species have a conservation status of endangered, threatened or vulnerable in the wild.*

*Wander the pathways and discover the Queensland native plants under pressure that are being conserved in the Mackay Regional Botanic Gardens.*





Mackay Regional Botanic Gardens is protecting and conserving special Queensland and local plant species, some of which don't grow anywhere else in Australia. With the help of our key stakeholders and volunteers, the gardens are fortunate to be able to conserve a range of species that the public would otherwise not get to see.

#### Native Plants Queensland - Society for Growing Australian Plants (NPQ-SGAP)

Mackay Branch members have a long and continuing passion to ensure plants of our local bioregion, including rare and threatened species, continue to be conserved in the Botanic Gardens. Through the efforts of these branch members, many species can be seen in the Botanic Gardens today.

We would like to thank NPQ-SGAP Mackay Branch for their continuing efforts to support the Botanic Gardens and their dedication to the conservation of our local native plants.

## What is a threatened species?

A threatened species is any plant or animal species that is at risk of extinction.

### Threatened species conservation classes

Threatened species are allocated to different conservation classes depending on the degree of risk to their extinction. These classes are based on several criteria including trends in population size, health and distribution.

In Queensland the following conservation classes are listed in the *Nature Conservation Act 1992*:



**Extinct:** No reasonable doubt that the last member of the species has died.



**Extinct in the wild:** Known only to survive in cultivation, or as a naturalised population well outside its past range.



**Critically Endangered:** Has undergone or is suspected to have undergone a very large reduction in numbers; is likely that a very large reduction in numbers is imminent; geographic distribution is precarious and very restricted; the estimated total number of mature individuals is very low and it is likely the number will continue to decline; the probability of extinction in the wild is at least 50 per cent in the immediate future.



**Endangered:** Undergone or is suspected to have undergone a large reduction in numbers; it is likely that a large reduction in numbers is imminent; geographical distribution is precarious and restricted; estimated total number of mature individuals is very low; the probability of extinction in the wild is at least 20 per cent in the near future.



**Vulnerable:** Undergone or is suspected to have undergone a moderate reduction in numbers; it is likely that a moderate reduction in numbers is imminent; geographical distribution is precarious and restricted; estimated total number of mature individuals is limited and it is likely the number will continue to decline at a substantial rate; the probability of extinction in the wild is at least 10 per cent in the near future.



**Near Threatened:** Population size or distribution is small and may become smaller; the population size has declined or is likely to decline at a higher than the usual rate; may be subject to threatening processes.



= Queensland natives



= Local natives

# Endangered species in the Botanic Gardens



## 1 Thozet's Velvet Leaf *Callicarpa thozetii*

**Flowers:** March, May to October

**Find me:** In the Brigalow Belt

An open shrub with erect stems growing up to 4m tall. The leaves are soft textured, dull green and sparsely hairy on the upper surface whilst greyish-brown/pale and densely hairy on the lower surface. It produces attractive, short axillary sprays of blue or lilac flowers. Fruits, when they are produced, are tiny, berry-like, and deep purple. Confined to three isolated locations in Central Queensland where it occurs within tall woodland and semi-evergreen vine forests, wild populations are now in decline due to threatening processes such as destruction of habitat by land clearing, disturbance of habitat by timber harvesting and inappropriate fire regimes.



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## Swamp Orchid

*Phaius australis* (previously *Phaius tankervilleae*)

**Flowers:** August to November

**Find me:** In the Tropical Shade Garden

This spectacular ground orchid has the largest flowers of all Australian flowering orchids. A beautiful terrestrial orchid with long 'pleated' dark green leaves, a metre or more in length, which arise from partly buried egg-shaped pseudobulbs. An impressive plant capable of producing several flower spikes up to 2m tall, with more than 16 large blooms (each about 10cm in diameter) on every spike. It was once widespread in eastern Australia, growing in swamps with grasses and sedges or damp sites in open forests. Illegal collection, draining of swamps, clearing and fragmentation of habitat and invasion of habitat by introduced weeds are the key threats to the Swamp Orchid's continued growth in the wild.

3

## Sankowskya

*Sankowskya stipularis*

**Flowers:** Prolifically from November to January, and sporadically through the year

**Find me:** In the Torres Strait Islands Precinct and Tropical Collection – Wet Tropics

*Sankowskya* is a genus of plants that contains only one known species, *Sankowskya stipularis*. A simple shrub to small tree with smooth white bark and attractive pink new growth. It is a dioecious plant meaning it produces separate male and female flowers which are both small and inconspicuous. *S. stipularis* is endemic to North East Queensland, known only from a few collections between Mt Molloy and Mossman. Within these locations, it is found in well-developed rainforest at elevations around 400m, on soil which is subject to waterlogging each wet season.

**In the near future we will be introducing the following plants into our collections:**

- *Backhousia tetraptera*, Critically Endangered
- *Nepenthes mirabilis* (Bramston Beach) (Lour), Endangered

# Vulnerable species in the Botanic Gardens



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## Koumala Range *Actephila* or Champion's *Actephila*

*Actephila championiae*

**Flowers:** September to January

**Find me:** In the Tropical Shade Garden and  
Koumala Range Garden

When several plants of this species were donated to the Mackay Regional Botanic Gardens by a Mackay local, it hadn't even been named. These plants were the first of this species to be grown in cultivation!

The plant was later formally named after Irene Champion, the Mackay local, who co-collected the original fertile material allowing the species to be described and named. *A. championiae* is an understorey tree growing up to 8m in height. The large, mostly alternate, leathery leaves are dark glossy green above and yellowish green beneath with strongly recurved margins. Small white flowers are borne in axillary clusters. Fruits are green, slightly depressed marble-sized capsules that explosively expel up to six seeds at maturity. This endemic species has a very restricted natural distribution, the dry rainforest on Black Mountain in the Sarina Range near Koumala.



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### Eungella Coleus

*Coleus eungellaensis* (previously *Plectranthus graniticola*)

**Flowers:** Throughout the year

**Find me:** In the Eungella Cloud Garden and Orientation Garden

Eungella Coleus is an interesting herbaceous plant or sub-shrub growing up to around 50cm in height. It has square stems and aromatic foliage that is covered densely with hairs. The dense coatings of hairs reflect sunlight and reduce air movement on the surface, which leads to less transpiration. This adaptation allows the plants to survive in hot, dry, open habitats. Numerous spikes of small mauve flowers, which attract a range of pollinators, are produced throughout the year. *C. eungellaensis* has a limited natural distribution and is only found on granite outcrops above 700m altitude in the Eungella region and Homevale National Park.



6

### St Lawrence Zamia Palm

*Cycas terryana*

**Cones:** October to March

**Find me:** In the Orientation Garden

Only described as a new species in 2011, this beautiful local native cycad was once thought to be a hybrid between *C. media* and *C. ophiolitica*. It is a slow growing, treelike cycad with a trunk that can reach around 3m in height. The pale to greyish-green leaves are 80–190cm long, straight and become wavy towards the tip. New growth is densely covered with pale cream-fawn hair, becoming hairless at maturity. *C. terryana* is naturally found on rocky hillsides in sparse Eucalyptus woodlands of the Broadsound and Connors Ranges. There are only five known populations in an area of approximately 800m<sup>2</sup> and this species does not occur in any conservation reserves.

**Did you know?** The *C. terryana* on display in the Orientation Garden is more than 250 years of age and was rescued from a property near St Lawrence when the owner was clearing land for grazing.



7

## Mount Blackwood Holly

*Graptohyllum ilicifolium*

**Flowers:** August to November

**Find me:** In the Orientation Garden and Pioneer Peaks Garden

The first recorded specimen was collected in the 1800s from Mount Blackwood, located north of Mackay. Apart from one other collection from 'Port Mackay' late in the last century, this rare plant then had no other recorded sightings until 1984, when Mackay local, David Champion, found plants in the Mount Blackwood and Mount Jukes area matching its description. After identification was confirmed by the Queensland Herbarium, Mount Blackwood Holly was propagated and trialled by NPQ-SGAP Mackay Branch members. It was first offered for sale to the public in 1991 at the Australian Plant Spectacular in Mackay. Mount Blackwood Holly is a large understory shrub with dark shiny green, holly-like leaves. Showy displays of deep pink tubular flowers are borne in clusters from the leaf axis to the length of the branches.

### Did you know?

Mount Blackwood Holly is only available in nurseries due to the dedication of NPQ-SGAP Mackay Branch members. It is the proudly the logo for both NPQ-SGAP Mackay Branch and Mackay Regional Botanic Gardens.

Seeds are explosively released from the club-shaped capsules as they open. The nectar-rich flowers and protection offered by the dense shrub attracts a variety of birdlife. Mount Blackwood Holly occurs in dry rainforest areas or along creek banks in isolated populations just north of Mackay, and a population later discovered near Miriam Vale. The main threats to *G. ilicifolium* arise from its restricted distribution and being confined to narrow creek margins in the landscape.





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### Ornate-seeded Neisosperma

*Neisosperma kilneri*

**Flowers:** November to December, February to May and July

**Find me:** In the Tropical Shade Garden and Koumala Range Garden

This tall tree has a milky sap, shiny dark green leaves and sprays of small, white, Frangipani-like flowers; to which it is related. The highly perfumed flowers have a scent similar to Frangipanis. The inedible egg-shaped fruits are about the size of a small hen egg and borne in pairs. The thin outer covering of the fruit changes from dark green through to red when ripe, then finally to black after they fall. Beneath this thin outer covering is the distinctive, ornate, hard woody 'bone' (the endocarp) which contains one to four flat seeds. *N. kilneri* is only known to occur in three isolated populations of rainforests between the Whitsundays and Koumala.



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### Tree Omphalea

*Omphalea celata*

**Flowers:** June to December

**Find me:** In the Palm Walk and Brigalow Belt

This small tree has a somewhat weeping habit, with shiny, cream coloured bark. It has soft-textured leaves that are dark grey-green on the upper surface and pale grey-green below. Tiny greenish flowers, in terminal sprays of both male and female flowers, are borne on the same plant, however the male flowers greatly outnumber the female. Large spherical fruits are two to three lobed, about 5-6cm in diameter and usually contain three large seeds. This species is known only from very isolated populations, in fragmented semi-evergreen vine thicket or araucarian microphyll vine forest, such as Hazelwood Gorge and on Gloucester Island. They are all on rocky seasonal water courses.



**Did you know?** Tree Omphalea is the larval food plant for the Queensland endemic day-flying Zodiaca Moth, *Alcides metaurus*. You can always tell when their caterpillars are present as they strip the trees bare of leaves and can be seen 'bungee jumping' from the branches attached to a silk thread they produce.



*S. plicata*

**10** **Mount Dryander Ristantia**

*Ristantia waterhousei*

**Flowers:** No recorded flowering periods

**Find me:** In the Tropical Shade Garden

Ristantia is a genus of plants in the family Myrtaceae, with only three species, all endemic to Queensland. Mount Dryander Ristantia is a large evergreen tree growing over 20m in height, with brownish tessellated bark that has thin flakes on the surface. Its new growth is red, turning into a deep glossy green with age. Forming in small sprays to 4cm, the flowers are cup-shaped with small white petals and numerous stamens. Known only from Mt Dryander, north of Airlie Beach, where it grows as a dominant tree from the foothills to the summit on the sheltered southern side of the mountain.

**11** **Ground Orchid**

*Spathoglottis plicata*

**Flowers:** September to April

**Find me:** In the Orientation Garden and Tropical Shade Garden

A lovely perennial, evergreen ground orchid with softly textured, pleated leaves growing up to 1m long that emerge from marble-sized pseudobulbs. The showy star-shaped flowers come in various shades of pink and purple through to white and are borne on erect spikes growing up to 1m long; each stem can last for long periods. *S. plicata* has a highly localised distribution in North East Queensland, from the Jardine River to Cooktown, where it can be found in seasonally inundated areas, sunny spots near swamps and along small streams.

**Other Vulnerable species in our collections:**

Botanical name	Common name	Location
<i>Amomum queenslandicum</i>	Native Ginger	Tropical Shade Garden
<i>Citrus inodora</i>	Russel River Lime	Monsoon Waterway
<i>Cupaniopsis shirleyana</i>	Wedge-leaf Tuckeroo	SEQ Microphyll Vine Forest
<i>Cycas cairnsiana</i>	Mount Surprise Cycad	Gymnosperm Garden
<i>Gymnostoma australianum</i>	Daintree Pine	Monsoon Waterway and Coal Garden
<i>Hakea trineura</i>	Three-veined Hakea	Brigalow Belt
<i>Wodyetia bifurcata</i>	Foxtail Palm	Lagoons Foreshore Garden & Palm Walk



**12** **Water Apple**  
*Syzygium aqueum*

**Flowers:** September to October, also sporadically through the year

**Find me:** In the Regional Flora Terraces

Highly ornamental evergreen shrub to small tree growing 6-10m in height. Glossy, dark green foliage, branching close to the ground with an open crown. The cream-coloured, lightly fragrant flowers are borne in clusters of three to seven, mostly hidden in the leaves. It is popular in home gardens for its edible bell-shaped pink to red fruits, which have a mild and slightly sweet taste similar to apples, and a crisp watery texture like the inside of a watermelon. Water Apple naturally grows as an understory tree in the dry, seasonal rainforest, monsoon forest and gallery forest in Cape York Peninsula.



**13** **Tree Waratah**  
*Alloxylon flammeum*

**Flowers:** August to October

**Find me:** In the Buffer Forest and Timber Trees

In nature, this rainforest tree can reach 25-35m in height but in cultivation they are much smaller, generally growing to around 10m. Tree Waratah has a dense, bushy canopy of glossy leaves and produces an outstanding display of large, bright orange-red flowers towards the ends of the branches. It has become a popular choice in recent years as a timber tree highly valued for its beautiful soft, silky-textured timber with a prominent oak grain. A plant of the Wet Tropics bioregion, it is found on the Atherton Tablelands in Far North Queensland. Most of its habitat has been cleared for agriculture or development and the remaining populations in protected areas, like national parks, are highly fragmented.



**14** **Australian Sugar Palm**  
*Arenga australasica*

**Flowers:** All year

**Find me:** In the Palm Walk and Monsoon Waterway

Large clumping palm growing up to 20m tall with one to three dominant trunks and numerous suckers emerging from the base. The flowers are yellow and measure only 1cm across. The small round fruits are red, purple or brown once ripe. Only a single mature trunk in any one clump will flower at any one time. The 1–2m long inflorescences arise from the leaf bases of the upper leaves first and then appear progressively down the trunk. Once the lowest inflorescence has produced its fruit, the trunk dies and is replaced by an emerging sucker. Endemic to Australia, the Australian Sugar Palm occurs in rocky soil of coastal and near-coastal districts of the Northern Territory and north-eastern Queensland and some off-shore adjacent islands.



**15** **Whitsunday Medicosma**  
*Medicosma obovata*

**Flowers:** Throughout the year

**Find me:** In the Tropical Shade Garden

This bushy shrub to small tree has shiny dark green opposite or sub-opposite egg-shaped leaves, with the narrower end towards the base. As it belongs to the same family as citrus (Rutaceae), the leaves contain aromatic oil. Tiny, four-petaled white flowers are borne either singly or in small groups in the leaf axils followed by dark green tiny fruits. Whitsunday Medicosma is the larval food plant for *Papilio fuscus*, Fuscous Swallowtail Butterfly. Endemic to the Whitsundays, *M. obovata* is restricted to the area around the base and up to the summit of Mt Dryander growing in rainforest and cloud forest at an altitude up to 820m.

## Near Threatened species in the Botanic Gardens



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### Eungella Fern-leaved Tamarind

*Synima heterophylla* (previously *Sarcotoechia heterophylla*)

**Flowers:** April

**Find me:** In the Tropical Shade Garden

This small rainforest tree grows to about 12m in height and has light brown bark with grey and green blotches. The leaves have shallowly toothed margins, and the beautiful reddish new growth has light brown twisted hairs. Small white flowers are borne on short sprays between the leaf and stem followed by the brightly coloured two-lobed capsules that contain two reddish seeds. *S. heterophylla* has a very restricted natural distribution. There are only 12 known populations in the Eungella area, however it is relatively abundant at these sites.



17 **Grease Nut**  
*Hernandia bivalvis*

**Flowers:** October to December  
**Find me:** In the Regional Shade Trees Garden  
 Usually a small rainforest tree growing up to 12m in height but sometimes taller, with smooth grey bark. The upper leaf surface is a shiny green while underneath is pale and dull. The attractive creamy white flowers are grouped in clusters containing one stalkless female and two short, stalked males. Impressive and unusual, the hard black ribbed nut is enclosed within an inflated envelope of two or three overlapping reddish-orange fleshy ribbed bracts. The common name refers to the edible seed which contains up to 65 per cent oil. *H. bivalvis* is only known to occur naturally in dryer rainforests within restricted, disjunct locations of Queensland. Threats to this species include degradation of habitat by weeds and inappropriate fire regimes.

18 **Whitsunday Bottle Tree**  
*Brachychiton compactus*

**Flowers:** October and November  
**Find me:** In the Orientation Garden and Whitsunday Garden  
 Eye-catching and impressive, the Whitsunday Bottle Tree just gets better with age. It is a semi-deciduous tree growing up to 15m in height with fissured bark and a trunk that bulges/bottles as it matures. The leaves are deeply lobed on young plants but have entire margins on older plants. Flowers form in clusters and are small, hairy, brownish on the outside, and whitish inside. Fruits are brownish to black boat-shaped follicles with a long beak and contain pea-sized seeds enclosed in a crisp yellow papery covering. *B. compactus* has an extremely restricted distribution within the Airlie Beach area and the Whitsunday Islands, growing on steep lower slopes. It is rarely found on the rocky headlands.



**19** **Scarlet Fuchsia**  
*Cratophyllum excelsum*

**Flowers:** September to December  
**Find me:** In the Brigalow Belt and Screens and Hedges Garden

A dense shrub or small tree usually no more than 4m in height with leathery, slightly toothed leaves that are shiny above and duller below. Clusters of tubular scarlet/crimson flowers are borne along the stems creating an eye-catching display of flowers. *G. excelsum* is naturally found in disjunct monsoon forests and vine thickets from the Chillagoe area and coastal regions from northern to southern Queensland. This plant is under threat due to habitat destruction and possibly by the disturbance of habitat by weeds.

**20** **Native Lobelia**  
*Lobelia membranacea*

**Flowers:** September to March  
**Find me:** In the Orientation Garden

An attractive dainty prostrate evergreen groundcover that is fast growing, often rooting at the nodes. It produces masses of solitary, bright blue flowers over many months. Only growing to around 10cm in height, it is becoming popular as a lawn alternative in shaded areas. Once prevalent along the Queensland east coast in damp, swampy conditions, the dainty groundcover is threatened by habitat fragmentation and degradation of habitat by weeds.

**Other Near Threatened species in our collections:**

Botanical name	Common name	Location
<i>Cupaniopsis newmanii</i>	Long-leaved Tuckeroo	Coal Garden
<i>Hoya macgillivrayi</i>	MacGillivray's Hoya, Red Hoya	Tropical Shade Garden
<i>Macrozamia longispina</i>	Zamia Palm	World Cycad Garden
<i>Pectinopitys ladei</i>	Mount Spurgeon Black Pine	Coal Garden



### Sources

NPO-SGAP Mackay Branch  
NPO-SGAP Townsville Branch  
[www.npqtownsville.org.au](http://www.npqtownsville.org.au)

Atlas of Living Australia  
[www.ala.org.au](http://www.ala.org.au)

Australian Tropical Rainforest Plants  
[apps.lucidcentral.org/rainforest](http://apps.lucidcentral.org/rainforest)

Department of Environment and  
Science, Queensland  
[apps.des.qld.gov.au/species-search](http://apps.des.qld.gov.au/species-search)

Melzer, R. Plumb, J. (2007) Plants of  
Capricornia, Capricorn Conservation  
Council, Rockhampton.

### Photos:

Mackay Regional Botanic Gardens