

NATURALISED WEEDS OF RAINFORESTS AND ASSOCIATED HABITATS
IN TROPICAL QUEENSLAND

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Summary. The four exotic plant species harungana (*Harungana madagascariensis*), turbina (*Turbina corymbosa*), sanchezia (*Sanchezia parvibracteata*) and coffee (*Coffea arabica*) occur as weeds of rainforests and associated habitats in subcoastal tropical north Queensland. The biology, ecology, distribution, impact and control of each is summarised.

HARUNGANA

Harungana (*Harungana madagascariensis* (Choisy) Poir.) is an evergreen small tree from Madagascar and East Africa (5).

Harungana trees branch repeatedly under well lit conditions to produce a domed crown about 5 m high. Several growth cycles occur each year, each producing about eight pairs of oval strongly veined leaves. The shoots and undersides of leaves are covered with minute rusty brown hairs, which together with the dark green upper surfaces of the leaves and the domed crown give the plant a characteristic appearance.

The 2-3 mm diameter white flowers are minutely flecked with black, and are borne in dense corymbs at the tips of the shoots. They are pollinated by insects which visit for nectar, and develop into globular 2-3 mm diameter yellow fruits containing five minute and tightly adherent pyrenes, which are distributed as a single unit by frugivorous birds. Harungana also spreads locally by vigorous suckers from damaged and intact roots, giving rise to dense clumps of trees and suckers in more open areas.

In Madagascar and throughout tropical Africa harungana is a plant of rainforest margins and abandoned land (2, 3). Its habitats in north Queensland closely follow this pattern, although it is also present in dense rainforest following severe disturbance some thirty years ago.

Although present in the Babinda area of North Queensland since at least 1937 (7), harungana has only spread some 10 km north, east and south from that point in more than 35 years. Further spread by ingestion and defecation by birds is still occurring.

Harungana appears to have had little impact on the now highly disturbed and mostly cultivated vegetation of the area, but since the remaining local rainforests have recently been declared a World Heritage Area there is considerable concern as to its possible future impact.

Harungana should not be attacked physically (even by mowing lawns around existing plants) since this leads to intense suckering from the surface roots. It is susceptible to multiple stem injections of triclopyr plus picloram, glyphosate, and metsulfuron methyl based herbicides (6).

Since harungana appears to have no local value and to be readily controllable, and its widespread distribution across tropical Africa suggests that it may be in a lag phase prior to more rapid expansion in North Queensland, application has been made to have the plant declared

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as a P2 plant throughout Queensland. Meanwhile an attempt is being made to eradicate it by stem injection throughout the accessible areas of its known distribution in north Queensland.

TURBINA

Turbina (*Turbina corymbosa* (L.) Raf.) is a deciduous woody liane of rainforest margins from tropical America (5).

Turbina has a strong grey woody twisted stem up to 10 m long, characterised by irregular ridges and grooves. Young stems climb by spiralling round a support, but older stems often hang away from the supporting tree to form a curtain. The heart-shaped leaves are produced during the growth flush in spring, and are followed by a profusion of attractive white to cream flowers. Each flower produces a single 3-4 mm long oval woody seed, and the fruit is surrounded by persistent woody wing-like sepals.

Once established in an area (presumably by human agency), the plant appears to have no other method of seed dispersal than gravity and flood water. Plants away from watercourses tend to form small clumps or lines along the edges of rainforests, whilst those in the gallery forests along the Barron River form a more extensive and often discontinuous community that extends downstream for many kilometres.

In tropical America turbina occurs in a very wide range of habitats, although usually associated with disturbed rainforests (1). In Queensland turbina is only known to occur in dry rainforests in the Yungaburra, Atherton and Malanda area and in gallery forests along the course of the Barron River, both inland from Cairns. Its distribution appears to be static unless further occurrences are reported.

Turbina can be controlled by cutting woody stems close to the ground, perhaps assisted by the application of translocated herbicides such as glyphosate to the cut stump (6).

Although of some ornamental value, turbina is no longer sold commercially or grown in gardens. Given its restricted habitat and area in north Queensland compared to its much wider range of habitats throughout large areas of tropical South America, it has been recommended that an attempt be made to eradicate it from north Queensland.

SANCHEZIA

Sanchezia (*Sanchezia parvibracteata* Sprague and Hutchinson) is an ornamental shrub from tropical South America. It has been in cultivation there for a considerable period, and is not known from the wild (5).

Sanchezia produces many erect woody stems 2-4 m long to form, in open areas, an attractive rounded shrub. The large opposite leaves are strikingly and irregularly variegated with yellow lines, and the terminal inflorescences carry very attractive yellow tubular flowers about 5 cm long surrounded by shorter orange to red bracts. No seeds are produced in Queensland, but the plant is very easy to reproduce vegetatively.

Sanchezia is widely planted in gardens for its ornamental value, and generally fails to reproduce spontaneously when away from watercourses. When it is planted or discarded along creeks and

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rivers, however, it forms dense stands which actively compete with native plants. Reproduction in these cases is by fragmentation, since the brittle stems are easily broken by feral pigs and floods, and even single node cuttings float downstream and root very readily in moist soil. Individual leaves may also root but probably not shoot from the petioles.

Sanchezia has been reported to be 'usually found in gardens but sometimes growing wild along streams, possibly as an escape' in Colombia (4), a situation which is precisely mirrored by its occurrence in north Queensland. Its main occurrence as a weed is along Henrietta Creek in the Palmerston National Park, where it has been spreading downstream from material dumped or planted on the creek bank near a picnic area. *Sanchezia* also occurs widely throughout the Cairns area, but is usually in association with gardens or garden refuse.

Sanchezia is susceptible to foliar sprays of glyphosate (6), and it is being eliminated from National Parks in north Queensland.

COFFEE

The well known evergreen shrub coffee (*Coffea arabica* L.) from tropical East Africa and Arabia has been cultivated in North Queensland for its fruit for many years. Unlike the current areas of production, most of the earlier plantations were in areas cleared from rainforest, and as they failed the areas reverted to rainforest with coffee as a persistent weed in areas of World Heritage value (5).

The usually multi-stemmed shrubs are 2-5 m tall and carry opposite pairs of large bright green leaves. They also flower readily, and produce large numbers of fruits on better lit bushes. The seeds are spread with water along creeks and drainage lines, and are also by cassowaries. Apart from its recognisably exotic nature, coffee appears to have little impact on the functioning of rainforests in North Queensland.

As with many multi-stemmed shrubs, the best method of control appears to be by basal bark spraying with triclopyr dissolved in diesel oil (6). It is unlikely that coffee can be eradicated from the extensive areas of rainforest along the ranges behind Cairns, but it should be possible to control it in those that are in the World Heritage Area.

ACKNOWLEDGEMENT

The author is very grateful to the Wet Tropics Management Authority in Cairns for the financial support which allowed this investigation to occur.

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