

National Four Tropical Weeds Eradication Program

Douglas Shire Council Annual Report July 2017 – June 2018



Australian Government Department of Agriculture and Water Resources







Department of Primary Industries





Background

Miconia calvescens (miconia) is a small rainforest tree (up to 15 m high), belonging to the Melastomataceae family. Native to tropical America, this species has large leaves (up to 70 cm long) with iridescent purple undersides. The seed longevity is approximately 14-16 years (overseas research), which means that infestations need to be revisited annually to check for recruitment for up to 16 years.

Miconia is a serious weed in Tahiti and Hawaii, where it forms dense thickets in rainforests and displaces native flora and fauna. Miconia was initially brought into Australia via botanic gardens, and was sold in some nurseries and markets between 1978 and the mid-1990s. Dispersal to new locations has been mainly via cultivation – gardeners and plant collectors. Fruit eating birds are then the primary mechanism of dispersal into surrounding forests and gardens.

History

Miconia calvescens was first discovered in Douglas Shire Council in 1997 in the Whyanbeel Creek valley. Miconia has been detected at 6 locations in the DSC area since 1997.

Work conducted (1 July 2017 - 30 June 2018)

974 hectares were surveyed on-ground for *Miconia calvescens* in DSC during 2017-18 (an increase of 156 ha):

Location	Area surveyed (ha)		
Whyanbeel	704		
Syndicate/Finlayvale	75		
South Mossman	75		
Berry Rd, Whyanbeel	120		

• **Biosecurity Qld**: 948 days contributed in survey and control operations (an increase of 181 person days).

- **Douglas Shire Council**: 36 days contributed in collaborative survey and control operations.
- **QPWS**: 94 days contributed in collaborative survey and control operations.

(Note: these works were conducted in conjunction with *Miconia nervosa* survey and control operations where their distributions overlap at Whyanbeel).

Current status

- The status of the 6 recorded Miconia locations are (Figure 1, Table 1):
 - o 2 eradicated
 - o 2 monitoring
 - o 2 control
- **No mature plants** were detected during surveillance of 974 hectares of rainforest.
- The Whyanbeel infestation, which is the largest infestation of Miconia in Australia, has records of plants occurring in 141 management areas (1 ha grids). Of these, **43% did not record seedling germination** during 2017-18.

Location	Discovery date	Plant count since 2004 +(reproductive)*	Plant count 2017-18 +(reproductive)*	Last reproductive record
Whyanbeel (Old Forestry Rd)	1997	1 potted plant	Eradicated	n/a
Whyanbeel	1999	36352 (38)	1820 (0)	Aug 2015
Daintree	2003	1 seedling	Eradicated	n/a
Syndicate	Nov 2004	105 (7)	0 (0)	Oct 2012
South Mossman	Oct 2009	23 (1)	0 (0)	Dec 2009
Whyanbeel (Berry Rd)	Feb 2014	20 (1)	5 (0)	Aug 2016

Table 1: Miconia calvescens - discovery, population and reproductive plant occurrence details.

* Plant counts are from 2004 onwards, reproductive plants recorded include flowering and seeding observed and some plants considered large enough to flower.



Figure 1: Miconia calvescens locations and status as of July 2018 in the Douglas Shire Council area.

Current work plan (1 July 2018 - 30 June 2019)

Under the current Eradication Response Plan, *Miconia calvescens* locations need to be surveyed every 18 months to ensure no plants reach maturity and set seed. In the Douglas Shire Council area, that requires 1000 hectares to be surveyed annually.

- Biosecurity Qld: 1000 person days expected in survey and control operations
- Douglas Shire Council 40 person days requested for survey and control operations.
- **QPWS** funding dependent.



History

Miconia nervosa was first discovered at Whyanbeel during survey and control operations for *Miconia calvescens* in 2004.

Work conducted (1 July 2017 - 30 June 2018)

As the distribution of *Miconia nervosa* overlaps with *Miconia calvescens* at Whyanbeel, surveillance and control operations were conducted in conjunction with this target species.

Current status

- There is only one infestation in Australia, with scattered plants over an infestation area of 230 hectares (this includes all suitable habitat within a 500m dispersal buffer area).
- 300 ha were searched within the 500m dispersal buffer in 2017-18 (an increase of 125 ha from 2016-17) (Figure 2).
- Fifteen flowering plants and three plants large enough to have potentially fruited were detected during 2017-18 (Figure 3).
- Only 36 management areas have recorded presence of *M.nervosa*. Nine of these management areas are in monitoring phase (25%), with the remaining 27 in active control phase.



Figure 2: Infestation of *M*. nervosa at Whyanbeel showing mature plant (red dots) and juvenile plant (green dots) detections in 2017-18, core surveillance area (yellow line - where a 500m dispersal buffer is generated around recorded mature plants) and areas that were surveyed by field teams during 2017-18 (brown polygons).



Figure 3: Annual number of Miconia nervosa (mature plants and seedlings) found during surveillance activities.

Current work plan (1 July 2018 - 30 June 2019)

- Biosecurity Queensland
 - As part of the new Response Plan, surveillance will be increased to 4 monthly visits to all management areas with prior detections of plants. A total annual surveillance target of 350 ha. Also, a dedicated team will be tasked with *M.nervosa* surveillance to significantly reduce the rate of plants reaching maturity.
- Douglas Shire Council: included in *Miconia calvescens* resource contribution.

(Note: these works will be conducted in conjunction with *Miconia calvescens* survey and control operations where their distributions overlap).

Limnocharis (Limnocharis flava)



Background

Limnocharis flava is an anchored, clump-forming, aquatic plant. It is native to South America. The species is identified as a weed in Asia, where it infests rice paddies, irrigation and drainage lines. It is also a threat to wetlands, having already invaded significant wetlands in Sri Lanka and India.

The seed longevity is at least fourteen years (from research site data – Feluga), with plants reaching reproductive maturity in 58 days. Thus infestations must be monitored every 3 -4 weeks to stop all seeding events. Dispersal to new locations has been mainly via cultivation – gardeners and plant collectors. Local movement is via water dispersal of seed or vegetative plantlets

History

Limnocharis was first discovered in the Douglas Shire Council area in 2002. Both infestations were detected in ornamental ponds.

Current status

- Only two *Limnocharis flava* infestations have been recorded in the Douglas Shire Council area (Table 2).
- Both of these infestations have been eradicated.

Location	Contained pond (C) or Natural water system (N)	Date Discovered	Initial Population (m²)	Current Status (m²)
Wonga Beach	С	Feb 2002	2	Eradicated
Port Douglas	С	Feb 2002	0.3	Eradicated

Table 2: Summary of Limnocharis flava infestations.

Current work plan (1 July 2018 – 30 June 2019)

- Biosecurity Queensland community engagement activities.
- **Douglas Shire Council –** vigilance only.