

Weed Management Plan for Chinese Apple 2012 - 2022

2021 Revision



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This plan can be downloaded from: nt.gov.au/chineapple

Acknowledgment

The Weed Management Branch acknowledges the time invested by land managers, landholders and all key stakeholders to inform and guide the development of this new plan.

1. Executive Summary

The aim of this plan is to negate damage caused by chinee apple to the natural environment and the Northern Territory economy. Objectives of this plan focus around achieving this aim.

This weed management plan for chinee apple is a statutory plan under the *Weeds Management Act 2001* (the Act). Weed management plans are legal documents designated under section 10 of the Act for high risk declared weeds in the Northern Territory. These plans establish the legal requirements and management actions to be undertaken by all owners and occupiers of land on which the declared weed is present in the Northern Territory.

The first statutory weed management plan for chinee apple was gazetted on 7 March 2012. The first review of this plan took place in 2015, and the plan was amended. The amended plan was gazetted on 23 December 2015. The 2015 plan has now been reviewed and was amended to form the 2021 revision. The requirements of this plan take effect from the date it is gazetted, that is 1 September 2021 and will remain in force until 7 March 2022, 10 years from the commencement of the first chinee apple plan.

Chinee apple is a Class A weed to be eradicated under the Act.

Section 9(2) of the Act requires all owners and occupiers of land to comply with a weed management plan. To achieve compliance with this plan under the Act, land owners and occupiers with chinee apple on their land must comply with the requirements outlined in Table 1 of this plan. Non-compliance is an environmental offence level 3 under the *Environmental Offences and Penalties Act 1996*.

Performance measures are included to track performance made against this plan.

2. Aim and Objectives

2.1. Aim

To negate the damage caused by chinee apple to the natural environment and the Northern Territory economy.

2.2. Objectives

1. Eradication of all isolated and low density chinee apple plants.
2. Prevention of spread of chinee apple from existing infestations.

3. Background

3.1. Impact of chinee apple

Chinee apple (*Ziziphus mauritiana*) is native to southeast Asia and eastern Africa. It is a large shrub or small tree which grows to 8 m tall with a spreading canopy that can reach to 10 m across. Chinee apple produces small, cream coloured flowers up to 8 mm wide which have an unpleasant odour. The edible fruits turn from green to yellowish-orange when ripe, gradually drying to purplish-black.

Ziziphus species have been used internationally to reduce soil erosion and desertification rates, create wind breaks and to provide shade. Leaves and stems provide highly nutritional fodder for livestock. Dispersal is aided by birds, domestic stock, and feral pigs that eat the fruit and void the seeds in their droppings. Most spread in the Northern Territory can be attributed to deliberate plantings by humans for either shade or for the fruit, which are said to taste like a green apple.

Chinee apple was first recorded in the Torres Strait in 1863, and in Townsville, Queensland in 1916. Chinee apple has since spread extensively across regions of the dry tropics in Queensland, growing most abundantly where native vegetation has been disturbed or removed. In suitable conditions chinee apple can form dense thickets, altering the structure and ecological integrity of native vegetation. Once established chinee apple can reduce the carrying capacity and stocking rates of rangelands; additionally, the thorny thickets can impede mustering and restrict stock access to water.

3.2. Other species of *Ziziphus* in the Northern Territory

The following *Ziziphus* species found in the Northern Territory may be confused with chinee apple (*Ziziphus mauritiana*); they are not a declared weed.

3.2.1. Chinese jujube

Note that there are plants under cultivation in Australia (including in the Northern Territory) that go by the common name of 'chinese jujube', *Ziziphus jujuba* Mill. (Johnstone and Shan 2016). Chinese jujube plants can be distinguished from the wild 'chinee apple' *Ziziphus mauritiana* by the lack of densely and closely greyish fine hairs on the underside of the leaves and usually by their larger fruit (Zao 2007; pers. comm. Ian Cowie, NT Herbarium). In the Northern Territory, chinese jujube (*Z. jujuba*) has not been recorded outside of cultivated areas.

3.2.2. Native species

There are also two native *Ziziphus* species, *Z. oenopolia* and *Z. quadriloculare* which may be confused. Both lack the white-hairy leaf under the surface. *Z. quadriloculare* occurs mostly in the Victoria River District and Roper River area and is distinguished by the straight stipular spines (especially on the juvenile growth), rusty hairs on the new growth and lower leaf surface, relatively large fruit 10-20 mm diameter and arborescent growth habit. *Z. oenopolia* is a sprawling shrub or scrambler in dry vine thickets, with 1 spine of each pair recurved and the other straight, the leaves are green below and the fruit are less than 10 mm in diameter.

3.3. Distribution in the Northern Territory

In the Northern Territory chinee apple occurs as scattered, isolated infestations across a variety of tenures including pastoral land, Indigenous, and Crown managed land. There are also many examples of deliberate plantings in urban gardens, homesteads and remote community settings, some of which have spread far beyond original planting sites.

Some higher density incursions have developed in association with small tributaries of the Katherine, Roper, McArthur and Victoria Rivers in the Katherine Region. There are also known infestations at Bing Bong Port.

Figure 1 shows the distribution of chinee apple in the Northern Territory.

3.4. Legislative status

Chinee apple is a declared weed under the *Weeds Management Act 2001* (the Act) as a Class A (to be eradicated) weed in all areas of the Northern Territory.

3.5. General legislative duties

All land owners and occupiers must comply with all general duties for the management of declared weeds as stipulated under the Act including responsibilities under Section 9 of the Act.

All persons must comply with all general duties for the management of declared weeds as stipulated under the Act including responsibilities under Section 9, 31 and 32.

Section 9(2) of the Act requires all owners and occupiers of land to comply with a weed management plan.

3.6. Permits

Under section 30 of the Act, a person may apply to the Minister for a permit to use a declared weed. The Minister may refuse or grant a permit subject to a range of conditions. Permit applications can take up to six weeks to process, depending on the proposed activity. All chinee apple amenity plantings must have a permit to be retained.

Legend

- Chinee apple (*Ziziphus mauritiana*)
- 50 km Grid

Weed Distribution

- Absent
- Eradicated and Monitored
- Present - Density Unknown
- Unknown Occurrence
- Occassional and Localised
- Occassional and Widespread
- Common and Localised
- Common and Widespread
- Abundant and Localised
- Abundant and Widespread

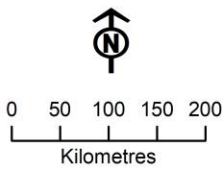
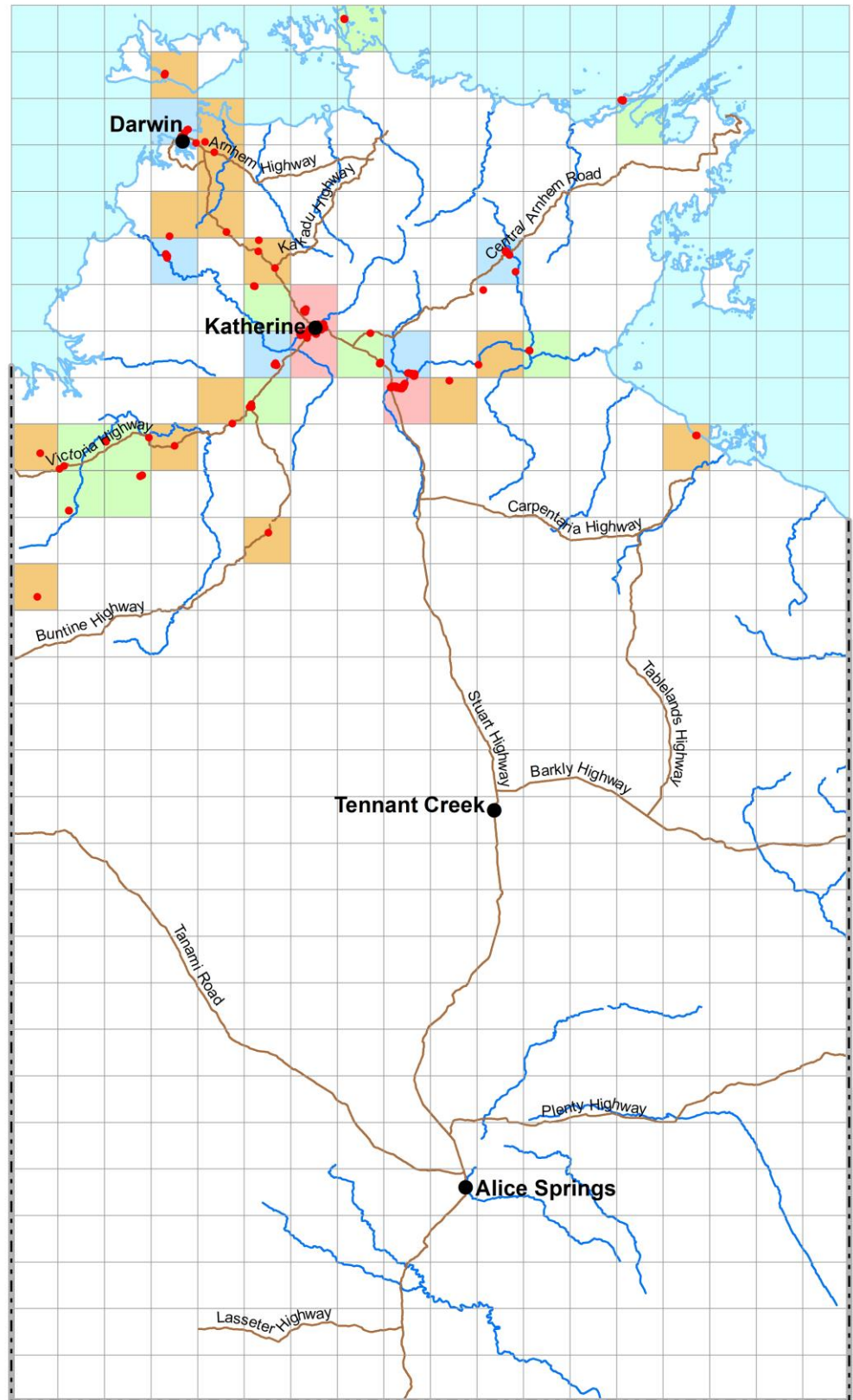


Figure 1 Recorded locations of chinee apple in the Northern Territory (2021)

4. Management requirements for landowners and occupiers under this plan

The persons and organisations with chinee apple on land they own or occupy must comply with the management requirements in Table 1. All actions with timeframes based upon commencement of the plan are to be implemented from the gazettal date 1 September 2021.

Table 1	All land owners and occupiers ¹
1.1	All chinee apple amenity plantings must have a permit to be retained. A permit can be applied for, from the Weed Management Branch. The permit holder must comply with all conditions of the permit.
1.2	Isolated chinee apple plants must be destroyed immediately, unless under permit (*see definition below.)
1.3	Monitoring must be undertaken to check for the regrowth of chinee apple after isolated chinee apple plants have been destroyed. All regrowth must be destroyed.
1.4	A property weed management plan must be documented and implemented on request by the Weed Management Branch in accordance with section 6 below.
1.5	The property weed management plan required by requirement 1.4 must be provided to the Weed Management Branch on request.

*For the purposes of this plan, isolated chinee apple plants are away from and not continuous with a larger established chinee apple infestation.

5. Reporting weed data

All land owners / occupiers must report their chinee apple data points to the Weed Management Branch using the [NT WeedMate App](#) or by emailing weedinfo@nt.gov.au.

Weed records must be reported in accordance with the [Field Guide for Collecting Weed Data for the NT](#). This document describes the core attributes to be collected.

Further guidance on collecting weed data can be found in the [Northern Territory Weed Data Collection Manual](#).

Where possible, data on whether or not control was undertaken should be collected at the time of survey. This information is important to better understand chinee apple distribution, and whether there is an active control program in place.

6. Property weed management plan

A property weed management plan for chinee apple must be documented and implemented on request by the Weed Management Branch. A property weed management plan assists landowners and occupiers to plan effective management, control and monitoring of chinee apple on their properties. The property weed management plan must be prepared in conjunction with the [Chinee apple management guide](#). Further information is also available in the [property weed management planning guidelines](#).

The property weed management plan must record the location of chinee apple plants or infestations.

The Northern Territory Government [Preventing Weed Spread is Everybody's Business](#) document also provides further guidance on weed spread prevention measures that may be incorporated in the property weed management plan.

For assistance developing a property weed management plan, contact:

- the Katherine Weed Management Branch on 08 8973 8857 or
- the Darwin Weed Management Branch on 08 8999 4567.

¹ Including transport corridors

7. Monitoring and evaluation

Performance measures to track the progress of this plan are listed in Table 2.

Performance indicator	What will be measured	Timeframe
Chinee apple data reporting	Proportion of properties with known chinee apple that provide chinee apple data to inform the property status of: a. reported present b. reported absent c. unknown d. amenity plantings under permit	March 2022
Compliance with this plan	Proportion of properties with known chinee apple where the owners and/or occupiers are: a. fully compliant with this plan b. working towards compliance with this plan c. not compliant with this plan d. unknown to be complying with this plan	March 2022
Progress against this plan to inform next plan review	A status report is completed by the WMB to assess performance against this plan and progress against the performance indicators above. Note: in the instance of a new 10 year plan being developed the outcomes of this status report will be used to inform this process.	March 2022

8. Further resources

The Weed Management Branch have developed a number of resources to assist with the management of chinee apple, preventing weed spread, developing property weed management plans and outlining weed data collection practices. These resources are summarised below:

- [Chinee apple fact sheet](#) – Provides information on chinee apple identification, impacts, habit, distribution and management.
- [Northern Territory weed management handbook](#) - Developed to provide detailed information about weed control in the Northern Territory. Weed control option tables are included in this handbook that detail herbicide recommendations and optimum treatment times for most problem weeds. Other control methods, which can assist in weed management, have also been described.
- [Preventing weed spread is everybody's business – keep your vehicles and equipment clean brochure](#) – includes an inspection checklist for vehicle clean down and effective cleaning options.
- [Regional weed management strategies](#) - In the Northern Territory, there are regional strategies for the Darwin, Katherine, Tennant Creek and Alice Springs regions which identify priority weeds in each region for strategic control.

For further information contact the Weed Management Branch. Contact details are provided below.

9. Weed Management Branch contact details

Weed Management Branch
Rangelands Division
Department of Environment, Parks and Water Security
PO Box 496
Palmerston NT 0831

Phone 08 8999 4567
Email weedinfo@nt.gov.au
Web nt.gov.au/weeds

10. References

Johnstone R and Shan F (2016). Chinese jujube industry takes root in Western Australia. *Acta Horticulturae* [DOI: 10.17660/ActaHortic.2016.1116.5].

Northern Territory Government (2012). Weed Management Plan for Chinese Apple (*Ziziphus mauritiana*) 2012, Department of Natural Resources, Environment, the Arts and Sport, Darwin.

Northern Territory Government (2015). Weed Management Plan for Chinese Apple (*Ziziphus mauritiana*) 2015, Department of Land Resource Management, Darwin.

Northern Territory Government (2020). Chinese Apple (*Ziziphus mauritiana*): Weed Risk Assessment Report January 2020, Department of Environment and Natural Resources, Darwin.

Panetta, F D (2016). Environmental weed risk screen for Victoria: background and development. A report prepared for the Department of Environment, Land, Water and Planning, VIC.

https://www.environment.vic.gov.au/_data/assets/pdf_file/0022/49171/WESI-Env-weed-risk-screen-report-Jan-2016_ONLINE.pdf

Zao S (2007). *Ziziphus* Miller, Gard. Dict. Abr., ed. 4. 1754. *Flora of China* 12: 119-123.

11. Glossary

Glossary	
Amenity chinee apple plantings	Historically or culturally significant chinee apple plantings of value to the land owner / occupier that require a permit to be retained according to this plan.
Containment	The aim of preventing or reducing the spread of invasive species, e.g. by preventing invasions into new areas and eradicating any species that are found outside a defined area or beyond a defined line (Panetta 2016).
Control	To implement actions that reduce the impacts of a weed including physical, mechanical, chemical and biological control. Fire is also a useful management tool that can be used to reduce the impact of weeds.
Core infestation	An established population of weed from which satellite infestations (outliers) may arise.
Declared weed	A plant declared to be a weed under section 7 of the <i>Weeds Management Act 2001</i> .
Eradication	The elimination of every single individual (including seeds and other propagules) of a species from a defined area in which recolonisation is unlikely to occur (Panetta 2016).
Isolated	Isolated chinee apple plants are away from and not continuous with a larger established chinee apple infestation.
Mature plant	A plant that has evidence of flowering or seeding, or is of sufficient size to be judged capable of flowering or seeding.
Owner / occupier	“Owner” refers to the holder of an estate in fee simple, while “occupier” must refer to someone having exclusive possession, occupation, use or enjoyment of the land.
Regrowth	The regeneration of established plants following disturbance or control.
Transport Corridor	A road as defined by the <i>Control of Roads Act 1953</i> or the <i>Local Government Act 2008</i> and the adjoining road reserve. A railway corridor.