



Bellyache Bush Management Guide

This guide provides advice on how to best manage bellyache bush on your property. The methods described aim to make weed control as strategic, cost effective and efficient as possible.

Description

Bellyache bush (*Jatropha gossypifolia*) is a shrub, native to Central and South America. It was originally introduced to Australia as an ornamental plant. Key identifying features of bellyache bush include:

- erect growth up to 4 metres high;
- palm-shaped leaves with 3 to 5 oval segments;
- purplish red foliage for 'Darwin Purple' variety;
- green foliage for 'Katherine Green' variety;
- stems, leaf stalks and leaf margins covered with coarse, sticky, gland tipped, brown hairs;
- stems which exude a sticky sap when damaged;
- small, red flowers with yellow centres; and
- smooth, green fruit about the size of a cherry.

The problem

Bellyache bush is one of the most aggressive and poisonous weeds in the dry tropics of northern Australia. It forms dense thickets, excluding pasture and other vegetation. It can take over grazing land, reduce biodiversity and restrict access for mustering.

As the name suggests, bellyache bush is toxic when ingested. The fruit and seeds contain a toxic protein, which can lead to gastro-enteritis and potentially death in humans and animals. Stock deaths have been attributed to bellyache bush poisoning, particularly during drought.

Bellyache bush annual growth and management cycle



Spray actively growing plants before they seed

Cool early fires can kill seedlings*

Step 1 Assess your situation

Draw a map of your property

Include the following:

- the density and distribution of bellyache bush (other weeds should also be considered);
- the location of clean (weed free) areas;
- the natural variations of the property, including slope, waterways and land susceptible to flooding;
- any infrastructure, including fence lines, driveways, yards etc; and
- land use, including paddocks.

Your map will help to prioritise areas for control, determine a work program and develop a budget. A good property map will also provide a “before picture”, so that achievements (or failures) can be measured and assessed.

Step 2 Develop your plan

Determine

Which management zone applies to your property (see maps on back).

Where priority control areas are.

What are the most appropriate control method/s for each location.

When the works should be undertaken (refer to Table 1).

Who will conduct the surveys, weed control and monitoring (self, family, contractor, staff).

Your plan should achieve the following management requirements:

Eradication of isolated plants and outbreaks (Class A and B Zones)

Design and implement a survey and eradication program for bellyache bush.

Active containment of major infestations (Class B/C Zone only)

Major infestations must be contained through an appropriate integrated control program. Containment areas should be accurately mapped (using a GPS) and documented to ensure the infestation does not expand.

Establishment of buffer zones

Suitable buffer zones must be designated to isolate all bellyache bush on a property from adjoining properties/clean areas. Buffer zones cannot contain any mature bellyache bush plants or seedlings.

Appropriate land management

Avoid creating conditions which would promote bellyache bush germination and spread by implementing appropriate grazing regimes, managing feral animals and controlling erosion and fire where applicable.

Implementation of an early detection and management program

Regularly monitor/survey land, including previously treated areas, to identify new or re-establishing bellyache bush infestations at an early stage.

Prevention/minimisation of further seed production

Seed production can be suppressed using chemical and physical control methods, as well as fire.

Design and implementation of a weed spread prevention program

Measures should be taken to avoid inadvertent transfer of viable bellyache bush seeds or plant material. In particular gravel, sand and livestock moved within or between properties must be free of seeds.

Bellyache bush annual growth and management cycle



APR



MAY



JUN



JUL

Clean up stressed and previously treated plants using a slasher/mulcher

Step 3 Implement your plan

Spread prevention

Spread prevention is the most successful and cost effective way of managing weeds. Always prioritise eradication of upstream infestations and aim to reduce seed production along creek lines and riverbanks. Prioritise eradication of isolated plants/infestations working back towards the major infestations.

Physical/mechanical control

Individual plants can be removed by hand, however slashing or mulching is more efficient for larger infestations. Mechanical control prior to flowering/seeding will reduce spread, whereas implementation during the dry season, when plants are moisture stressed, will result in a higher kill rate of mature plants.

Many seedlings will emerge after slashing and mulching; however the removal of the mature stems will enable good herbicide coverage of emergent growth; reducing costs and increasing overall control effectiveness.

Chemical control

Bellyache bush plants can be chemically controlled by foliar spraying, cut stump or basal bark applications. An effective management program based on herbicide use will require at least 2 to 3 treatments annually. The initial treatment of existing plants should occur following the onset of wet season rains, when there is active growth. A follow up treatment in approximately 6 to 8 weeks time will be necessary to treat plants which have been missed or newly germinated seedlings.

Fire management*

Fire can be an effective tool in bellyache bush management provided there is adequate fuel. Even with good fuel loads, multiple burns may be required to kill mature infestations, as bellyache is relatively fire resistant. Controlled fire can be used as part of an integrated control program to kill seedlings or improve access for other control methods. Fire is not appropriate in sensitive areas, such as creek lines.

Grazing land management

Grazing should be minimised after any control efforts to encourage the growth of competitive grasses/pastures.

Timing of control

Effective weed control relies on undertaking control works at appropriate times during growth and reproductive cycles. Table 1 indicates when specific control methods should be employed. It should however be noted that peak growth and timing of reproductive events can differ due to seasonal variations, type of environment and as a result of slashing and burning.

*Any management incorporating burning must be in accordance with the *Bushfires Act* and *Fire and Emergency Act*. Please contact your local fire station for permits to burn if you live within a Northern Territory Fire and Rescue Service Emergency Response Area (NTFRS ERA). If you live outside a NTFRS ERA, contact your local Volunteer Fire Brigade Captain or local area Fire Warden through Bushfires NT on Darwin 08 8922 0844, Batchelor 08 8976 0098 or Katherine 08 8973 8871.

Bellyache bush annual growth and management cycle



Hot late fires will clean out dead material and kill seedlings*

Table 1: Guide to the management of bellyache bush

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Flowering												
Seed fall												
Germination												
Physical/Mechanical												
Foliar spraying (chemical)												
Basal bark/ cut stump (chemical)												
Fire*												

 Approximate times for reproductive events

 Months most suitable for control option specified

 Control option less suitable

 Control option is not suitable

Access to seasonally inundated areas, particularly those near creeks and rivers, may vary significantly between wet and dry seasons. Control planning should take this into consideration.

Step 4 Monitor and review

Monitoring will help to determine the effectiveness of control methods, enabling improvements to future weed management. Consider keeping a diary of control works and weed surveys as they are conducted.

Monitor for new outbreaks

Identify regrowth and seedlings early, so follow up control can be undertaken quickly.

Regularly check areas:

- disturbed by fire, flood, heavy grazing or earth works;
- previously infested with bellyache bush;
- near existing infestations (seed sources); and
- areas downstream from current infestations.

Document costs and resources used

Keep a record of which control methods were used and at what time of year. Note whether or not they were successful. Implementing inappropriate management actions or undertaking control activities at the wrong time will reduce success and increase cost.

Establish photo points

Photos taken from the same point, at the same time each year will enable comparisons to be made. Photos will show changes in weed infestations, as well as pasture quality and/or regeneration of native vegetation.

Review your plan

Assess whether your plan achieved your requirements. Make amendments or fine tune as necessary to improve your weed control next year.

Weed Management Plan for Bellyache Bush (*Jatropha gossypifolia*)

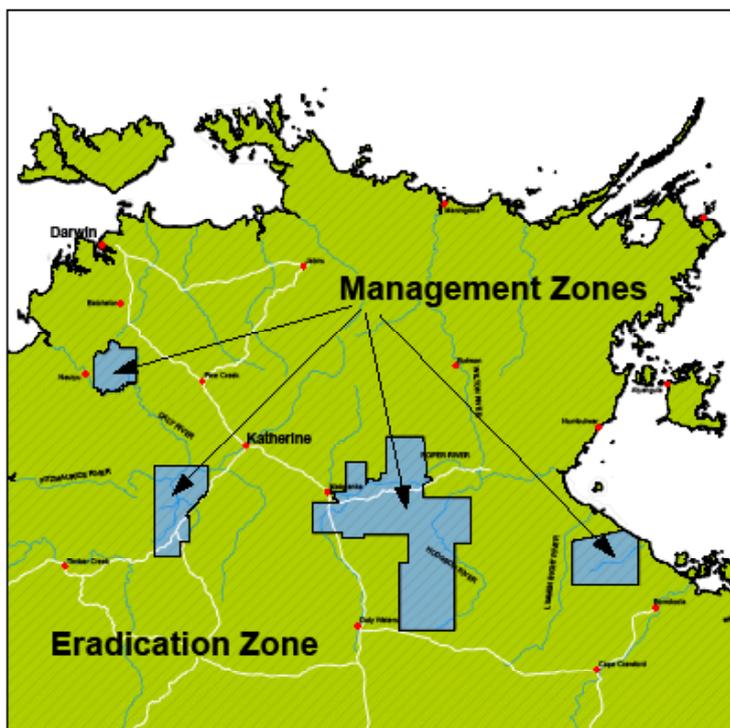
Bellyache bush is declared under the *Weeds Management Act 2001*. The Weed Management Plan for Bellyache Bush (*Jatropha gossypifolia*) establishes the legislative requirements for land managers in relation to weed control. The Plan describes required management actions as they relate to declaration zones.

Areas which have isolated and low density bellyache bush populations have been classified as the Class A (Eradication) Zone. Eradication in these areas is considered possible and highly desirable. For example, the bellyache bush populations in the McArthur River and Darwin Harbour catchments are within the Class A zone and are high priorities for eradication.

Widely distributed and dense bellyache bush infestations, such as some of those found in the Daly River Catchment, are within the Class B (Management) Zone. In the Class B Zone eradication is not considered technically or economically feasible at this time. Management recommendations for this zone focus on containing existing infestations and preventing any further spread.

All declared weeds in the NT, including bellyache bush, are also considered to be Class C. This recognises the need to prevent new introductions.

This Plan was reviewed and updated in 2013.



Class A	To be eradicated , in all areas of the Northern Territory except where it is classified as Class B;
Class B	Growth and spread to be controlled in the area roughly described as Greenant Creek subcatchment in the lower Daly River catchment; Aroona, Mathison and Scott Creek subcatchments in the upper Daly River catchment; upper Roper and Hodgson river catchments; and the Rosie Creek catchment.
Class C	Not to be introduced into the Northern Territory (all Class A and B areas are also classified as Class C).

Resources

Weed Management Plan for Bellyache Bush (*Jatropha gossypifolia*)

Establishes the management requirements to be achieved by land managers in accordance with the *Weeds Management Act 2001*. The Plan contains detailed information on best management practice.

NT Weed Management Handbook

Contains 'Weed control option tables' for 37 priority weed species. The tables list which herbicides are registered for use in the NT, Information is also provided on herbicide safety, integrated weed control and control techniques.

Weed Plan – A weed planning guide for properties

Provides information on how to develop a weed management map and a property weed plan.

Weed Monitoring Template

Details how to monitor, evaluate, report and improve on your existing property weed plan over time.

Bellyache Bush (*Jatropha gossypifolia*) Management Manual

Showcases control options and management case studies from across Australia (Produced by Queensland, Department of Employment, Economic Development and Innovation 2009).

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