

Bitou bush

Chrysanthemoides monilifera sub-species *rotundata*



Bitou bush is an aggressive weed in coastal dune vegetation where it can outcompete, and in many cases totally eliminate, the native flora. The invasive success of bitou bush is due to its vigorous growth and prolific seed production.

Bitou bush grows faster than many native plants and is free of pests and diseases, giving it a competitive advantage over natives. It forms a dense green blanket that can prevent native tree seedlings from growing.

Such dense stands also destroy or drastically alter the habitat of many native birds and animals.

Bitou bush is out of control in New South Wales where it has already degraded over 60% of the coastline. Most of Queensland's coastline is free of bitou bush and we need to keep it that way. Queensland has 6100 km of scenic coastline with unique coastal flora, making the control of bitou bush highly important. Bitou bush has been recognised as a Weed of National Significance.



**Queensland
Government**

Legal requirements

Bitou bush (*Chrysanthemoides monilifera* ssp. *Rotundifolia*) is and its close relative Boneseed (*Chrysanthemoides monilifera* ssp. *Monilifera*) are category 2, 3, 4 and 5 restricted invasive plants under the *Biosecurity Act 2014*. The Act requires that all sightings of bitou bush or boneseed must be reported to Biosecurity Queensland within 24 hours of being found.

By law, everyone has a general biosecurity obligation (GBO) to take all reasonable and practical steps to minimise the risk of spread of bitou bush until they receive advice from an authorised officer. It must not be kept, moved, given away, sold, or released into the environment.

Description

Bitou bush invades and smothers native coastal dune vegetation and has the potential to destroy its value as wildlife habitat. Introduced from South Africa, it does not belong in our landscape.

Bitou bush is an attractive, bright-green perennial shrub clambering up to 5 m with yellow, chrysanthemum-like flowers. The stems have many woody branches and the upper stems are often purple. The leaves are smooth, alternate along the stems and are 3–7 cm long, oval to oblong in shape and tapering at the base. Some leaves have slightly toothed edges and have a short stalk. They are practically hairless except for a cottony down on young leaves.

The flowers are bright yellow on short stalks and clustered at the ends of the branches. They are up to 2–3 cm in diameter with 11–13 petals.

The fruit is egg shaped with a green fleshy skin that changes to brown and black on maturity. Each fruit has a single seed that is rough, hard and bone-like in colour and texture when ripe.

Boneseed is closely related to bitou bush. It is an erect shrub up to 3 m tall. Leaves are elongate with toothed margins, 3–9 cm long. Flowers are yellow with 4–8 petals. Fruit is round ripening from green to black. Seeds are smooth and bone coloured.

Life cycle

Seed production is prolific and up to 50 000 seeds per plant per year have been recorded. Seeds germinate at any time of the year, particularly after good rain.

Flowering is intermittent year-round, but the main flowering time is between May and July. Most seeds remain viable for at least two years. Plants may flower within six months of germination and the fruit turns black when mature.

Methods of spread

Bitou bush is spread rapidly by birds eating the small black berries and passing the seed. Foxes have also been found to consume seeds with seedlings growing directly from fox scats.

Habitat and distribution

A native of southern Africa, bitou bush mainly occurs in sandy, coastline areas (often where sand mining has occurred) but is capable of growing in other soils further inland.

Bitou bush is found in scattered locations in the South east from Fraser Island south to the border along the coast. Since 1981 the Queensland Government has carried out an active eradication control program in conjunction with the local governments, traditional owners and land owning state agencies.

Boneseed has not yet been found in Queensland. Boneseed occurs in New South Wales, Victoria, Tasmania, South Australia and Western Australia.

Bitou bush was originally planted in New South Wales and parts of Queensland to 'revegetate' coastal dunes following sand mining. In Queensland it is restricted to two main areas.

In the Wide Bay area it is present at Inskip Point, Rainbow Beach and the southern tip of Fraser Island. Bitou bush poses a threat to the World Heritage values of the Great Sandy Region, including Fraser Island. Bitou bush is also present on North and South Stradbroke Islands and scattered along the Gold Coast beach strip.

Control

Managing bitou bush

The GBO requires a person to take reasonable and practical steps to minimise the risks posed by bitou bush. This fact sheet provides information and some options for controlling bitou bush.

Mechanical control

Hand-pull seedlings and plants up to 1 m in height. Bitou bush has a shallow root system with no distinct taproot, which makes pulling the bushes a practical treatment unlike many other woody weeds.

Bitou bush does not persist when grazed or cultivated. Slashing is not effective as regrowth occurs from the stump. The removal of adult plants stimulates seed germination and these seedlings must be removed before they produce further seeds.

Fire can destroy seedlings and many mature plants and stimulates seed germination. Control of the resultant seedlings is necessary.

Biological control

A nationally coordinated biological control program resulted in several insects being tested and released.

The bitou tip moth *Comostolopsis germana* and the bitou seed fly *Mesoclanis polana* are reported to be having a significant impact on seed production and plant vigour in New South Wales. Because the infestations in Queensland are localised and relatively small, eradication is the aim and hence biological control is not an option.

Herbicide control

Before using any herbicide always read the label carefully. All herbicides must be applied strictly in accordance with the directions on the label.

Spraying before berries turn black should render them sterile. However, to minimise seed set, plants should preferably be sprayed within six months of germination. Therefore, two spraying programs per year are necessary to prevent seeding.

More information

More information is available from your local government or call Biosecurity Queensland on 13 25 23 or visit biosecurity.qld.gov.au.



Table 1. Herbicides for the control of bitou bush

Situation	Herbicide	Rate	Comments
Native vegetation, conservation areas, gullies, reserves and parks	Picloram 44.7 g/L + aminopyralid 4.47 g/L (e.g. Vigilant II)	Undiluted gel form	Cut stump Apply 3–5 mm layer of herbicide gel to cut stump from bottle supplied
Agricultural non-crop areas, pastures, rights-of-way, commercial and industrial areas	2,4-D 300 g/L + Picloram 75 g/L (e.g. Tordon 75-D)	1 L/10 L water	Cut stump Apply as spray to freshly cut stump at any time of year
		650 mL/100 L water	Spot spray when flowering or fruiting
	Metsulfuron-methyl 600 g/kg (e.g. Associate, Ken-Met 600 WG)	10 g/100 L water	Spot spray Minimise contact with desirable plants. Apply to point of run-off
		1 g/L water + organosilicone penetrant (e.g. Pulse) 10 mL/5 L	Gas gun Minimise contact with desirable plants. Apply to point of run-off
Non-agricultural areas, native pastures, commercial and industrial areas, rights-of-way	Aminopyralid 375 g/kg + Metsulfuron-methyl 300g/kg (Stinger)	20 g/100 L water	Spray to thoroughly wet all foliage. Minimise contact with desirable plants.
	Triclopyr 75 g/L + Metsulfuron-methyl 28 g/L (e.g. Zelam Brush Weed)	250 mL/100 L water	Spray just prior to flowering, when the plant is in full leaf and actively growing. Minimise contact with adjoining plants.
Agricultural non-crop land, aquatic/riparian areas, dams, domestic buildings, gardens (public/parks), irrigation channels, banks and drains, domestic land, non-agricultural land, recreation areas, rights-of-way and pastures	Glyphosate 360 g/L (e.g. Weedmaster Duo)	500 mL or 1 L/100 L water	Spot spray Use clean fresh water or seawater. High-volume spray using a power spray or a knapsack, thoroughly wetting all leaves to point of run-off. Avoid contacting susceptible plants. Best results achieved when treated at peak flowering during winter, Use higher rate on plants over 1.5 m high.
		1:29 or 1:19	High concentration/low volume application (e.g. gas gun, splatter gun). Avoid contacting susceptible plants. Best results achieved when treated at peak flowering during winter, Use higher rate on plants over 1.5 m high.
	Other glyphosate formulations	Consult label	See notes above and on label

Fact sheets are available from biosecurity.qld.gov.au. The control methods recommended should be used in accordance with the restrictions (federal and state legislation, and local government laws) directly or indirectly related to each control method. These restrictions may prevent the use of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, the department does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.

