



Bitou bush

Chrysanthemoides monilifera species, *rotundata*

DECLARED CLASS 1



Description

Bitou bush invades and smothers native coastal dune vegetation. Introduced from South Africa it is not native to Australia and does not belong in our bush.

Bitou bush has the potential to replace our native beach-side vegetation and destroy its value as wildlife habitat.

Bitou bush is an attractive, bright-green perennial shrub clambering up to 5 m with yellow, chrysanthemum-like flowers. The stems are much branched and woody and the upper stems are often purple. The leaves alternate along the stems and are 20–80 mm long, oval to oblong in shape and tapering at the base. The leaves are irregularly serrated on the 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 20 mm in diameter.

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

The problem

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 which can prevent native tree seedlings from growing. When it forms such dense stands it destroys or drastically alters the habitat of many native birds and animals as well.

Bitou bush is out of control in New South Wales where it has already degraded over 60% of the coastline. Most of Queensland 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 and control of bitou bush is of high importance.

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 all year round but the main flowering time is between May and July. Most seeds remain viable for at least 2 years. Plants may flower within 6 months of germination and the fruit turns black when mature.

Habitat and distribution

A native of southern Africa, bitou bush is now naturalised in all states and territories of Australia except the Northern Territory. It occurs mainly in sandy, coastline areas (often where sand mining has occurred) but is capable of growing in other soils further inland. It is the dominant vegetation of 21% the New South Wales coastline and is present along 60% of the coast and 80% of the headlands.

Bitou bush was originally planted in NSW 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 World heritage Great Sandy Region and Fraser Island. Bitou bush is also present on North and South Stradbroke Island and scattered along the Gold Coast beach strip.

Bitou bush is spread rapidly by birds eating the small black berries and passing the seed.

Since 1981 the Queensland Government has carried out an active control program, in conjunction with the local governments concerned, which has ensured bitou bush is kept well under control and infestations reduced.

Declaration details

Bitou bush is a declared Class 1 plant under *Land Protection (Pest and Stock Route Management) Act 2002*. Declaration requires landholders to control declared pests on the land and waters under their control. A Local Government may serve a notice upon a landholder requiring control of declared pests.

Prevention

Established plants must be destroyed before they flower and produce fruit (berries). Failure to control bitou bush in the early stages of spread will result in birds eating the berries and spreading the seed far and wide. Foxes and rabbits will also eat the fruit and spread the seed in their droppings.

Occasionally plants are taken by members of the public for their gardens. Any such plants should be located and removed or destroyed since they represent a seed source and hence potential for further spread.

Control

The spread of weeds threatens the sustainability of agriculture and other land uses. Weeds also devastate native plants and animals.

The best form of weed control is prevention. Always treat weed infestations when small, do not allow weeds to establish. Weed control is not cheap, but it is cheaper now than next year, or the year after. Proper planning ensures you get value for each dollar spent.

Look at your weed problem carefully. Can you realistically eradicate it? Or should you contain the weed to stop new infestations developing while you reduce existing ones? What are you required to do by legislation? How does weed control fit into your property plan? What can you do to restore areas and prevent re-establishment?

The best approach is usually to combine different methods. Control may include chemical, mechanical, fire and biological methods combined with land management changes. The control methods you choose should suit the specific weed and your particular situation

Management strategies

In order to minimise the amount of seed produced, it is necessary to detect as many plants as possible. In some areas access is extremely difficult even on foot. Where there are areas of thick Acacia brush, for example it is advisable to cut tracks in to make access and control efforts easier.

Studies have shown that after burning or land clearing bitou bush responds much more quickly than native species and with a large seed bank in the soil it will quickly form a dense growth of seedlings swamping native species.

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 is in place which involves CSIRO, the Victorian Department of Natural Resources and Mines, NSW Agriculture and the Weeds CRC. As a result of this program, several

insects have been tested and released. The bitou tip moth *Comostolopsis germana* and the bitou seed fly *Mesoslanis polana* are reputed to be having a significant impact on seed production and plant vigour in NSW. 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 6 months of germination. Therefore, two spraying programs per year are necessary to prevent seeding.

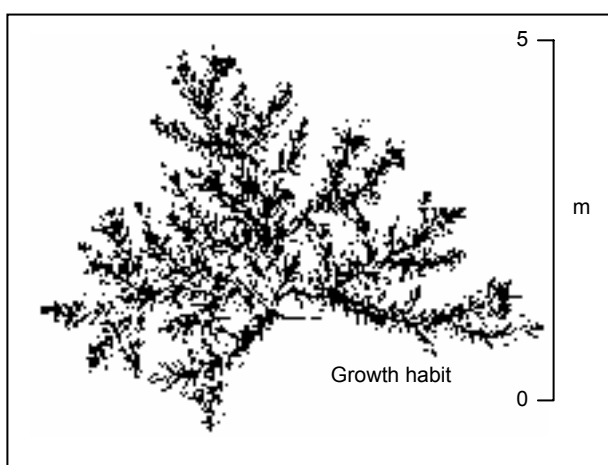
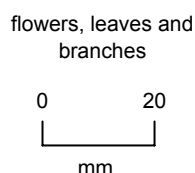
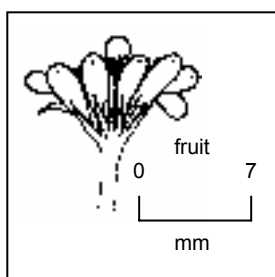
Further information

Further information is available from the vegetation management/weed control/environmental staff at your local government. ■

TABLE 1 – HERBICIDE REGISTERED FOR THE CONTROL OF BITOU BUSH

Situation	Herbicide	Rate	Comments
Non-crop	Glyphosate 360 g/L	1:100	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.

Note: The Department of Natural Resources and Water\ officers have also been getting good control of bitou bush using a low volume spray of 63 mL glyphosate per litre of water. A course nozzle setting or sprinkler sprayer wand lightly wets the whole plant using approximately 1 L of spray mixture per 100m² i.e. 6.3 L glyphosate 360 or 'Roundup'1100 L water/ha.



Fact sheets are available from NRW service centres and the NRW Information Centre phone (07 3237 1435). Check our web site <www.nrm.qld.gov.au> to ensure you have the latest version of this fact sheet. The control methods referred to in this Pest Fact 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 utilisation 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 of Natural Resources and Water does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.