Chrysanthemoides monilifera 简体中文 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name

Synonym

Similar species

Summary

Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*), and bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata*) are South African coastal plants that have become invasive in Australia and New Zealand. They can invade both undisturbed and disturbed areas, and proliferate because of their rapid growth, large seed production, lack of predators or pathogens, and adaptability to new environments. *C. monilifera* outcompetes native vegetation and can form dense canopies.

view this species on IUCN Red List

Species Description

Bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata*) is a perennial, evergreen shrub, normally 1-2m high, but it can form canopies up to 10m high. It is a sprawling shrub, with stems branched and woody, and the upper stems often purple. Leaves are 20-80mm long, oval to oblong, tapering at base and alternate along the stems. Leaves have smooth edges. Bitou bush has an extensive root system and appears to be more aggressive than boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*). It has yellow, chrysanthemum-like flowers that are up to 20mm in diameter, and are clustered at the ends of branches. Fruit has a green fleshy skin that becomes brown and black on maturity, and contains a single egg-shaped seed 5-7mm long that is dark brown to black when dry (CRC, 2003a).

In contrast boneseed *C. m. monilifera* grows as an erect bush, and has leaves with serrated edges (CRC, 2003b). Boneseed flowers from August to February. The flowers are characterized by a bright yellow and daisy-like appearance and are typically 25-30 mm in diameter. Each flower consists of 5 to 6 ray florets that are 13 mm in length accompanied by a number of disk florets. The leaves of boneseed are smooth and leathery, with a length of up to 7cm long and width of 3.5cm wide. Additionally, they are irregularly serrated with 3 to 9 teeth each side. In younger plants, the stems are generally wolly and ribbed, eventually becoming smooth as they mature. Fruits are round and green with very thin, but hard fleshy covering. As they ripen, they become darker in colour (DOC, undated; RNZIH, 2005).

Notes

Results of a study by Barker *et al* (2009) indicate the existence of substantial intraspecific variation within *C. monilifera*. The authors of the study observe that the results obtained from this study are of significance to scientists working on the biocontrol of this species especially in the ascertaining of the genetic lineage and geographic origins of the invasive plants so more effective biocontrol agents can be identified from their natural populations.

Boneseed and bitou bush can hybridise to produce fertile plants with intermediate characteristics (ARMCANZ 2000).

Lifecycle Stages
Bitou bush can flower year round, but peaks between April and June. Fruit ripens during winter and early spring (CRC, 2003a). Boneseed forms flowers in late winter and spring, but are not shed until summer (CRC, 2003b).

Habitat Description
Bitou bush grows in a range of environments, from open exposed dunes to shaded forests. It is tolerant of shade, salinity, strong wind, windblown sand and water, drought, low nutrients, and to some extent, disturbances such as fire. It grows poorly in wet or swampy soils and has a low tolerance to frost.
Boneseed also grows under a wide range of climatic conditions, but prefers sandy or medium-textured soils and disturbed situations, particularly near the sea.
Boneseed is fire sensitive, whereas bitou bush is more variable in its response, depending on the intensity of the fire (CRC, 2003(a)(b); ARMCANZ 2000).

Reproduction
Both bitou bush and boneseed seeds germinate at any time of the year, but mostly in autumn, remaining viable for at least two years. Seedlings grow rapidly during winter and a few plants may flower in the first year (in particular on burnt areas where there is little competition). Usually, however, plants are at least 18 months or up to three years before flowering (CRC, 2003(a)(b)).

General Impacts
Chrysanthemoides monilifera outcompetes native vegetation in coastal environments in Australia and New Zealand, and invasion can lead to a decline in both floral and faunal diversity, changing ecosystem composition. It grows in a range of habitats, and will resprout after fire, slashing or herbicide application. In addition, it can create a favourable environment for other invasive weeds, such as asparagus fern (*Asparagus densiflorus*), lantana (*Lantana camara*) and glory lily (*Gloriosa superba*) (CRC, 2003(a)(b)).

Management Info
Preventative measures: Prevention and early intervention is the most cost-effective form of weed control. Once an infestation of *Chrysanthemoides monilifera* occurs, it is important to prevent the spread of seeds into surrounding areas. Established plants should be destroyed before they flower. Raising awareness amongst recreational vehicle users is important in coastal areas where seed can be spread by their activity (CRC, 2003a).
The Australian Weed Committee's Bitou bush and Boneseed Management Manuals compile and evaluate best-practice management techniques currently being used by a range of community volunteers and land managers in Australia. They provide detailed information on effective bitou bush and boneseed control techniques in various situations, and advice on developing a comprehensive management plan.
A bitou bush and boneseed species profile that describes in detail their physical characteristics, distinguishing features and descriptions of similar species to aid in accurate identification is also available. This information will help people choose the most appropriate control methods for their site.
Please follow this link for detailed information on physical, chemical and biological control options.

Pathway
Chrysanthemoides monilifera was used in Australia to revegetate areas after sandmining from 1946 to 1968 (CRC, 2003a).It is most likely that *Chrysanthemoides monilifera* was first introduced to Australia *via* ship ballast water (CRC, 2003a).

Principal source: CRC, 2003a. Weed Management Guide Bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata*)
CRC, 2003b. Weed Management Guide Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*)

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG) with support from ASB Community Trust, New Zealand
Updates with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

Review:

Pubblication date: 2010-10-04

ALIEN RANGE

[39] AUSTRALIA
[1] ITALY
[1] SAINT HELENA
[1] FRANCE
[11] NEW ZEALAND

Red List assessed species 1: VU = 1;

Callitris oblonga **VU**

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