

## Groundsel Bush

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Groundsel bush (*Baccharis halimifolia*) is a native of the east coast of North America and the West Indies. It was first introduced into Australia as an ornamental plant and, by 1900, had become naturalised in Queensland.

By 1930, it was a serious weed in south-east Queensland. By the mid-1960s, it was present in the Tweed, Richmond and Clarence catchments in northern New South Wales. Since then, it has gradually spread southwards along the coastal fringe to the Macleay River at Kempsey.

Isolated infestations now occur as far south as the Hastings, Taree, Gloucester, Dungog and Wyong Shires. Many of these infestations occur adjacent to main roads and railway lines, indicating these as main vectors of spread. Isolated infestations have also been found on the South Coast at Wollongong and Shellharbour and west onto the Northern Tablelands near Tenterfield and Ebor.

Groundsel bush is a declared Noxious Weed in New South Wales and Queensland. In New South Wales, it is a W2 Noxious Weed, requiring it to be fully and continuously suppressed and destroyed by land-owners and managers.

It is likely that groundsel bush will spread further in Australia.

Groundsel bush is frost-tolerant and occurs naturally in North America where there are regular winter snowfalls, meaning that in Australia it could spread inland and to colder climates, especially where the habitat is favourable.

At the moment, it has not spread to its natural range, but threatens to do so. Therefore, if coordinated control programs are not maintained, it may rapidly fulfil this potential.



**Female groundsel bush in full flower.**

### DESCRIPTION

Groundsel bush is a densely-branched shrub — usually 1.5–3 m high — although it sometimes grows into a small tree up to 7 m high. Leaves are alternate, 2.5–5 cm long, 1–2.5 cm wide, wedge-shaped and prominently-toothed, particularly near the tip. Stems have a characteristic striped bark. Male and female flowers are on separate plants; male flowers are cream and female flowers are white. Seeds are very small and light, weighing only about 0.1 mg. On the top of each seed grows tufts of white hairs which give the female plant its characteristic fluffy appearance when in full flower. Flowers mature and seeds drop between April and May — depending on seasonal conditions.



**Groundsel bush growing in a forest. Unchecked infestations can spread to neighbouring properties.**

## **WHY GROUNSEL BUSH IS A WEED**

Groundsel bush is a serious weed of horticulture, cropping and grazing agricultural industries, forestry, and is also an environmental weed.

### **Capacity to spread**

Each plant can annually produce more than 1.5 million seeds. The seeds are adapted for dispersal by wind and water because of the pappus, which remains attached to the seed for several days after release from the head. Under windy conditions during flowering, groundsel bush seed can be transported over long distances.

Half of the seed usually falls within about 100 m of the parent bush forming dense, impenetrable stands of the weed. However, some seeds spread farther.

These thick stands can inhibit the movement of stock and reduce the productivity and carrying capacity of agricultural land. Therefore, the spread of the weed is of great concern to rural communities, especially where annual rainfall exceeds 1000 mm.

Groundsel bush is an environmental and forestry weed because it readily invades forests ranging from open to densely vegetated and it also invades National Parks.

It tolerates a wide range of soil types and pH levels, from 3.8–8.2.

It is also resistant to damage from salt spray and from a relatively high level of soil salinity.

Groundsel bush is particularly invasive in some specific situations. These situations include:

- Badly-drained, poor, coastal wetlands. Groundsel bush is very tolerant to the waterlogged, acid, saline conditions often found on this class of land. Particularly-bad infestations can be found on abandoned cane farms; undeveloped land subdivisions which have been bulldozed; or other areas where groundcover has been disturbed.
- All grazing land that is overgrazed or under-vegetated. Newly-cleared land is prone to invasion by groundsel bush as is land which has suffered from fertility rundown and neglect.
- Abandoned banana and stone fruit plantations. These areas are very prone to groundsel bush infestation, largely because of the effects of consistent, bare-ground management during the life of the plantation.
- Open or poorly-developed forest areas. Invasion can occur after logging when canopy cover is reduced and soil disturbance is at a maximum. In many cases, groundsel bush will grow and form a canopy faster than the forest species regrow. It is also a major weed of coastal pine forests where there is little groundcover to compete with seedlings. Thousands of hectares of pine plantations in New South Wales and Queensland are heavily-infested.
- Occasionally, plants occur even in dense pasture.
- It can be poisonous. Groundsel bush is reputed to be poisonous to horses and, also, possibly sheep. Cattle lose condition rapidly when forced to graze it; it has no value as stock feed and heavy infestations can greatly reduce carrying capacities.



**Damage caused to a groundsel bush by a stem-boring biological control agent.**

### **CONTROL**

A variety of measures are available for controlling groundsel bush effectively.

**Mechanical Control.** Young plants are fairly easy to pull out as they have a shallow root system. Care should be taken however to remove all roots to prevent regrowth.



**Groundsel bush invading pasture and forest lands.**

Widespread infestations of young plants can be controlled by cultivation, but seedling regrowth can occur if competitive pastures or crops are not sown soon afterwards. In the case of very large bushes, bulldozing may be the most effective first step.

Large infestations of young groundsel bush are slashed in some areas. Slashing suppresses flowering and, hence, reduces the spread of seed.

Frequent, regular slashing will eventually kill groundsel bush.

In many large infestations, groundsel bush grows in association with blady grass and bracken fern and regular slashing of the three species together encourages a more vigorous growth of pasture. This in turn suppresses groundsel bush seedling regrowth. Regular slashing of large groundsel bush infestations is often part of a long-term program of eradication involving spraying, slashing and pasture improvement.

**Chemical Control.** In New South Wales, several chemicals are registered for controlling groundsel bush. Herbicide control is an effective technique, but follow-up treatments are essential. A number of techniques can be used including cut-stump, basal bark and folia application methods. If you are unsure of which combination of chemical and application technique is most suited to your situation, consult your nearest NSW Agriculture office or your local council weeds officer. Herbicides recommended for the control of groundsel bush are listed in the *Noxious and Environmental Weed Control Handbook*.



A mature gall on a groundsel bush growing tip, with the gall-forming fly, (*Rhopalomyia californica*).

**Biological Control.** An introduced plant, groundsel bush does not suffer from predation by the range of natural enemies which are found in its native habitat. Biological control of groundsel bush involves introducing these natural enemies to reduce its vigour and competitive ability. Several insects have been introduced to control it, three of which have established and are having a minor impact on the plant. These are the gall-forming fly (*Rhopalomyia californica*) and two stem-boring agents.

The gall-forming fly lives for only 4-5 hours in which time it emerges from its pupal stage, mates, finds another groundsel bush, lays eggs and dies. Eggs are laid on the shooting tips and stems of groundsel bush and, after hatching from the eggs, larvae burrow into the stems.

The plant then forms a gall of spongy tissue around the burrowing larvae, which grow and develop into pupae and eventually emerge as adults. The effect of the galls is to reduce the growth and vigour of the plant and prevent flowering. Once flowering stops, the spread of seed is much reduced, thereby making it easier for landowners and weed control authorities to eventually control the weed.

In the mid-1980s, two stem boring agents, *Megacyllene mellyi* and *Oidaematophorus balanotes* were introduced into northern New South Wales.

Larvae of both agents tunnel into the stems of groundsel bush, causing dieback and even death of the plants, in some cases.

The stem borers have successfully established and can be found over a wide area, but their effect has been sporadic, mainly reducing the vigour of plants under suitable conditions.

A new rust, *Puccinia evadens*, was first released into south-east Queensland in 1997. During the next three years, numerous releases were undertaken, including at a number of sites in northern New South Wales. Early indications showed promising results for the establishment and leaf infection of the rust. It is hoped this vector will be able to complement other biological control agents and assist with the long-term, integrated management of the plant.

Biological control of groundsel bush is only promoted and relied upon as a management tool in core infestation areas. At this stage, biological control cannot be relied upon for short-term, comprehensive control and other techniques should be used including mechanical and chemical means.

**Goats.** Control of widespread infestations of groundsel bush by goats might also be worth considering. Investment in goats as a groundsel bush control measure will, however, require goat-proof fencing and some knowledge of goat husbandry.



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**GROUNDSEL BUSH**  
**(Baccharis Halimifolia)**

(See NSW Agriculture publications for more information on goat management for weed control.)

Goats are, however, only effective for woody weed management if they are grazed intensively in the groundsel-infested area.

Goats can also destroy young trees growing in the groundsel area, unless precautions are taken to protect them with effective tree guards or other deterrents. Also, goats are not suitable where wild dogs are a problem.

**Pasture Improvement.** Pasture improvement is an important part of any program to control groundsel bush. Well-managed, competitive pastures help to reduce the establishment of groundsel bush seedlings. Abandoned banana plantation areas, newly-cleared land and overgrazed infertile paddocks, especially in swampy areas, are all much less susceptible to groundsel bush invasion after establishment of improved pasture. Pasture improvement costs must be viewed in the light of avoiding future noxious plant control costs. Advice on which improved pasture plants are most suitable for your situation is available from NSW Agriculture.

Reafforestation to control groundsel bush has been tried in a number of situations. This is only successful when good forest management methods are adopted. Chemical control of groundsel bush during plantation establishment may also be necessary. Groundsel bush is shade-tolerant and can still grow and produce seed under heavy canopies.

#### **Disclaimer**

The information contained in this publication is based on knowledge and understanding at the time of writing in March 2001. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check the currency of the information with the appropriate officer of NSW Agriculture or the user's independent adviser.

## **NOXIOUS WEEDS**

Groundsel bush is a W2 Noxious Weed in most coastal areas of New South Wales and is also in a similar category in Queensland. In New South Wales, as a W2 Weed, groundsel bush must be fully and continuously suppressed and destroyed.

The responsibility for control of noxious weeds on private lands rests with the occupier of the land. Failure to control noxious weeds can result in a notice being served; a fine and/or your local council may enter your land and eradicate the plants; charging the costs to the landholder.

### **IMPORTANT: USE OF PESTICIDES**

Pesticides must only be used for the purpose for which they are registered and must not be used in any other situation or in any manner contrary to the directions on the label.

Some chemical products have more than one retail name. All retail products containing the same chemical may not be registered for use on the same crops. Registration may also vary between States. Check carefully that the label on the retail product carries information on the crop to be sprayed.

This publication is only a guide to the use of pesticides. The correct choice of chemical, selection of rate, and method of application is the responsibility of the user. Pesticides may contaminate the environment. When spraying, care must be taken to avoid spray drift on to adjoining land or waterways. Residues may accumulate in animals fed any crop product, including crop residues, which have been sprayed with pesticides. In the absence of any specified grazing withholding period(s), grazing of any treated crop is at the owner's risk.

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