

Gorse and brooms

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Introduction

Gorse and brooms are shrubs from the legume family (Fabaceae) that are often weedy in temperate regions. Three members of this group are considered in detail here: gorse (*Ulex europaeus*), Scotch broom (*Cytisus scoparius*), and Cape broom (*Genista monspessulana*).

These three shrubs are characterised by a long seed life, seedlings that take two or more years to grow to seed producing shrubs, and adult shrubs that may live for several decades.

There are other species in this family that are similar in appearance and can be difficult to tell apart from the species covered here, such as flax-leaf broom (*Genista linifolia*) and Madeira broom (*Genista stenopetala*). Hybrids between the different species may also exist.

Many species of broom continue to be sold as garden plants through nurseries; one such species is tagasaste (*Chamaecytisus palmensis*), also known as tree lucerne. Some species sold through nurseries are occasionally weedy in localised areas, while others are not.

Impacts

Gorse and brooms smother desirable vegetation which reduces pasture stocking rates. They form dense thickets which can block access by humans and stock but harbour feral animals such as rabbits, foxes and pigs.

They invade natural ecosystems where they compete with native plants and alter the ecosystem. When dense, these weeds increase the risk of bushfire through increased fuel load.

Habitat

Gorse and brooms often become dense on river banks, forest margins, roadsides and other disturbed areas. They will also invade pastures and native vegetation.

They are able to grow on a wide range of soil types and are able to flourish in areas with an annual rainfall over 500 mm.



Gorse readily infests creek banks. Photo: Sandy Leighton

Distribution

Gorse and brooms are mostly confined to cool temperate areas of NSW, particularly the tablelands.

Gorse is a problem in the south-eastern region of the state and the Blue Mountains. Some large populations of Scotch broom exist on the Barrington Tops and near Braidwood.

Cape broom is a significant weed of semi-improved pastures on the coast and tablelands.

Description

Identifying characteristics of gorse, Scotch broom and Cape broom are given in Table 1 and pictures are shown on page 3.

Lifecycle

Both gorse and brooms have similar lifecycles. Plants are normally at least two years of age before they are able to reproduce.

Flowering mostly occurs from late winter to late spring. For gorse a second flowering may occur towards the end of summer and into autumn. Occasional flowers may be seen at other times.

Gorse and brooms reproduce by seed. Their pods burst open in hot weather during spring and summer, scattering seeds up to several metres from the plant.

Seeds of these species have a hard coat that can delay germination for months or years, allowing large seed banks to develop. Seed can remain viable in the soil for many years.

Although germination and seedling establishment do occur annually, it is common for significant germination and survival events to occur in years following fire or soil disturbance.

Table 1: Characteristics of gorse, Scotch broom and Cape broom

	Gorse	Scotch broom	Cape broom
Scientific name	• <i>Ulex europaeus</i>	• <i>Cytisus scoparius</i>	• <i>Genista monspessulana</i>
Other common names	• Furze	• English broom	• Montpellier broom
Distinguishing feature	• Spines cover stems and branches	• Pods with hairy margins • Stems five sided and green	• Pods hairy all over
Habit	• Branched spiny shrub • Grows to 1–2.5 m high	• Upright, evergreen shrub • Grows to 4 m high but more commonly 1–2 m high	• Upright, evergreen shrub • Grows to 3 m high but more commonly 1–2 m high
Stems	• Green when young; brown and woody when older • Covered in spines	• Upper stems usually with five pronounced ridges and woody • Numerous branches	• Upper stems slightly ridged and woody • Usually one main stem with many branches
Leaves	• Dark green, narrow, stiff and stalkless • Three leaflets per leaf on seedlings • Leaflets reduced to spines 30 mm long on older plants	• Short stalked • Softly hairy • Three leaflets per leaf • Middle leaflet to 20 mm long, others somewhat shorter	• Short stalked • Mainly hairy on underside • Three leaflets per leaf • Middle leaflet 5–30 mm long, others somewhat shorter
Flowers	• Yellow and pea-like • 15–25 mm long • Often in clusters at the ends of young stems	• Yellow and pea-like • 20–25 mm long • Occur singly or in pairs	• Yellow and pea-like • 8–12 mm long • Occur in clusters of 3 to 9
Fruit	• Grey to black, oblong hairy pods • Contains 2–6 seeds • 10–20 mm long and 6 mm wide	• Brown to black pea-like pods hairs confined to margins • Contains 5–22 seeds • Up to 70 mm long and 13 mm wide	• Brown to black pea-like pods that are hairy all over • Contains 5–8 seeds • 15–25 mm long and about 5 mm wide
Seed	• Brown to green • Heart-shaped and up to 4 mm long • Smooth, rounded and slightly flattened	• Yellowish-brown to olive green. • Oval up to 4 mm long • Smooth, rounded and slightly flattened	• Dark brown to black • Circular to angular and up to 3 mm long • Smooth, rounded and slightly flattened



Gorse flower sprig. Photo: Sandy Leighton



Scotch broom flowers and pods. Note the hairy margins of the pods. Photo: John Hosking



Cape broom flowers and pods. Note that pods are hairy all over. Photo: John Hosking



A. Scotch broom; B. Cape broom; C. Gorse. Photo Jonah Gouldthorpe

Spread

Originally, both gorse and brooms were planted as hedge or ornamental garden plants.

Their main method of spread is now via seed by soil, water, machinery, footwear, stock and wildlife.

The ability of the plants to shoot their seeds some metres away allows infestations to thicken quickly and to spread, particularly along water courses.

Control and management

The control and management for gorse and brooms are similar.

Management needs to address:

- Movement of seed so that new patches do not establish.
- The protection of humans and animals from damage from gorse prickles.
- The removal of sticks and stumps to allow areas to be trafficable.
- Regrowth so that the plants do not re-establish.
- Seedlings so that gorse and brooms do not re-establish over time.
- Long term landuse to prevent reinfestation.

Techniques for control include fire, mechanical removal, grazing, herbicides, property hygiene and biological control.

The cost of control is typically high.

New infestations should be treated prior to plants flowering. Once plants begin to seed they are much more difficult to control and spread into other areas is more likely.

While isolated patches may not seem a priority for some, they are more cost effective to control than larger patches. Any infestations left uncontrolled can lead to a rapid spread and increase in the problem.

Tackle small, outlying infestations first and coordinate control with neighbours.

Once established, these weeds are very difficult to eradicate. Control programs need a minimum of five years commitment, including yearly inspections to check for regeneration and regrowth, and follow-up treatment.

Integrated management

Integrated management programs are essential for long-term control. This involves using a combination of control methods to get the best possible results.

Repeated removal of above-ground growth, by slashing, grazing or fire, will suppress plants but will not destroy them. Treatments that shatter the roots or herbicides that move through the plant and roots are required to kill these weeds.

Fire

Adult plants are typically not killed by burning. Fire kills above ground parts of the plant but plants regrow from the root stump. Also, fire does not kill the numerous seeds buried in the soil profile.

Fire stimulates seed germination. Therefore any treatment using fire must be followed up with other treatments such as herbicide for at least five years.

These shrubs, particularly gorse, produce intense heat and flames when burnt, even in winter. There are large risks associated with the use of fire, including injury to people, property, and desirable plants and fauna. Fire can only be considered if these risks have been fully managed.

Mechanical

Hand grubbing

Plants must be removed well below the soil surface. This means of control is only appropriate for small scattered plants and seedlings and only when the ground is soft.

Mechanical slashing and grubbing

The stems of these shrubs are tough. Specialist equipment is generally used to break stems, to allow further access, and to avoid puncturing tyres. Mechanical treatments that go into the ground to shatter roots are considerably more successful than top removal treatments. The extra costs to get the job done properly are worth it.

Mulchers are available that break sticks to fragments and shatter roots. Since slashers and choppers do not shatter roots, plants treated by these means will almost certainly need follow-up treatment.

For long-term control, mechanical clearing should be used in combination with pasture establishment to provide competition, grazing, and herbicide treatments.



Mechanical slashing of gorse. Photo: Sandy Leighton

Grazing

Both sheep and goats will eat gorse and broom seedlings. Sheep will generally suppress the regrowth of gorse and broom but will have little impact on adult plants.

Large numbers of goats can be used to reduce the regrowth of adult gorse and brooms.

Grazing is also done in combination with burning, however sheep fleece may continue to be contaminated by charcoal for years after fire.

Herbicide

Herbicides are useful for both initial treatment and for treatment following other control methods. When using herbicides, it is important to follow the label recommendations.

Herbicide control of gorse and broom frequently requires more than one treatment to be effective. The most appropriate applications are either foliar spray or cut stump methods.

When applying foliar sprays ensure that the mixture is applied to the point of run-off over the whole plant, and use a penetrant or surfactant as directed on the herbicide label.

Chemicals registered for the control of noxious weeds are listed in the publication *Noxious and Environmental Weed Control Handbook* which is available online at www.dpi.nsw.gov.au/weeds. For further information on chemicals and rates, read the product label or enquire at your herbicide reseller.

Property hygiene

Property hygiene is important to reduce the spread of weeds. As gorse and broom seed is easily transported in mud, thoroughly check equipment, footwear, vehicles and animals for seed and wash down before leaving infested areas.

Vehicles, bush walkers and horse riders should stay on tracks to reduce the amount of seed picked up on tyres, footwear and hooves.

Biological

Biological control agents for gorse and brooms that have been trialled and released in NSW include the gorse spider mite, gorse thrips, gorse seed weevil, broom twig-mining moth, broom psyllid and broom seed beetle. Results have been variable with no agent to date having a significant impact on gorse or brooms over large areas.



Foliar spraying of gorse. Photo: Jonah Gouldthorpe

National management

Gorse is one of twenty Weeds of National Significance. A national strategy is currently being implemented under the guidance of the National Gorse Taskforce.

There are no national programs for brooms.

Legislation

Certain control requirements apply to some brooms and gorse in parts of NSW. A full list of noxious weeds and requirements under the *NSW Noxious Weeds Act 1993* can be found at www.dpi.nsw.gov.au/weeds.

The responsibility for the control of noxious weeds on private land rests with the land owner or occupier of the land. This responsibility extends to the middle line of any adjacent watercourse, river or inland water.

Gorse and Cape broom must not be sold anywhere within NSW.

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Gorse is listed as one of Australia's Weeds of National Significance. Photo: NSW DPI

References and further reading

National Gorse Taskforce (2006) Gorse National best practice manual. *Managing gorse* (*Ulex europaeus* L.) in *Australia*. Department of Primary Industries and Water, New Town, Tasmania.

CRC for Australian Weed Management (2004) *Weed Management Guide: Gorse* (*Ulex europaeus*).

CRC for Australian Weed Management (2004) *Weed Management Guide: White Spanish broom* (*Cytisus multiflorus*).

CRC for Australian Weed Management (2004) *Weed Management Guide: White weeping broom* (*Retama raetam*).

Hosking, JR, Smith, JMB and Sheppard, AW (1998) *Cytisus scoparius* (L) Link ssp. *scoparius*. In, *The Biology of Australian Weeds*, volume 2. Eds FD Panetta, RH Groves and RCH Shepherd. RG and FJ Richardson, Melbourne. Pp. 77-88.

Richardson, RG and Hill, RL (1998) *Ulex europaeus* L. In *The Biology of Australian Weeds*, volume 2. Eds FD Panetta, RH Groves and RCH Shepherd. RG and FJ Richardson: Melbourne. Pp. 269–290.

Parsons, WT and Cuthbertson EG (2001) *Noxious Weeds of Australia*. Inkata Press. Pp. 467-484.

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