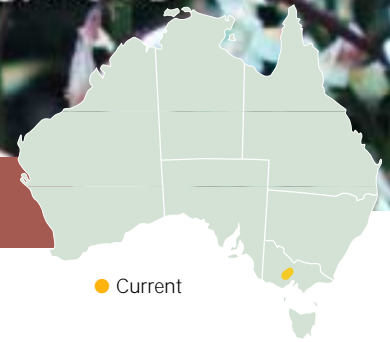


This document was originally published on the website of the CRC for Australian Weed Management, which was wound up in 2008.

To preserve the technical information it contains, the department is republishing this document. Due to limitations in the CRC's production process, however, its content may not be accessible for all users. Please contact the department's Weed Management Unit if you require more assistance.

Weed Management Guide

White Spanish broom
Cytisus multiflorus



● Current

White Spanish broom (*Cytisus multiflorus*)

The problem

White Spanish broom is on the *Alert List for Environmental Weeds*, a list of 28 non-native plants that threaten biodiversity and cause other environmental damage. Although only in the early stages of establishment, these weeds have the potential to seriously degrade Australia's ecosystems.

White Spanish broom is a serious environmental weed in Victoria and is targeted for eradication. Like all brooms, it invades a wide range of fertile soils where it can fix nitrogen and form a dense scrub layer that outcompetes native species. Dense broom stands shade out native herbaceous groundcover plants and eucalypt seedlings. It also provides shelter for feral animals and its seeds are poisonous. In pastures white Spanish broom forms thickets that prevent grazing and restrict access to water.

There is concern that white Spanish broom could hybridise with its close relative common broom (*C. scoparius*), another major environmental weed, and form hybrids that are even more troublesome than the parent plants.

The weed

White Spanish broom is a large shrub which grows to 3 m high and has striped green stems. The leaves are arranged in groups of three leaflets on lower branches and a single leaflet on higher branches.



White Spanish broom is a large shrub which has striped green stems and green-grey foliage.
Photo: Yoshi Nomura

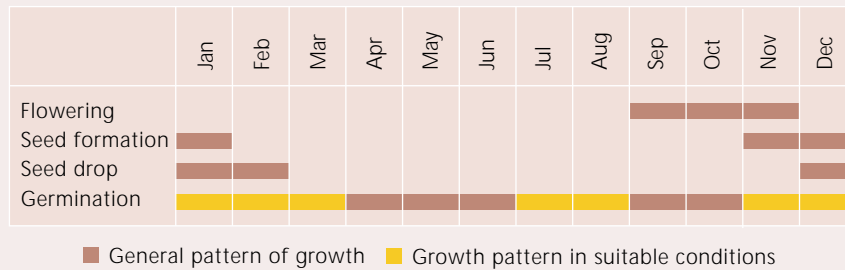
Young stems and leaves are covered with short hairs which are lost as the plant ages. White Spanish broom has finer, greyer foliage than broom.

Both the flowers and seed pods are pea-like. The flowers are white with a pink streak at the base and 9–12 mm long. The seed pods are covered with short hairs and are generally 15–27 mm long and 4–7 mm wide. The pods turn black when mature and release seeds explosively when ripe. Each pod contains between three and seven seeds, which are 2.5–3.0 mm long and olive to brown in colour.

Key points

- Prevention and early intervention are the most cost-effective forms of weed control. Once established, white Spanish broom is difficult to control so it is important to keep uninfested areas weed free.
- White Spanish broom could hybridise with another serious weed, broom (*C. scoparius*).
- Each plant produces a large number of small seeds which can remain viable in the soil for many years.
- Contact your state or territory weed management agency or local council if you find white Spanish broom. Do not attempt control on your own.

Growth calendar



White Spanish broom flowers prolifically from September to November but only a small proportion of flowers develop into fruit. Pods ripen over summer and seeds are released explosively on sunny days as the pods dry out. The seeds germinate with autumn rains and during spring although relatively few germinate at any one time. Plants grow throughout the year but mainly in the spring–autumn period, and usually do not seed until they are three years old.



The flowers of white Spanish broom are white with a pink streak at the base.
Photo: Paul Downey

How it spreads

White Spanish broom generally spreads by seed, with most seed falling within 1 m of the parent plants. It may be spread over longer distances by movement of seed by water or in mud attached to vehicles, machinery, footwear and animals.

Like many legumes, white Spanish broom is hard seeded and the seeds remain viable for a long time in the soil, probably as long as the seed of the closely related *C. scoparius*, which is still viable 20 years after being dropped. Germination of *C. scoparius* seed is greatest once the hard seed coat is breached by fire, and this mechanism is also likely to be required by white Spanish broom.

Infestations may also spread locally through plant pieces taking root. White Spanish broom is still being sold as an ornamental plant in Australia so there is also the potential for it to escape from gardens.

Where it grows

White Spanish broom is native to Portugal, Spain and France. It has also been introduced as an ornamental in India, Australia, Italy, United States, New Zealand and Argentina. In Australia it has become a weed and is quite common near Creswick and Castlemaine in central Victoria. It has been eradicated from the Mount Lofty Ranges in South Australia.

Little is known of the environmental requirements of white Spanish broom. As a weed, it is known to enter relatively undisturbed bushland. In Australia it has spread from lakeside plantings into roadsides and townships, but it could also establish in a wide range of disturbed and undisturbed habitats such as grasslands and open eucalypt woodlands.

Why we need to be 'alert' to white Spanish broom

Its distribution in southern Europe shows that white Spanish broom is adapted to the warm, dry conditions that exist throughout much of temperate Australia. While it is mainly a threat as an environmental weed, causing reduction in the aesthetic beauty and diversity of plants and animals in natural environments, it could also affect pastures and forestry.

A closely related species, broom (*C. scoparius*), is already an established serious agricultural and environmental weed in Australia. It was introduced from Europe in the 1800s and has spread to many regions in southeastern Australia. It is a major problem in the Barrington Tops National Park in New South Wales and is also spreading in the Bogong High Plains in Victoria. More than 200,000 ha of land is estimated to be infested with *C. scoparius* and, despite many attempts at control, it is still spreading.



The seed pods of white Spanish broom are covered with short hairs, turn black when mature and release seeds explosively when ripe.
Photo: John Hosking



White Spanish broom has spread from lakeside plantings into roadsides and townships, but it could also establish in a wide range of disturbed and undisturbed habitats such as grasslands and open eucalypt woodlands.
Photo: Paul Downey



A closely related species, broom (*C. scoparius*), is already an established, serious agricultural and environmental weed in Australia.
Photo: Eric Coombs, Oregon Department of Agriculture, www.forestryimages.org

What to do about it

Prevention is better than the cure

As with all weed management, prevention is better and more cost-effective than control. The annual cost

of weeds to agriculture in Australia, in terms of decreased productivity and management costs, is conservatively estimated at \$4 billion. Environmental impacts are also significant and lead to a loss of biodiversity. To limit escalation of these impacts, it is vital to prevent further introduction of new weed

species, such as white Spanish broom, into uninfested natural ecosystems.

White Spanish broom is being sold as a garden ornamental in some nurseries around Australia. These plants could spread from gardens or be inappropriately dumped into bushland.

The Alert List for Environmental Weeds

The Federal Government's *Alert List for Environmental Weeds* was declared in 2001. It consists of 28 weed species that currently have limited distributions but potentially could cause significant damage. The following weed species are therefore targeted for eradication:

| Scientific name | Common name | Scientific name | Common name |
|--|---------------------|---|-------------------------|
| <i>Acacia catechu</i> var. <i>sundra</i> | cutch tree | <i>Koeleruteria elegans</i> ssp. <i>formosana</i> | Chinese rain tree |
| <i>Acacia karroo</i> | Karoo thorn | <i>Lachenalia reflexa</i> | yellow soldier |
| <i>Asystasia gangetica</i> ssp. <i>micrantha</i> | Chinese violet | <i>Lagarosiphon major</i> | lagarosiphon |
| <i>Barleria prionitis</i> | barleria | <i>Nassella charruana</i> | lobed needle grass |
| <i>Bassia scoparia</i> | kochia | <i>Nassella hyalina</i> | cane needle grass |
| <i>Calluna vulgaris</i> | heather | <i>Pelargonium alchemilloides</i> | garden geranium |
| <i>Chromolaena odorata</i> | Siam weed | <i>Pereskia aculeata</i> | leaf cactus |
| <i>Cynoglossum creticum</i> | blue hound's tongue | <i>Piptochaetium montevidense</i> | Uruguayan rice grass |
| <i>Cyperus teneristolon</i> | cyperus | <i>Praxelis clematidea</i> | praxelis |
| <i>Cytisus multiflorus</i> | white Spanish broom | <i>Retama raetam</i> | white weeping broom |
| <i>Dittrichia viscosa</i> | false yellowhead | <i>Senecio glastifolius</i> | holly leaved senecio |
| <i>Equisetum</i> spp. | horsetail species | <i>Thunbergia laurifolia</i> | laurel clock vine |
| <i>Gymnocoronis spilanthoides</i> | Senegal tea plant | <i>Tipuana tipu</i> | rosewood |
| <i>Hieracium aurantiacum</i> | orange hawkweed | <i>Trianoptiles solitaria</i> | subterranean Cape sedge |

Weed control contacts

| State / Territory | Department | Phone | Email | Website |
|-------------------|---|----------------|----------------------------------|--|
| ACT | Environment ACT | (02) 6207 9777 | EnvironmentACT@act.gov.au | www.environment.act.gov.au |
| NSW | NSW Agriculture | 1800 680 244 | weeds@agric.nsw.gov.au | www.agric.nsw.gov.au |
| NT | Dept of Natural Resources, Environment and the Arts | (08) 8999 4567 | weedinfo.nreta@nt.gov.au | www.nt.gov.au |
| Qld | Dept of Natural Resources and Mines | (07) 3896 3111 | enquiries@nrm.qld.gov.au | www.nrm.qld.gov.au |
| SA | Dept of Water, Land and Biodiversity Conservation | (08) 8303 9500 | apc@saugov.sa.gov.au | www.dwlbc.sa.gov.au |
| Tas | Dept of Primary Industries, Water and Environment | 1300 368 550 | Weeds.Enquiries@dpiwe.tas.gov.au | www.dpiwe.tas.gov.au |
| Vic | Dept of Primary Industries/Dept of Sustainability and Environment | 136 186 | customer.service@dpi.vic.gov.au | www.dpi.vic.gov.au www.dse.vic.gov.au |
| WA | Dept of Agriculture | (08) 9368 3333 | enquiries@agric.wa.gov.au | www.agric.wa.gov.au |

The above contacts can offer advice on weed control in your state or territory. If using herbicides always read the label and follow instructions carefully. Particular care should be taken when using herbicides near waterways because rainfall running off the land into waterways can carry herbicides with it. Permits from state or territory Environment Protection Authorities may be required if herbicides are to be sprayed on riverbanks.

Notify the vendor or state or territory weed control contacts if you find white Spanish broom for sale and plant more suitable local native species instead, for example native broom *Viminaria juncea*.

Early detection and eradication are also important to prevent infestations of white Spanish broom. Small infestations can be easily eradicated if they are detected early but an ongoing commitment is needed to ensure new infestations do not establish.

Quarantine to prevent further introductions

Although on the Alert List, white Spanish broom is currently a permitted import. However, importation of white Spanish broom to Australia is not encouraged due to its potential to be a serious environmental weed.

Do not buy seeds via the internet or from mail order catalogues unless you check with quarantine first and can be sure that they are free of weeds like white Spanish broom. Call 1800 803 006 or see the AQIS import conditions database <www.aqis.gov.au/icon>. Also, take care when travelling overseas that you do not choose souvenirs made from or containing seeds, or bring back seeds attached to hiking or camping equipment. Report any breaches of quarantine you see to AQIS.

Raising community awareness

Some 65% of weeds, including white Spanish broom, which have recently established in Australia have escaped from plantings in gardens and parks. The detrimental impacts of these weeds far outweigh any potential horticultural benefits. The public should be made more aware of these impacts, and other issues such as how to identify white Spanish broom and what to do if they find it.

The key identifying character of this species is the white pea-like flower with a pink streak at the base. However, as the flowering season (September–November) is fairly short, the striped green stems, reduced leaves and hairy,

pea-like seed pods are also features that will help with identification.

New infestations of white Spanish broom

Because there are relatively few white Spanish broom infestations, and it can potentially be eradicated before it becomes established, any new outbreaks should be reported immediately to your state or territory weed management agency or local council. Do not try to control white Spanish broom without their expert assistance. Control effort that is poorly performed or not followed up can actually help spread the weed and worsen the problem.



The key identifying characteristic of white Spanish broom is the white pea-like flower with a pink streak at the base.

Photo: Yoshi Nomura



The Tasmanian experience

In Tasmania common broom (*C. scoparius*) is a significant weed of forestry, mining company and public land. Over the years a number of methods have been tried in an attempt to control it – these are also applicable to white Spanish broom.

The method that has been successful in northwestern Tasmania is described as 'cut and mulch'. It involves flattening plants with a tractor which has a mulcher

attachment. As the tractor pushes and flattens the plants, the mulcher chews them up and deposits the leftovers as mulch. The mulcher does not disturb the soil surface and the tractor causes much less disturbance than a bulldozer, so there is little chance of sunlight stimulating buried dormant seeds.

In one trial on a 0.4 ha block densely covered with broom, the method was

cheaper and more effective than earlier attempts to clear the land using bulldozers. Mulch 15–200 mm thick significantly suppressed and retarded broom regeneration. No regeneration from seed was observed after 12 months, and after 24 months a few regenerating broom plants were easily removed by hand pulling, slashing or spot spraying. A thick layer of regenerating native grasses excluded most broom seedlings.

Methods to control white Spanish broom

Although there has only been relatively limited research into the effectiveness of different control methods on white Spanish broom, field tests have shown that it is relatively easy to kill by using mechanical and physical removal, herbicides and burning. The methods that are useful on broom (*C. scoparius*) will also be effective for white Spanish broom, including the 'cut and mulch' method outlined in the case study above and recently used in Tasmania. Note, however, that any attempted control of white Spanish broom should be undertaken cooperatively with your state or territory weed management agency or local council.

Mechanical and physical removal

Physical removal is an option for isolated plants, particularly if they have not seeded.

Bulldozing infestations into heaps and burning the resulting weed mounds has been a common method used to control broom but it only provides a temporary solution. Bulldozing causes massive soil disturbance and physical movement of plants, not only burying seeds but also spreading them beyond the original infestation. In at least one place this practice and a lack of follow-up monitoring and control has exacerbated the broom problem.

Herbicides

Herbicides offer control of broom, especially in preventing spread from small isolated patches, but there are currently no herbicides that are registered for use on white Spanish broom. For more information on the use of herbicides contact your state or territory weed management agency or local council.

Fire

Fire is a useful tool in controlling broom and managing the large, long-lived seedbank. In a farming situation fire can remove the bulk of plants and encourage germination of broom seed stored in the soil. The intensity of the fire is very important – it needs to be hot enough to stimulate the bulk of the broom seedbank but not too hot as to destroy the native seedbank. With enough light and moisture, broom seedlings will quickly re-establish and the site will become covered in a thicket of broom again, which must be controlled before flowering. Natural revegetation from native seeds can then occur; otherwise, sowing of suitable pasture species may be required.

Fire is relatively cost-effective, although it may require grasses as fuel, thus reducing pastoral productivity. Permits may be required to light fires – check with your local council or state or territory weed management agency.

Grazing

Grazing with goats or sheep is suitable for pasture, especially on new growth following fire. Fencing areas of broom into small paddocks and grazing these areas with goats has been successful.

Follow-up

Once an area of broom has been treated, it will be necessary to monitor the area for many years and to control any new plants, even in areas where there is good revegetation.

Legislation

There is no legislation to control white Spanish broom but, as part of the *Alert List for Environmental Weeds*, it is marked for eradication and should not be imported into Australia or further spread.

Acknowledgments

Information and guide revision: Andy Sheppard (CSIRO/Weeds CRC), John Hosking (NSW Agriculture/Weeds CRC), Eddie Talbot (West Coast Weed Strategy, Tasmania), Michael Hansford (Vic DPI) and John Thorp (National Weeds Management Facilitator).

Map: Base data used in the compilation of distribution map provided by Australian herbaria via Australia's Virtual Herbarium.



If you find a plant that may be white Spanish broom

Quick reference guide

Identification

You will first need to confirm its identity. Contact your state or territory weed management agency for help in identifying the plant. You will need to take note of the characteristics of the plant in order to accurately describe it. Some important features of white Spanish broom are:

- small, white pea-like flowers with a pink streak at the base, occurring in prolific numbers between September and November

- hairy, pea-like seed pods, which ripen from green to black
- a dense bushy form, up to 3 m in height.

Reporting occurrences

Once identified, new occurrences of white Spanish broom should be reported to the relevant state or territory weed management agency or local council, who will offer advice and assistance on its control. Because white Spanish broom spreads so easily and poses such a serious threat, its control should

be undertaken with the appropriate expertise and adequate resources.

Follow-up work will be required

Once the initial infestation is controlled, follow-up monitoring and control will be required for up to 20 years to ensure that reinfestation from the long-lived seedbank does not occur.

Collecting specimens

State or territory herbaria can also identify plants from good specimens. These organisations can provide advice on how to collect and preserve specimens.

| State/Territory | Postal Address | Phone | Web |
|--|---|----------------|--|
| Australian National Herbarium | GPO Box 1600 Canberra, ACT, 2601 | (02) 6246 5108 | www.anbg.gov.au/cpbr/herbarium/index.html |
| National Herbarium of New South Wales | Mrs Macquaries Rd Sydney, NSW, 2000 | (02) 9231 8111 | www.rbg Syd.nsw.gov.au |
| National Herbarium of Victoria | Private Bag 2000 Birdwood Avenue South Yarra, Vic, 3141 | (03) 9252 2300 | www.rbg.vic.gov.au/biodiversity/herbarium.html |
| Northern Territory Herbarium | PO Box 496 Palmerston, NT, 0831 | (08) 8999 4516 | http://www.nt.gov.au/ipe/pwcnt/ |
| Queensland Herbarium | c/- Brisbane Botanic Gardens Mt Coot-tha Rd Toowong, Qld, 4066 | (07) 3896 9326 | www.env.qld.gov.au/environment/science/herbarium |
| South Australian Plant Biodiversity Centre | PO Box 2732 Kent Town, SA, 5071 | (08) 8222 9311 | www.flora.sa.gov.au/index.html |
| Tasmanian Herbarium | Private Bag 4 Hobart, Tas, 7000 | (03) 6226 2635 | www.tmag.tas.gov.au/Herbarium/Herbarium2.htm |
| Western Australian Herbarium | Locked Bag 104 Bentley DC, WA, 6983 | (08) 9334 0500 | http://science.calm.wa.gov.au/herbarium/ |

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