Weed Management Guide

Weed of National Significance

CARING FOR OUR COUNTRY

Asparagus weeds (*Asparagus aethiopicus*, *A. africanus*, *A. asparagoides* Western Cape form, *A. declinatus*, *A. plumosus* and *A. scandens*)

Asparagus aethiopicus. Photo: H. Cherry.

Asparagus declinatus invading native bushland. Photo: S. Potter, Biosecurity SA.

Key points

- **Asparagus weeds are highly invasive, vine-like plants that degrade native biodiversity. They establish readily in disturbed and intact bushland.**
- **Gardens commonly contain asparagus weeds, which can be spread in dumped garden waste. Birds also spread the fleshy berries long distances.**
- **Asparagus weeds smother native plants and create damaging, underground root mats that persist after plants are killed. Root mats may impede native plant regeneration and promote growth of other weeds.**
- **Follow-up control and restoration is necessary for successful asparagus weed management.**
- **Prevention is best. Learn to identify asparagus weeds and remove new infestations.**

The problem

Asparagus weeds are aggressive vine-like plants that are highly invasive in sub-tropical and temperate bushland and coastal ecosystems of Australia. Seven species of asparagus are recognised as Weeds of National Significance (WoNS): ground asparagus (*Asparagus aethiopicus*), climbing asparagus (*A. africanus*), common bridal creeper (*A. asparagoides*) and Western Cape bridal creeper (*A. asparagoides* Western Cape form), bridal veil (*A. declinatus*), climbing asparagus fern (*A. plumosus*) and asparagus fern (*A. scandens*). A separate weed management guide exists for common bridal creeper (*A. asparagoides*), which is not included in this guide.

Introduced from southern Africa in the mid-1800s, asparagus weeds were especially popular as hanging basket and garden plants and several species are still commonly traded. They have escaped from gardens to become major weeds. The fleshy fruits of asparagus weeds are spread extensively by birds and other animals. Plants also spread vegetatively by rhizomes dumped in garden waste. Seedlings establish readily in undisturbed bushland, and plants survive in a range of habitats and climatic conditions.

Asparagus weeds have small, white flowers (*A. africanus*). Photo: S. Navie.

Fibrous roots and tubers arise from central crown: note new sprout from rhizome (*A. aethiopicus*). Photo: G. Sanders.

Difficult to control, asparagus weeds grow quickly and produce dense, vigorous thickets of foliage that smother native herbs and shrubs. They displace native plants and alter native ecosystems. Below the ground, asparagus weeds form extensive, often impenetrable root mats that can impede the growth of native seedlings and, ultimately, lead to a loss of diversity. Restoration is often necessary because root mats can persist, continuing to cause impacts long after plants have been killed. Thus, new outbreaks should be a priority for control to ensure extensive root mats do not develop.

The weeds

Asparagus weeds have perennial, underground storage organs and above-ground shoots that can die back annually or when conditions are unfavourable. They have well-developed, rhizomatous root systems that often form numerous storage tubers. Roots and tubers can form dense mats up to 20 cm thick and several metres wide. For some species, up to 85 per cent of plant biomass may be underground. These underground resources allow the weeds to persist in harsh conditions and enable them to outcompete native species.

Most asparagus weeds have wiry, twining stems, often with sharp spines, that can clamber over and smother neighbouring plants. Many species reach reproductive maturity within the first two years. They produce large amounts of fruit that is well adapted to bird dispersal.

Asparagus weeds tolerate a wide range of soils and climates, and unlike some weeds, can invade undisturbed vegetation. Most prefer shady, moist conditions, but they can also withstand full sun, drought and impoverished soils. Some species, such as Western Cape bridal creeper, *A. scandens* and *A. declinatus*, can tolerate cold winters and frost. Other species, such as *A. plumosus*, successfully invade both sub-tropical and temperate regions.

How to identify

Asparagus weeds are herbs or climbers that form dense root systems. Several species form crowns at the base of the stems, with a root mass radiating out from the crown, while other species form extensive, rhizomatous root mats. The leaves are reduced to small bracts or scales, and branches are modified into leaf-like structures known as cladodes. Plants bear small, pendulous, white flowers that form fleshy berries. Some species may only have above-ground foliage during part of the year.

Asparagus aethiopicus (ground asparagus, also known as basket asparagus or asparagus fern), is a scrambler with prostrate, perennial stems that arise from a central, underground crown (a tight cluster of short, fleshy rhizomes). Mature stems have sharp prickles and can extend up to 2 m, forming thickets over and within surrounding vegetation. Cladodes are flattened and lance-shaped and grow in clusters of 2–5. Roots are fibrous and stringy and have fleshy, water-storing tubers along their length. Roots and tubers form dense mats that can extend many metres in the top of the soil profile. Berries ripen to bright red.

Asparagus africanus (climbing asparagus) is a perennial climber with ribbed, thick (often woody) stems to 12 m long that originate from a basal crown (to 60 cm in diameter) that consists of short, fleshy rhizomes. Stems have sharp, often curved, spines to 1.2 cm long. The branches are spirally arranged and have short, thin, spine-like cladodes (to 1.5 cm long) in clusters of 6–12, producing a fern-like appearance. Each cluster has a small brown bract at the base. Roots are thick, fleshy and fibrous, but do not form tubers. Fruits are bright orange.

Asparagus declinatus (bridal veil) is a scrambler or weak climber with thin, wiry, annual stems to 2.5 m long, often with a zig-zag pattern. The cladodes are bluish-green, soft and needle-shaped, and are densely arranged in whorls of three on short, fine branches. Plants form extensive root systems with branched rhizomes bearing numerous, large (to 6 cm long), bulb-like, ridged tubers, which are concentrated in clusters at base of stems. Berries ripen to translucent, whitish-green.

Asparagus plumosus (climbing asparagus fern, also known as ferny asparagus), is a perennial climber with thin, wiry stems that climb up to 5 m high and have small, brown, spine-like scales. The branches are arranged in a flat plane and have whorls of tiny (to 7 mm long), fine, rounded cladodes arranged in tight clusters of 8–15 per whorl, giving the plant a feathery appearance.

Branches of *Asparagus plumosus* (left) with shorter, finer cladodes and *A. africanus* (right). Photo: S. Navie.

Asparagus declinatus cladodes and stems (main photo); fruit and seeds (inset left). Photos: Biosecurity SA.

Asparagus plumosus; note branches arranged in flat plane. Photo: S. Navie.

Asparagus scandens with immature fruit. Photo: Biosecurity SA.

Western Cape bridal creeper cladodes and tubers. Photo: Biosecurity SA.

Roots branch from a central rhizomatous crown and are fibrous and fleshy, but do not form tubers. Ripe fruits are black.

Asparagus scandens (asparagus fern) is a climber with wiry, perennial stems to 3 m long. The cladodes are dark green, flattened, and spear-shaped. They appear in clusters of three on branchlets, which are typically arranged in a flat plane. The roots are tuberous and form a mat from a short-branched rhizome (crown). Tubers are thin and fleshy, and infrequently arranged along roots. Ripe berries are orange-red.

Asparagus asparagoides Western Cape form (Western Cape bridal creeper), is a climber or scrambler that is very similar in appearance to common bridal creeper, especially at the seedling stage (see case study). The wiry, annual stems climb to 3 m and have solitary, large (to 3 cm wide and 7 cm long), leaf-like cladodes at nodes. Cladodes are flat, ovate, leathery and waxy, with multiple veins. The root system is extensive, with tubers (to 7.5 cm long) arranged in a rosette around rhizomes that grow vertically in the soil. Berries are dark red.

Several other asparagus species are naturalised in Australia, but are not yet widespread. There is also a native asparagus, *A. racemosus*, which may be mistaken for *A. africanus* or *A. plumosus*, but the native species has longer, leaf-like cladodes (to 3 cm) and red berries. It occurs in Queensland, south to around Brisbane. In addition, several other native Australian vines or climbers can be mistaken for asparagus weeds, thus correct identification is critical.

Growth calendar

All six asparagus weeds have underground root systems that persist year round. The above-ground foliage may be annual or perennial, depending on the species or climatic conditions. Growth is generally most robust in cooler months. Flowering and fruiting can vary greatly with climate and location.

Asparagus declinatus and *A. asparagoides* lose their above-ground foliage during summer, but in favourable cool, moist conditions may retain foliage all year. Annual shoots emerge from underground rhizomes in autumn and foliage becomes dense in cooler winter months.

Flowers appear in winter to early spring, followed by fruits in spring. In summer, plants die back to the rhizomes, which survive below-ground. Seedlings germinate from autumn through to winter. Western Cape bridal creeper flowers two to three years after germination.

Asparagus scandens, *A. africanus* and *A. plumosus* have perennial stems and foliage. *Asparagus scandens* and *A. africanus* typically flower winter through to spring, while *A. plumosus* flowers spring through to summer. Seedlings germinate in autumn to early winter. Plants may flower in their second year; however, *A. africanus* may not flower for up to four years after germination.

Asparagus aethiopicus retains its foliage year round. Flowers appear in spring through summer, but plants often set flower and fruit year round. Seedlings may germinate anytime, but commonly have a flush of germination in spring. Plants can flower 18 months after germination.

How they spread

Asparagus weeds reproduce by seed and spread vegetatively by rhizomes. *Asparagus declinatus* and Western Cape bridal creeper develop extensive rhizome and tuber mats, while the other species have shorter rhizomes concentrated in a basal crown. Any part of the rhizome is capable of forming a new plant. The tubers act as storage organs and are not capable of vegetative reproduction.

In favourable conditions, mature asparagus plants produce masses of fruit. *Asparagus declinatus* plants can produce up to 4800 seeds per m^2 and mature *A. africanus* plants produce as many as 21,000 seeds per year. Immature fruits may still contain viable seed. While seed longevity has not been measured for all species, the seeds of common bridal creeper, *A. aethiopicus* and *A. africanus* typically survive up to three years in the soil, but may survive longer under varied climatic conditions.

Dispersal ability via seed is high. The small, fleshy berries are readily eaten by birds, foxes, reptiles and other animals that can deposit seeds far from the parent plants. Vegetation corridors such as roadsides and shelterbelts are prone to invasion, as birds commonly move in these areas and deposit seed. Fruits are also spread by water.

Asparagus weeds frequently occur in gardens and, due to their rapid growth, are pruned regularly. Garden clippings containing rhizomes and fruits are commonly dumped in bushland, where they can naturalise. Rhizomes and seeds are also spread by humans on equipment and, for some species, through use as ornamental plants.

Asparagus plumosus dominating coastal forest vegetation. Photo: I. Hutton.

Where they grow

All asparagus weeds naturalised in Australia are native to southern Africa, with the exception of edible asparagus (*A. officinalis*), which is native to Eurasia. *Asparagus scandens* is a significant weed in New Zealand and *A. aethiopicus* is a problem in Hawaii and the Caribbean. In Australia, asparagus weeds occur mainly across the southern and eastern regions (see Table 1). Most species, other than Western Cape bridal creeper, may still be found in gardens.

Asparagus weeds are adapted to a range of habitats. *Asparagus aethiopicus* is highly tolerant of sandy soils and invades coastal headlands and dunes, littoral rainforests, woodlands, heathlands and riparian areas. *Asparagus africanus* prefers sub-tropical to tropical regions and occurs in semi-evergreen vine thickets, brigalow and wet eucalypt forests, riparian areas and littoral rainforests. *Asparagus plumosus* occurs in littoral and dry rainforests, gullies, and rainforest margins.

Asparagus declinatus and *A. scandens* prefer temperate, high rainfall regions. *Asparagus declinatus* colonises open forest, coastal vegetation, rocky outcrops, pine forests and roadsides. *Asparagus scandens* invades shaded woodland, heathland, sclerophyll forest, riparian and coastal habitats.

Western Cape bridal creeper invades similar habitats to common bridal creeper. These include sclerophyll forest, woodland, mallee shrubland, riparian and coastal habitats. Common bridal creeper is widespread throughout southern Australia, however, there are only three known infestations of Western Cape bridal creeper (see Case study).

Edible asparagus (*A. officinalis*) is widely cultivated in Australia, and has naturalised in temperate areas with sufficient rainfall. It can become weedy, especially in moist or riparian areas. The native asparagus, *A. racemosus*, occurs in tropical and sub-tropical forest habitats from the Northern Territory to south-east Queensland.

Potential distribution

Climate modelling indicates that all six asparagus weeds have considerable potential to spread further across temperate southern Australia or sub-tropical eastern Australia (see Scott and Batchelor 2006). The CLIMEX potential distribution models presented in this guide were updated in 2011. Further research is needed, however, because potential distribution models for asparagus may be limited by lack of taxonomic and ecological information.

Asparagus aethiopicus has the potential to spread more widely in Queensland and infill coastal areas in New South Wales (see Map 1). *Asparagus africanus* is also a potential threat to coastal regions of Queensland, potentially north to Cape York, and northern New South Wales. *Asparagus plumosus* may expand in coastal regions from far north Queensland to southern Victoria, and coastal areas of South Australia

and south-west Western Australia. *Asparagus scandens* may spread further to coastal areas in central and southern Queensland, and all coastal regions of New South Wales, South Australia, Tasmania, and Victoria, as well as in south-west Western Australia. CLIMEX models indicate that *A. declinatus* is a threat to southern areas of South Australia, Victoria, Western Australia and Tasmania. Western Cape bridal creeper has a similar potential distribution to *A. declinatus*, but with greater potential to invade inland regions (Scott and Batchelor 2006).

What to do about them

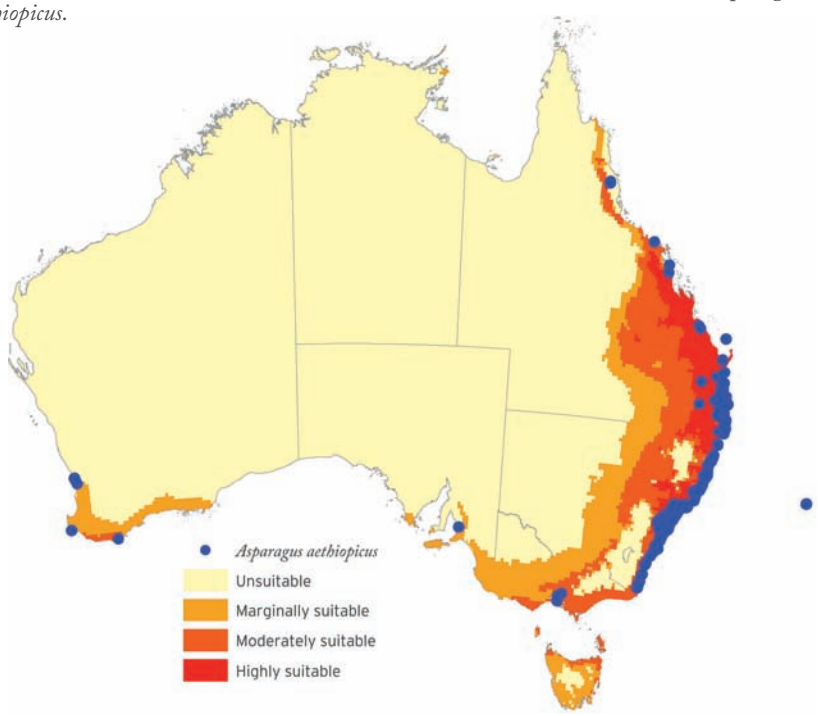
Asparagus weed management strategies should include preventing spread to new areas, eliminating outliers and reducing the spread and impacts of large infestations. Actions should be appropriate to the size of the infestation.

- Prevent new infestations. Keep un-infested areas free of asparagus weeds.
- Raise community awareness. Plants may occur in gardens or be available for sale. Remove plants from gardens, discourage dumping of garden waste in bushland and provide advice on non-weedy alternatives. Legislation in some jurisdictions prohibits sale of asparagus weeds (see Table 1).
- Control new incursions as a priority. Map and monitor all infestations.
- Treat small, outlier populations first. If possible, control plants prior to seed set. **Ensure follow-up control.**
- Protect priority assets where infestations are too large to treat all plants. Identify the most significant assets and prioritise areas for control.

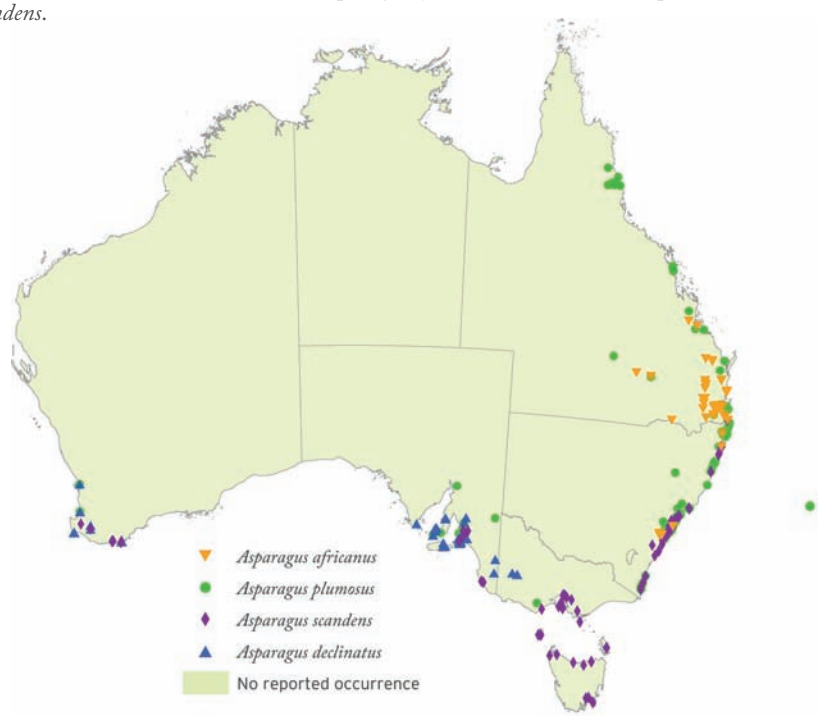
The capacity for site recovery following asparagus weed control will vary with vegetation condition and type, as well as age and intensity of the invasion. The root mats of some asparagus species will continue to impact after plants are killed, and may prevent native regeneration and promote other weed invasion.

Thus, restoration, including long-term follow-up control, should also be incorporated into management strategies. A planned, strategic approach is essential to ensure that asparagus weeds are replaced by desirable plants rather than re-invasion by other weeds. For further information on developing weed management strategies, see http://www.weeds.gov.au/publications/guidelines/index.html or consult your state or territory weed authority.

Map 1: Current (2012) and potential (Scott and Batchelor 2006) distribution of *Asparagus aethiopicus*.



Map 2: Current (2012) distribution of *Asparagus africanus*, *A. declinatus*, *A. plumosus* and *A. scandens*.



Control methods

Asparagus weeds are difficult to manage because they have extensive underground root systems and storage organs that can support new, vegetative growth. Many asparagus weeds also have fine or waxy foliage that can impede herbicide application. Successful management requires long-term commitment. With all control methods, follow-up is essential.

Mechanical removal

Crowning

Asparagus aethiopicus, *A. africanus*, *A. plumosus* and *A. scandens* stems grow from a central crown. Crowning is the removal of all rhizomes (or the central crown) of the plant, preventing vegetative regeneration. Cut away climbing stems at ground level to gain access to the crown. Insert a knife or sharp trowel under the base of the plant and lever up the crown. Sever all roots leading away from the crown. Remove the crown and dispose of properly. Do not leave the crown in contact with soil, as it can re-establish. The tubers are not reproductive and do not need to be removed. Removing crowns or root mats can create high levels of disturbance, which may prompt weed germination. Follow-up control is necessary.

Chemical control

Herbicide can be effective on asparagus weeds, provided the correct application methods and chemicals are used. The main herbicide treatments for asparagus weeds are foliar spray and stem applications. These methods are only effective if plants have sufficient above ground foliage and are actively growing when herbicides are applied.

Foliar spray

Effective foliar spraying requires that all foliage be wetted with herbicide. Large infestations can be controlled using backpack or vehicle-based sprayers, taking care to avoid off-target damage. Hand held spray bottles can be used to spot spray small areas or around native vegetation.

Stem application

Individual plants can be controlled using basal bark spray or cut-and-swab methods. Basal bark spray involves applying herbicide to the lower sections (bottom 15–30 cm) of the stems where they meet the crown. Herbicide is applied around entire circumference of each stem.

Cut-and-swab involves cutting plant stems completely, as close to the ground as feasible. Herbicide is then immediately applied to the entire cut surface. Crowns can also be gouged and painted with herbicide. While more labour intensive than foliar spray, stem treatments can minimise off-target damage.

Registered herbicides

There are currently no herbicides registered specifically for asparagus weeds; however, herbicides may be registered under minor use (or off-label) permits. A permit to allow minor use of an AGVET chemical product

Foliar spraying a dense thicket of *A. aethiopicus* on Lord Howe Island. Photo: S. Bower.

allows registered products to be used in a manner not included on approved labels. Minor use permits can be specific to asparagus weeds or issued for environmental or vine weeds more broadly. Permits that include treatment of asparagus or vine weeds with various herbicides currently exist in New South Wales, Queensland, South Australia, Tasmania and Western Australia. Consult your weed authority or the Australian Pesticides and Veterinary Medicine Authority website www.apvma.gov.au for relevant permits and their status. Obtain advice on local conditions from the permit holder. When using herbicides, always read and follow label directions.

Weed control contacts

State / Territory	Department	Phone	Email	Website
National	Australian Pesticides and Veterinary Medicines Authority	02 6210 4701	contact@apvma.gov.au	www.apvma.gov.au
ACT	Department of the Environment, Climate Change, Energy and Water	13 22 81	environment@act.gov.au	www.environment.act.gov.au/environment
NSW	Department of Primary Industries	1800 680 244	weeds@dpi.nsw.gov.au	www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds
NT	Department of Land Resource Management	08 8999 4567	weedinfo@nt.gov.au	www.lrm.nt.gov.au/weeds
Qld	Department of Agriculture, Fisheries and Forestry	13 25 23	callweb@daff.qld.gov.au	www.daff.qld.gov.au
SA	Biosecurity SA, Dept of Primary Industries and Regions SA	08 8303 9620	nrmbiosecurity@sa.gov.au	www.pir.sa.gov.au/biosecuritysa/nrm_biosecurity/weeds
Tas	Department of Primary Industries, Parks, Water and Environment	1300 368 550	See contacts at www.dpipwe.tas.gov.au/weeds	www.dpipwe.tas.gov.au/weeds
Vic	Department of Environment and Primary Industries	13 61 86	customer.service@dpi.vic.gov.au	www.dpi.vic.gov.au/agriculture/pests-diseases-and-weeds
WA	Department of Agriculture and Food	08 9368 3333	enquiries@agric.wa.gov.au	www.agric.wa.gov.au

Other control methods

Research on the use of fire to manage asparagus weeds is limited. While fire is useful to improve access for management, it will not control asparagus weeds as it does not typically kill the entire rhizomatous root system. Biological control research is also limited; there are currently no effective biological control agents approved for release on the six species discussed here. Further research is needed to investigate fire and biological control as tools for asparagus weed management.

Restoration

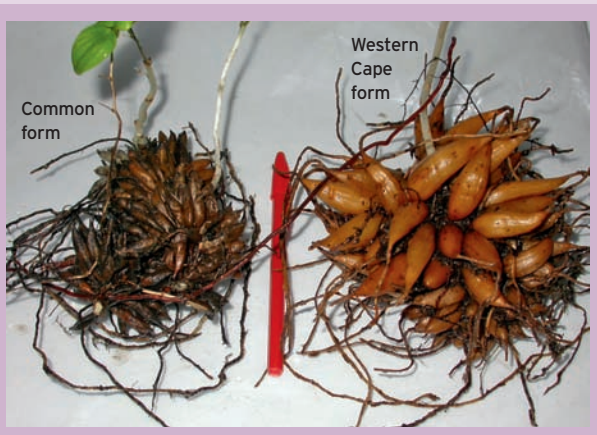
Once asparagus weeds are well established in native vegetation, restoration through natural regeneration will be difficult because the native seedbank may be depleted. In addition, underground root mats may persist and impede native seedling germination or establishment. Research on the underground impacts of asparagus weeds is limited; however, common bridal creeper root mats take many years to decay and occupy space in soil profile which would normally be colonised by native species. Restoration activities, such as replanting or efforts to reduce the impacts of the root mass, may be needed to restore native biodiversity.

Case study: Stop the spread of Western Cape bridal creeper!

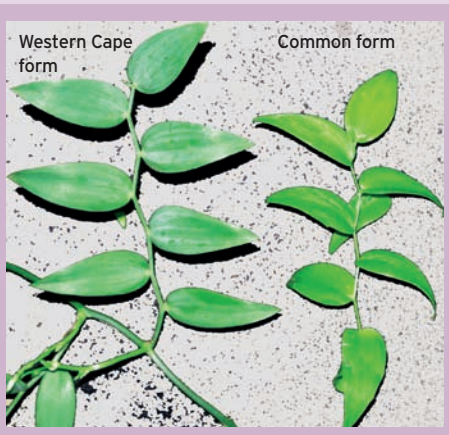
Western Cape bridal creeper is potentially more damaging than the common form of bridal creeper because it is resistant to a highly effective rust fungus (biological control) that affects common bridal creeper. Further taxonomic work is needed to determine if Western Cape bridal creeper is a different species to common bridal creeper.

Large tubers are the best defining characteristic!

Don't rely on cladodes to identify: dig up tubers to be sure.



Common form (left): small tubers, to 4.2 cm long; arranged along branching rhizomes. Western Cape form (right): large, thick tubers, to 7.5 cm long; arranged in a tight rosette. Photo: P. Turner.



Western Cape form (left): dark green, leathery, waxy cladodes. Common form (right): light green, thin, shiny cladodes. Photo: Biosecurity SA.

Tuber size and arrangement is the most reliable way to distinguish between the two forms. Western Cape tubers grow to 7.5 cm long, considerably larger than common bridal creeper tubers, which grow to 4.2 cm long. Western Cape tubers form large, tight rosettes around the rhizomes, and tubers end in a fine root. Common bridal creeper tubers grow in clusters along long, branching rhizomes, and tubers do not typically end in a root.

Western Cape cladodes can be larger and darker green than those of common bridal creeper, which are generally a lighter, grass-green shade. Western Cape cladodes are waxy, thick and leathery, while the common form has softer, shiny cladodes. Another possible indicator of Western Cape form among common bridal creeper is the absence of the bridal creeper rust fungus on its cladodes. Fruits of the Western Cape form are 3-lobed in cross-section, versus 6-lobed fruits of common bridal creeper.

Currently, Western Cape bridal creeper is only known from three locations. Incursions in south-west Victoria and south-east South Australia are being contained, and local efforts are underway to eradicate a smaller infestation in the Adelaide Hills. The Western Cape form has potential to spread across southern Australia and, due to its resistance to the rust fungus, can invade areas where common bridal creeper has been controlled. Land managers should be on the lookout for Western Cape bridal creeper and report suspected infestations to local weed authorities.

Western Cape form (left) stands out from rust-affected common bridal creeper (right). Photo: S. Potter, Biosecurity SA.

Table 1: Main features of six asparagus weeds.

Species	Cladodes and stems	Flowers and fruits	Roots	Distribution	Legislation
 Ground asparagus, *Asparagus aethiopicus*. Photo: Biosecurity SA.	Linear, flat with distinct midrib, single or in groups of 2–5; to 20 mm long. Stems ribbed, with sharp prickles.	Creamy white to pale pink; in clusters of 4–8, on short branchlets. Fruits bright red.	Extensive, fibrous mat; with fleshy storage tubers scattered along roots. Stems arise from central crown.	Eastern Qld and NSW; localised in Vic and south-west WA.	Declared in NSW, Qld. AQIS not permitted.
 Climbing asparagus, *Asparagus africanus*. Photo: S. Navie.	Spine-like, cylindrical, in groups of 6–12; to 15 mm long; appear fern-like. Branches spirally arranged. Large spines on stems.	Greenish-white; solitary or in clusters of up to 6, on short stalks. Fruits orange.	Fibrous, fleshy, non-tuberous; with short rhizomes. Stems arise from central crown.	South-east Qld and north-east NSW.	Declared in Qld. AQIS not permitted.
 Climbing asparagus fern, *Asparagus plumosus*. Photo: S. Navie.	Needle-shaped, fine, thread-like, in groups of 8–15; to 7 mm long; appear feathery. Branches in one flat plane. Prickles on stems.	Greenish white; solitary or in pairs, at tips of branchlets. Fruits black.	Fibrous, fleshy, non-tuberous; short rhizomes. Stems arise from central crown.	Eastern Qld and NSW; localised in southern SA and south-west WA.	Declared in NSW, Qld. AQIS not permitted.
 Bridal veil, *Asparagus declinatus*. Photo: C. Wilson.	Needle-like, soft, fine, grey-green, densely arranged in groups of 3; to 9–20 mm long. Stems with zig-zag pattern.	Greenish-white; solitary, or in pairs, on short stalks. Fruits greyish-blue to white translucent.	Fibrous, with clusters of bulb-like, ribbed tubers (to 6 cm long); rhizomatous. Stems arise along length of rhizomes.	Southern SA, south-west WA. Eradicated from south-west Vic.	Declared in SA. AQIS not permitted.
 Asparagus fern, *Asparagus scandens*. Photo: S. Potter.	Lance-shaped, flat with distinct midrib, in groups of 3; to 15 mm long. Branchlets in one plane. Stems smooth.	White to pinkish-white; solitary or 2–3 per axil, on short stalks. Fruits orange-red.	Fibrous, with narrow tubers infrequently along length; short rhizomes. Stems arise from central crown.	Tas; southern SA, Vic and WA; south-east NSW.	Declared in Tas. AQIS not permitted.
 Western Cape bridal creeper, *A. asparagoides*. Photo: Biosecurity SA.	Leaf-like with obvious veins; solitary, flat, oval with pointed tips; to 70 mm long and 30 mm wide. Stems with zig-zag pattern.	Greenish-white; solitary or 2–3 per axil, on short stalks. Fruits dark red.	Dense rosettes of tubers (to 7.5 cm long), formed around rhizomes. Stems arise along length of rhizomes.	Small incursions in south-west Vic, south-east SA and Adelaide Hills.	Declared in ACT, NSW, NT, Qld, SA, Tas, Vic, WA. AQIS not permitted.

Legislation

The six asparagus species discussed here are prohibited entry into Australia. These species are also declared weeds in some states or territories, and may be restricted from sale and/or require control (see Table 1).

Asparagus weed control that could damage native vegetation may also be regulated by legislation. It is still legal to trade many asparagus species in some jurisdictions, and specimens are often sold in markets or traded among gardeners.

Acknowledgements

Compiled by H. Cherry, NSW OEH, Dec 2011. Maps: Data provided by state and territory weed management agencies, produced by Chris Auricht. Potential distribution CLIMEX modelling by Scott and Batchelor (2006) and updated in 2011 by CSIRO.

Reference

Scott, J.K. and Batchelor K.L. (2006). Climate-based prediction of potential distributions of introduced *Asparagus* species in Australia. Plant Protection Quarterly 21, 91-98.