

BRIDAL CREEPER, *MYRSIPHYLLUM ASPARAGOIDES*, IN SOUTH AUSTRALIAD.A. Cooke¹ & M. Robertson²¹SA Animal & Plant Control Commission, GPO Box 1671, Adelaide SA 5001²c/- Nature Conservation Society of SA Inc., 120 Wakefield St. Adelaide 5000

Summary. Bridal creeper is a widespread perennial weed of native vegetation in SA. Introduced material is likely to have originated from the Capetown area of South Africa, and is preadapted to the mediterranean climate regions of southern Australia. Existing control techniques depend on nonselective herbicides and require follow-up treatments to control regrowth.

DISTRIBUTION

Bridal creeper, *Myrsiphyllum asparagoides* (L.)Willd., is native to southern Africa and was introduced to Australia as an ornamental. It is naturalised in south-western WA (9), coastal Victoria (13), and the Sydney region of NSW (2). It is widespread in SA (8), including southern Eyre Peninsula (3), Yorke Peninsula (1), Kangaroo Island (10) and the Riverland where it is a pest of citrus orchards. Outside of irrigated areas, it has not been recorded in areas having less than 300 mm annual rainfall or a growing season shorter than 5 months. A survey of Animal and Plant Control Boards in 1981-2 found bridal creeper present in 45 of a total 63 board areas.

The disjunct local distribution of bridal creeper, with isolated populations up to 200 km inland in the Flinders Ranges, implies that it has not yet reached an ecological limit. It is preadapted to the mediterranean climate of southern Australia, being a winter-growing perennial which survives the summer as a dormant rhizome with roots modified to form tubers.

VARIATION

In its wide native range from the Cape to Kenya, bridal creeper is highly variable in cladode shape and size, and tuber arrangement; however, there are no discontinuities in variation which could be used to define infraspecific taxa (7). Material examined in SA is much more uniform (Table 1), implying introduction from a small section of its African range. This introduced material matches the ecotype common on the lower slopes around Capetown; a variant with tubers produced on roots remote from the rhizome occurs on dunes in South Africa but has not been found in Australia (Jessop, pers. comm.).

Table 1. Comparison of variation of four characters in South African and South Australian bridal creeper.

	South Africa ^a	South Australia ^b
Cladode length (mm)	5 - 70	9 - 45
Cladode width (mm)	1 - 29	4 - 16
Cladode shape	broad-ovate to lanceolate	ovate
Tubers	sessile or remote	sessile

^a Data from Jessop (7).

^b Extreme measurements from material in State Herbarium, Adelaide.

A limited number of specimens examined from other States all lie within the range of variation of SA material in these characters.

LIFE CYCLE

Growth of annual shoots from the rhizome begins in February or March, but is independent of the autumn break; initial growth, using stored reserves, is rapid. Production of new tubers begins later in autumn. Flower buds are present from June, and flowers open in late August to September. Flowers are nectariferous and scented, and are visited by the introduced bee *Apis mellifera*; they are self-fertile and a high proportion set seed. The fleshy fruits are produced in large numbers and contain up to 9 seeds each. They are persistent (4) and are eaten by birds such as the emu, silvereve, silver gull, singing honeyeater, spiny-cheeked honeyeater and the introduced starling (5). Vegetative growth ceases in November and the plants die back to the rhizome over summer.

Fresh seed had 90% germination on petri dishes in incubators at 15^o - 23^oC. Similar results were obtained in WA (6), with a high percentage germination at temperatures of 10^o - 20^oC and no dormant period. Seed emerged from depths of 1 to 10 cm of soil outdoors at the Waite Institute, Adelaide. The first tuber forms 9 weeks after emergence, and plants may survive the first summer after forming only one tuber. A short rhizome is produced which branches to form additional growing points.

Regrowth can occur from rhizome fragments with growing points detached from the root mass. This may happen when moved by roadmaking machinery. However, there is no record of regeneration from detached tubers or rhizome lengths without a growing apex.

SYNECOLOGY

Bridal creeper is established in dry sclerophyll open-forest, eucalypt woodland, mallee, *Callitris* forest and on coastal dunes. Its canopy develops in winter and persists throughout the spring growing season, shading out native ground flora and shrubs. In a dry sclerophyll continuum, its frequency appeared to be negatively correlated with rainfall (Earl, unpub. data); this may be due to competition from denser vegetation. At Woodman Point in WA, bridal creeper has largely replaced the native climber *Clematis microphylla* in open *Acacia* thickets but not in the denser adjoining tuart woodland (6). It is adapted to sands and other light-textured soils and is less likely to be found on clay or laterite (10,13).

CONTROL

Although bridal creeper is a proclaimed plant in SA, there has been relatively little control activity due to a perception that no practicable large-scale control method existed. Policy objectives now adopted by the Animal and Plant Control Commission include limiting the spread from existing infestations and targeting small infestations in sites of conservation significance where local eradication is feasible (11).

Existing treatments are all labour-intensive, and generally involve the off-label use of non-selective herbicides. Hand-weeding is only feasible for small infestations at sites of the highest value, such as populations of endangered plant species.

The favoured method is spot-spraying with 360 g/L glyphosate at a rate of 1:100. This is most effective if carried out during active growth prior to flowering in July to September to allow translocation to the rhizome. In trials in scrub on Yorke Peninsula, treatment in at least three consecutive years was necessary to achieve eradication and higher rates did not give improved control (Creeper, unpub. data). However, heavy non-selective treatment with glyphosate has been used successfully in the Adelaide Hills to produce clean regrowth from remnant vegetation overgrown by bridal creeper (E.Robertson, pers. comm.).

Metsulfuron-methyl (Earl, unpub. data) and a paraquat/amitrole/MSMA mixture (Maguire, unpub. data) have a similar efficacy to glyphosate, but bromacil and amitrole were less effective (12). Heavy grazing by sheep has been used on Kangaroo Island to reduce density prior to spraying (Maguire, unpub. data).

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