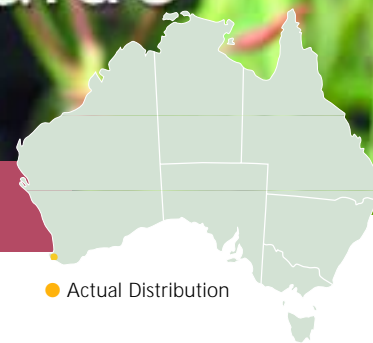


Weed Management Guide

Garden geranium –
Pelargonium alchemilloides



● Actual Distribution

Garden geranium (*Pelargonium alchemilloides*)

The problem

Garden geranium 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.

Garden geranium, a member of the South African geranium family, was originally planted in gardens for its ornamental value in southwestern Western Australia. It has since become a naturalised weed in peppermint woodland (*Agonis flexuosa*) 2 km inland from Hamelin Bay in the Margaret River region. Its introduction to Australia is estimated to have occurred in the early 20th century, when a timber settlement was in place.

The weed

Garden geranium is a low, sprawling plant, growing from a central rosette of leaves and forming flowering branches that spread out and continually produce flowers from the tip of the branch. It grows to approximately 200 mm high and forms an underground tuber up to 6 m in length. The stems are herbaceous and slender and can appear straggly. Long hairs cover the entire plant. The leaves



Garden geranium dominates understorey species and produces masses of seeds.
Photo: Sara Boulton

are 20–70 mm in diameter, have irregular edges, are mostly round in shape and are lobed in up to five separate segments. The plant can also be distinguished by purple-brown horseshoe-shaped markings on the leaves.

The flowers are white or grey in colour, with up to five petals in an arrangement similar to an umbrella. Fifteen flowers are possible on each plant. Seeds are contained within a distinctive pod shaped like a crane's bill. A single plant will die out after a few years, but will easily re-establish new individuals because it is a prolific seed producer.

Key points

- Garden geranium is a native of South Africa that has become a weed in other countries with a Mediterranean climate similar to much of southern Australia.
- It can grow in variable conditions including drought prone areas, and can dominate understorey vegetation.
- It can spread vegetatively by tuber (or rhizome) and by seed. Its spread is aided by soil disturbance.
- Garden geranium is an escaped garden plant that now threatens the natural environment and could potentially threaten agriculture.
- Any new outbreaks should be reported to local councils or state or territory weed management agencies. Do not attempt control on your own.

Growth calendar

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Flowering | | | | | | | | | | | | |
| Seeding | | | | | | | | | | | | |
| Germination | | | | | | | | | | | | |
| Regrowth | | | | | | | | | | | | |

■ General pattern of growth ■ Growth pattern in suitable conditions

Flowering of the garden geranium follows the regrowth period (April–August) in spring, but in above average soil moisture conditions it can flower through summer. The plant usually goes to seed in early summer, which can be followed by a period of dormancy. However, this species of geranium has the ability to grow all year if water is available. Garden geranium is a late autumn to winter growing and germinating plant, but germination can be very erratic and may take place over a long period of time.

How it spreads

Garden geranium reproduces both vegetatively and via seeds. Seed production is prolific, but plants can also be propagated from stem cuttings, fleshy roots or tuberous (rhizome) roots. The underground rhizome system, up to 6 m in length, ensures its survival

in dry periods and at times when seed production is not successful. Soil disturbance is thought to have been the major cause of its more recent population increase, as the rate of spread was slow until roadworks using graders and trucks occurred. Seeds and broken pieces of the rhizome are able to propagate easily in disturbed soil. It is possible for seeds to

remain viable in the soil for a long period of time, as some species of *Pelargonium* have in-built chemical inhibitors to prevent all the seeds germinating at the same time.

Where it grows

South Africa's climate ranges from Mediterranean in the southwest to temperate in the interior plateau and subtropical in the northeast. Garden geranium is widespread throughout the country although its form changes from location to location. It is believed that the southwestern form is present in Australia, and it is highly adaptable to southern Australia's climate. At present its distribution is very localised in southwestern Western Australia. The plant occurs along a roadside 2 km from Hamelin Bay and has invaded the adjacent vegetation. It currently covers approximately 10 ha of peppermint woodland (*Agonis flexuosa*) in a patchy distribution on sandy coastal soils, as preferred by the *Pelargonium* genus. The annual rainfall of Hamelin Bay is approximately 1000 mm.



The seeds of garden geranium are contained within a distinctive pod shaped like a crane's bill.
Photo: Sara Boulton





Garden geranium was originally planted in gardens for its ornamental value.
Photo: Sara Boulton

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 Infrastructure, Planning and Environment | (08) 8999 5511 | weedinfo.ipe@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.

Why we need to be 'alert' to garden geranium

Garden geranium is considered by South African experts to potentially be a very serious environmental weed in Australia. The weed is exceptionally adaptable, will tolerate arid conditions, and can also thrive in areas of high rainfall. An abundant plant of South African grasslands, it could degrade both natural and pastoral areas of Australia. Its dominance of understorey species in the peppermint woodland environment demonstrates its potential to threaten the abundance and diversity of native plants.

Although garden geranium threatens only one known location, it appears to be spreading. The plant has the ability to invade intact vegetation and, although it is not currently seen as a threat to agriculture, it could have an impact on agricultural production. It is a prolific seeder, and will also survive harsh environmental conditions due to its underground rhizome tubers.

Much of central and southern Australia has a climate and soil type suitable for the growth of garden geranium. This includes parts of all the southern states, from semi-arid to temperate pastoral country. Over 250 other species of



Garden geranium can be distinguished by purple-brown horseshoe-shaped markings on the leaves. Photo: Rod Randall

Pelargonium exist in South Africa, and the potential for their importation and invasion is high.

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 the further introduction and establishment of new weed species, such as garden geranium, into natural ecosystems. 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, garden geranium is currently a permitted import. However, importation of garden geranium 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 garden geranium. 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 that have recently established in Australia, including garden geranium, 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 of other issues such as how to identify garden geranium and what to do if they find it.

Garden geranium can be distinguished from other plants by its unscented flower that contains seven fertile stamens (stalk or filament in middle of flower), the upper two very short and by the horseshoe-shaped purple-brown markings on its leaves.

New infestations of garden geranium

Because there is only the one known infestation of garden geranium, it can potentially be eradicated. New outbreaks should be reported immediately to your state or territory weed management agency or local council. Do not try to control garden geranium without their expert assistance. Control effort that is poorly performed or not followed up can actually help spread the weed and worsen the problem.

An eradication program is currently being negotiated between the Department of Conservation and Land Management in Western Australia and councils in the district where the infestation occurs.

Legislation

There is currently no legislation to control garden geranium, 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

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



The flowers of garden geranium are unscented, white or grey in colour, with up to five petals in an arrangement similar to an umbrella.
Photo: Rod Randall



If you find a plant that may be garden geranium

Quick reference guide

Identification

If you find a plant that may be garden geranium, 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 garden geranium include:

- Flowers are never scented.
- The flower contains seven fertile stamens (the male reproductive organ consisting of a stalk or filament in

middle of flower), the upper two very short.

- It has long petioles (leaf stalks) and ovate stipules (egg-shaped appendages found at the base of the petiole).
- Leaves have horseshoe-shaped purple-brown markings.

Reporting occurrences

Once identified, new occurrences of garden geranium should be reported to the relevant state or territory weed management agency or local council, which will offer advice and assistance

on its control. Because garden geranium spreads so quickly and poses 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 to ensure that reinfestation 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.rbgsyd.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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