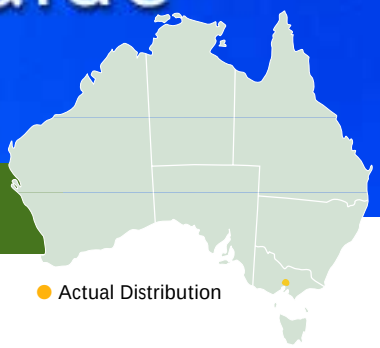
Weed Management Guide

Subterranean Cape sedge – *Trianoptiles solitaria*



Subterranean Cape sedge (*Trianoptiles solitaria*)

The problem

Subterranean Cape sedge 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.

The earliest record of subterranean Cape sedge as a naturalised plant in Australia was of a population found in a municipal reserve near Koonung Creek in North Balwyn, Melbourne in 1989. As an environmental weed, it can displace other vegetation and thus reduce the availability of habitat for native plants and animals, leading to a loss of biodiversity.

The weed

Subterranean Cape sedge is a small, leafy, annual herb which grows to about 200 mm in height. The leaves are somewhat fleshy, smooth, light green in colour and tufted. Striations, or veins, run lengthways down the leaf.

Subterranean Cape sedge forms two types of flower spikelet and fruit: aerial spikelets with two flowers that contain both male and female reproductive parts, and basal spikelets which develop beneath the leaves and contain only female reproductive parts. The aerial flower spikelets of subterranean Cape sedge are usually shorter than or equal to the length of the leaves. The 'nut', or fruit, that develops from the aerial spikelets is about 2 mm long and narrowly obovoid (egg-shaped) to narrowly elliptic (egg-shaped but pointed at both ends), with a densely pitted surface. These aerial fruits are triangular in cross-section and are wrapped in three hairy scales that each have a long central bristle and smaller side bristles at the top. In contrast, the basal nut is broadly obovoid and larger than the aerial nut, and does not have scales.

Subterranean Cape sedge is a small, leafy, annual herb with fleshy, smooth, light green leaves that are V-shaped in cross-section.
Photo: John Hosking

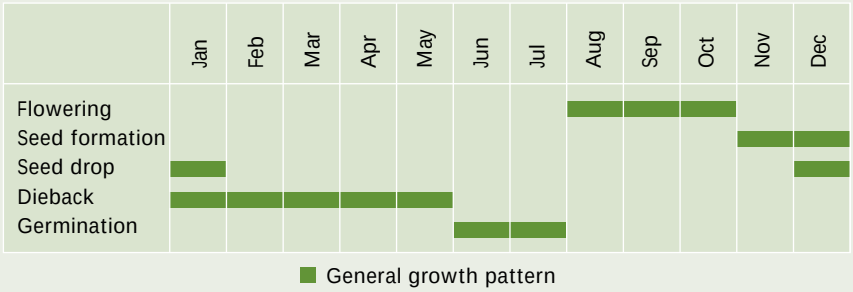
Key points

- Subterranean Cape sedge has been identified as a priority for eradication by the Bureau of Rural Sciences (BRS) in a study on 'sleeper' weeds.
- It may outcompete more desirable indigenous plants.
- Prevention is the most cost-effective form of weed control. It is vital to keep uninfested areas free of subterranean Cape sedge.
- Avoid creating bare areas where subterranean Cape sedge and other weeds can invade.
- Any new outbreaks should be reported to local councils or state or territory weed management agencies. Do not attempt control on your own.

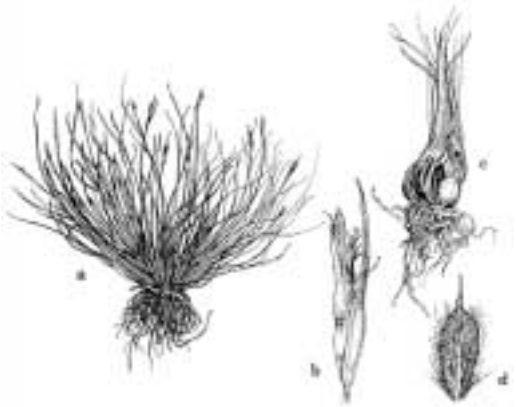
Natural Heritage Trust
Helping Communities Helping Australia
An Australian Government Initiative

Alert List For ALERT Environmental Weeds

Growth calendar



Subterranean Cape sedge germinates in winter and flowers in spring. Seed is produced after flowering and the plant then dies back in summer.



(a) Subterranean Cape sedge; (b) and (d) aerial flower spikelet and fruit; (c) basal fruit.
Photo: Anita Barley

How it spreads

Subterranean Cape sedge is known to reproduce by seed, although it is not known exactly how long seeds remain viable, how long it takes for them to germinate or how they may be dispersed in Australia.

Where it grows

Subterranean Cape sedge is native to South Africa and grows in seasonally damp areas.

Why we need to be 'alert' to subterranean Cape sedge

The decision to place subterranean Cape sedge on the Alert List was based on its ability to naturalise in Australia and to produce large quantities of long-lived seed.

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 and costs, it is vital to prevent further introduction of new weed species, such as subterranean Cape sedge, into uninfested natural ecosystems.

Early detection and eradication are also important to prevent infestations of subterranean Cape sedge. 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

Quarantine laws require that before the Australian Quarantine and Inspection Service (AQIS) could consider applications to import subterranean Cape sedge, a comprehensive weed risk assessment would need to be conducted by Plant Biosecurity Australia. Considering its potential impacts on agriculture and the environment, it is unlikely that permission to import this plant would be granted.

Mail order seeds are another potential source of infestation. 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 subterranean Cape sedge. 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. Report any breaches of quarantine you see to AQIS.

Raising community awareness

It is not known exactly how subterranean Cape sedge was first introduced into Australia. Some 65% of recently naturalised weeds are species that were first introduced into parks and gardens and have since escaped. A comparatively small percentage of weeds first arrived as agricultural species (7%) and as seed contaminants (2%).

The Victorian experience ...case study

Subterranean Cape sedge was first found as a naturalised population growing near Koonung Creek in a municipal reserve in North Balwyn, near Melbourne, Victoria in 1989. It is not known how it was originally introduced. It is sited on a slope that is a seepage area in winter, about 100 m from a creek, and is associated with other exotic and some native species. By 1999 it was estimated that there were more than 100,000 plants in an area measuring about 200 x 50 m, with smaller outlying populations detected nearby. Subterranean Cape sedge produces many seeds, or nuts, forming a considerable seed bank in the area. Mowers and other vehicles passing through the site churn up the soil and contribute to the spread of propagules and assist the ongoing survival and wider dispersal of this naturalised population.

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.

The detrimental impacts of invasive plants when they escape cultivation invariably outweigh the horticultural benefits.

New infestations of subterranean Cape sedge

It is possible that subterranean Cape sedge can be eradicated before it becomes widely established. Any new outbreaks should be reported immediately to your state or territory weed management agency or local council and the state herbarium. Do not try to control subterranean Cape sedge without their expert assistance. Control effort that is poorly performed or not followed up can actually help spread the weed and worsen the problem.

Legislation

There is currently no legislation to control subterranean Cape sedge 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: Val Stajsic (National Herbarium of Victoria).

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

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

If you find a plant that may be subterranean Cape sedge

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 subterranean Cape sedge are:

- The leaves are fleshy, light green and grow from the base of the plant.
- Striations or veins run lengthways down the leaf.
- Flower spikelets are usually of similar length, or shorter than, the leaves; the aerial spikelet has two flowers and the basal spikelet (beneath leaves at base of plant) one flower.
- There are two types of 'nuts' – from aerial spikelets and basal spikelets.
- The aerial nut is usually narrowly egg-shaped and covered with three hairy scales that have a long central bristle and two shorter side bristles at the top.
- The basal nuts are slightly longer than the aerial nuts and broadly egg-shaped, and do not have hairy scales.

Reporting occurrences

Once identified, new occurrences of subterranean Cape sedge 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 subterranean Cape sedge spreads so quickly 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 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/

ISBN 1-920932-32-1

CRC Weed management