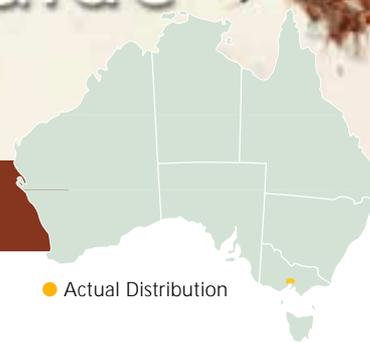


Weed Management Guide

Uruguayan rice grass –
Piptochaetium montevidense



● Actual Distribution

Uruguayan rice grass (*Piptochaetium montevidense*)



Uruguayan rice grass is a perennial that forms dense tussocks, is stimulated by fire and is resistant to grazing.
Photo: Ann Farrer

The problem

Uruguayan rice grass 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.

Because it forms dense tussocks, is stimulated by fire and is resistant to grazing, Uruguayan rice grass may compete well against native plants in Australia. It is the most prevalent species of the genus *Piptochaetium* in its native range and may therefore have the weediest characteristics. It has been estimated to have a potential distribution of 600,000 hectares through Victoria and New South Wales.

Uruguayan rice grass is related to the genus *Nassella*, which includes the Weeds of National Significance Chilean needle grass (*Nassella neesiana*) and serrated tussock (*Nassella trichotoma*), which costs south-eastern Australia's grazing industries more than \$40 million a year in lost production and control expenditure.

The weed

Uruguayan rice grass is a perennial that forms dense tussocks to about 0.5 m high. The leaf blades are about 0.5 mm in diameter and almost the same length as the stems, which are jointed. While

the leaf sheath may have scattered hairs, the leaf blades are hairless but covered with minute rough projections. The ligule (a small flap located at the junction of the leaf blade and leaf sheath) is 1–2 mm in length and hairless. The ligule can be located by tracing a leaf down to where it joins the sheath and bending the leaf back at this point.

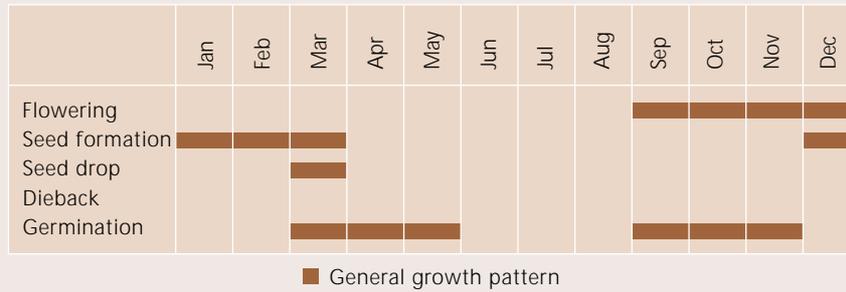
The plant has dense, branched flowering heads to about 100 x 15 mm. The seed is about 2 mm long, and the bristle-like tail of the seed (the 'awn') is about 10 mm long. The leaf-like structures (glumes) at the base of the flowering spikelet are up to 3.5 mm long and purplish in colour when young.

Key points

- Prevention and early intervention are the most cost-effective forms of weed control.
- Uruguayan rice grass has been identified as a priority for eradication by the Bureau of Rural Sciences (BRS), Canberra, because it is similar to other Alert List species and Weeds of National Significance such as serrated tussock (*N. trichotoma*) and Chilean needle grass (*N. neesiana*) and may represent a similar level of threat.
- So far, Uruguayan rice grass has only been found in Victoria. 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



Uruguayan rice grass germinates during spring and autumn and, in Australia, flowers from about September to December – spring to early summer. Seeds are formed during summer and dropped by early autumn.

Australia, where it was first recorded as naturalised in 1988, is an infestation in disturbed grassland dominated by kangaroo grass (*Themeda triandra*) near Altona, Victoria.

Stipoid grasses (such as Uruguayan rice grass) generally invade sites with modified soils that are highly degraded and have a history of disturbance, especially land with higher fertility that has been used for grazing or farming. However, they can also invade relatively undisturbed vegetation.

Uruguayan rice grass favours degraded sites with modified soils that have a history of disturbance

Piptochaetium species prefer dry ground and will grow in crops, roads, streambanks, urban areas and natural environments such as grassy woodlands and lowland grasslands.

How it spreads

In South America, Uruguayan rice grass produces many seeds. Although the exact volume of seed produced is unknown, the closely related species serrated tussock (*N. trichotoma*) can produce tens of thousands of seeds per plant per year.

The seed is dispersed by wind and also by browsing animals ingesting the plant and excreting the viable seed elsewhere. Seeds can also be spread by movement

of contaminated soil. Anecdotal evidence suggests that seeds are not carried or dispersed externally by stock.

Where it grows

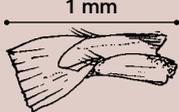
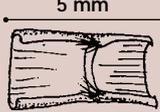
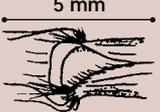
Uruguayan rice grass is native to Argentina, Bolivia, southern Brazil, Paraguay, Uruguay and Chile, and is also considered native in parts of North America.

It grows best in temperate and subhumid climates. Its only known distribution in

Why we need to be 'alert' to Uruguayan rice grass

The decision to place Uruguayan rice grass on the *Alert List for Environmental Weeds* was based on its behaviour, and its similarity to other problem species.

Grasses Identification

Species	<i>Nassella charruana</i> lobed needle grass	<i>Nassella hyalina</i> cane needle grass	<i>Nassella leucotricha</i> Texas needle grass
Status	introduced, an Alert List weed	introduced, an Alert List weed	introduced
Form	tussock	tussock	tussock
Seed (note in these images that the outer casing of the seed, the 'glume', has been removed to reveal seed detail)	10 mm 	10 mm 	10 mm 
'Corona', the collar at seed base	present	present	present
'Awn', the bristle-like seed tail	45–85 mm double bent firmly fixed to seed coat	35–40 mm twisted and bent	35–60 mm long, bent twice with 10–20 mm to first bend
'Cleistogenes', or stem seeds	absent	present	present
'Ligule', the flap at the leaf base	1 mm  few short hairs	5 mm  few short hairs	5 mm  many short hairs
Overall dimensions	0.5–1.0 m and 0.3–0.5 m across	to 1 m high, to 0.3 m across	1–1.5 m high, 0.2–0.5 m across

Identifying Uruguayan rice grass

Uruguayan rice grass can be difficult to identify because of its similarity to native grasses and *Austrostipa* species (ie spear grasses). It can be distinguished from other stipoid species by its much shorter seed tail, or 'awn'. Another difference from other grass species is the presence of a palea (upper 'leaflet' enclosing the floret) that clearly displays a central groove along its length and is longer than the lemma (lower 'leaflet' enclosing the floret). Refer to the grasses identification table on pages 2–3 for assistance in distinguishing Uruguayan rice grass from other grass species.

There are at least ten species of South American stipoid grasses naturalised in southeastern Australia. They are collectively known as the 'South American stipoid grasses' and they represent a significant threat to Australia's ecosystems. Two of these, serrated tussock (*N. leucotricha*) and Chilean needle grass (*N. neesiana*), are listed as Weeds of National Significance, which means that they are regarded as among the worst weeds in the country. Other species of *Nassella* naturalised in Australia include Texas needle grass (*N. leucotricha*), cane needle grass (*N. hyalina*) and lobed needle grass (*N. charruana*) the last two of which are on the *Alert List for Environmental Weeds*.

What to do about it

Prevention is better than the cure

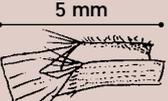
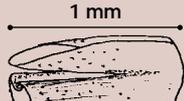
As with all weed management, prevention is better and more cost-effective than control. The annual cost of weeds to agriculture in Australia, in terms of decreased productivity and management costs, is conservatively estimated at \$4 billion. Environmental impacts are also significant and lead to a loss of biodiversity. To limit escalation of these impacts and costs, it is vital to prevent further introduction of new weed species, such as Uruguayan rice grass, into uninfested natural ecosystems.



The seed of Uruguayan rice grass has a curved, bristle-like tail, or 'awn'.

Photo: Ann Farrer

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

<i>Nassella neesiana</i> Chilean needle grass	<i>Nassella trichotoma</i> serrated tussock	<i>Piptochaetium montevidense</i> Uruguayan rice grass	<i>Austrostipa</i> species spear grasses
introduced, Weed of National Significance	introduced, Weed of National Significance	introduced, an Alert List weed	native
tussock	tussock	tussock	single stems
10 mm 	2 mm 	2 mm 	
present	absent	present	absent
60–90 mm double bent	25–35 mm straight or double bent firmly fixed to seed coat	10 mm straight readily detached from seed coat	greater than 20 mm straight
present	absent	absent	absent
5 mm  few long hairs	1 mm  hairless	1 mm  hairless	 generally few short hairs
1–1.5 m high and 0.3–0.6 m across	to 1.0 m high and to 0.6 m across	to 0.5 m high and to 0.2 m across	unknown

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.

Quarantine to prevent further introductions

Quarantine laws require that before the Australian Quarantine and Inspection Service (AQIS) could consider applications to import Uruguayan rice grass,

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 Uruguayan rice grass. Call 1800 803 006 or see

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

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 Uruguayan rice grass 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%).

Uruguayan rice grass is the most prevalent species of the genus *Piptochaetium* in its native range and may therefore have the weediest characteristics. It forms dense tussocks, is stimulated by fire and is resistant to grazing

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

The public should be made more aware of these impacts, and other issues such as how to identify Uruguayan rice grass and what to do if they find it. For help in distinguishing Uruguayan rice grass from other species, see the box on page 3 and the grasses identification table on pages 2–3.

New infestations of Uruguayan rice grass

Because there has been only one Uruguayan rice grass infestation detected, 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 and the state herbarium. Do not try to control Uruguayan rice grass without their expert assistance. Control effort that is poorly performed or not followed up can actually help spread the weed and worsen the problem.

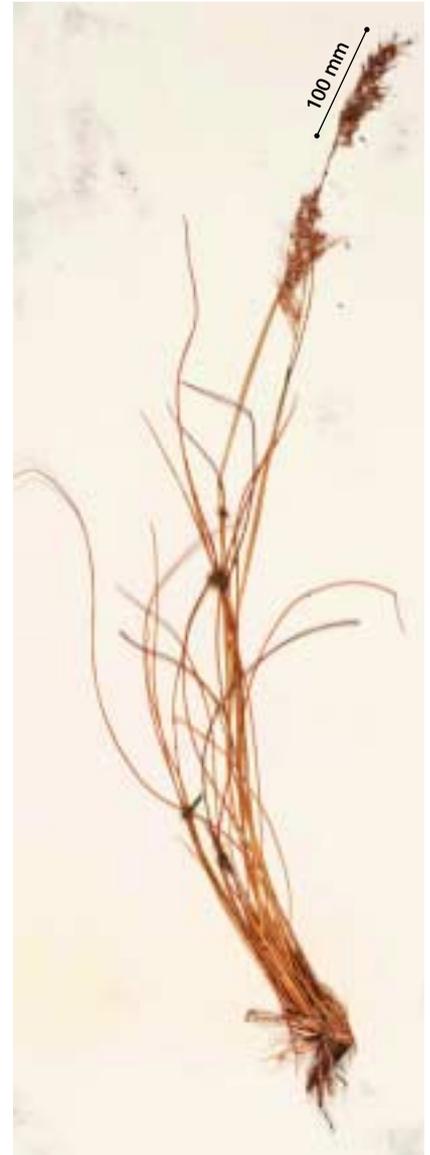
Legislation

There is currently no legislation to control Uruguayan rice grass 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), David McLaren (DPI Vic/Weeds CRC), David Cooke (APCC).

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



Uruguayan rice grass generally invades sites with modified soils that are highly degraded and have a history of disturbance. However, it can also invade relatively undisturbed vegetation. Photo: © 1995-2003 Missouri Botanical Garden

...case study

The Victorian experience

Uruguayan rice grass was originally found as a naturalised population growing in disturbed grassland dominated by kangaroo grass (*Themeda triandra*) on the Victorian Volcanic Plain at Cherry Lake, near Altona, Victoria in 1988.

There were approximately 10–15 plants at the location, but no outlying

populations were detected. The site was inspected once in 1998 and three times in 2004, without rediscovery of the species. This is probably due to the fact that the population was located on a landfill site and is now buried beneath soil and fill.

Due to the prolific seed production of this species, follow-up visits to the site and surrounding area are encouraged to ensure that new populations have not arisen from seed dispersed before the population was buried.

case study

If you find a plant that may be Uruguayan rice grass

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 distinguishing features of Uruguayan rice grass are:

- the presence of a palea (upper 'leaflet' enclosing the floret) that clearly displays a central groove along its length and

is longer than the lemma (lower 'leaflet' enclosing the floret)

- a seed tail or 'awn' which is no longer than 10 mm, much shorter than in other stipoid grasses.

Reporting occurrences

Once identified, new occurrences of Uruguayan rice grass should be reported to the relevant state or territory weed management agency or local council, who will offer advice and assistance on

its control. The control of Uruguayan rice grass 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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Printed on 100% recycled paper.

ISBN 1-920932-43-7

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