



CENTRE FOR
INVASIVE SPECIES SOLUTIONS

INVASIVE GRASSES WEED FACT SHEET

Invasive grasses — a needle in a haystack

Worldwide, grasses are desirable species due to their value as pasture, crops, and as amenity and soil stabilisation plantings. Many exotic perennial grasses experience few climatic or soil limitations, have highly effective seed dispersal mechanisms, respond favourably to disturbance and can equally establish without human disturbance.

Many grass species have been introduced to Australia for their fast-growing nature, persistence under grazing and the belief they provided superior nutrition over our native grass species. However, these productive and competitive traits, coupled with a history of introduction spanning over 200 years, have resulted in exotic grasses becoming one of Australia's most problematic challenges.

Weeds are estimated to impose an overall average cost of nearly \$5 billion across Australia, with grasses being one of the most difficult groups to manage. This does not include the cost to the environment, with invasive grasses threatening our native grasslands and grassy woodlands.

“In Australia, invasive grasses have major environmental and agricultural impacts.”



Gamba grass (*Andropogon gayanus*).
Image by Andrew Mitchell (CISS)



Serrated tussock (*Nassella trichotoma*) is listed as a Weed of National Significance (WoNS).
Image by Andrew Mitchell (CISS)



Gamba grass (*Andropogon gayanus*).
Image by Andrew Mitchell (CISS)

Together, create and deliver valued invasive species solutions

invasives.com.au

Grasses can be very challenging – why?



Dr Hanwen Wu with Feathertop Rhodes grass (*Chloris virgata*). Image supplied by Dr Hanwen Wu, NSW DPI.

Grasses are difficult to identify. This makes it hard for land managers to spot them and take action early, before larger more difficult infestations develop.

Under climatic events exotic grasses can persist and spread unnoticed. Management of grasses is greatly affected by climatic events such as drought, fire and flood.

Best Management Practice information, where it exists, is often outdated. Some species of weeds have best practice manuals and related tools, however these often do not reflect more recent research, particularly on integrated management options.

There is a lack of coordinated RD&E effort. Without a driver for exotic perennial grass RD&E, their management remains extremely difficult.

Development of a National Invasive Grasses Management Program to lead the way

The Invasive Grasses Management Program is part of the National 10 Year Investment Plan for Weed RD&E (2021-30) facilitated by the Centre of Invasive Species Solutions (the Centre or CISS). This Program will establish large scale experimental sites (Proof Sites) across Australia to produce best management practices. These sites will be complemented by sites on working properties or parks (Adaptation Sites), where farmers, graziers and other land managers can trial emerging solutions more locally. This trialling will allow management to be adapted to local production systems, geography, business objectives and farm and park plans.



Serrated tussock (*Nassella trichotoma*) is listed as a Weed of National Significance (WoNS). Image by Andrew Mitchell (CISS)

The systems approach of the Program will be key to achieving successful adoption and adaptation, initially through:

- attracting the close gaze of at least 4,000 graziers and other land managers,
- engaging at least 2,000 of them in participatory RD&E activities, and

- demonstrating (with detailed proof) the productivity, natural resource and social benefits of invasive grass management on at least 40 properties, expanding to self-motivated trials and adoption on a further 1,000 properties within the 3-year life of the program.

Phase One of the Program is initially being led by the NSW Government Department of Primary Industries (NSW DPI). Three Proof sites will be established across NSW covering three species of invasive grasses. These will be complemented by 21 Adaptation sites funded by the Commonwealth Department of Agriculture, Water and Environment.

Phase Two of the Program will work towards the establishment of Proof and Adaptation sites across Victoria, South Australia, Queensland and the Northern Territory. Plans are for sites to also expand to the ACT, Tasmania and Western Australia.

NSW Proof Sites

The three Proof sites from Phase One in NSW cover:

- Serrated tussock: site yet to be determined.
- Chilean needle grass: Northern Tablelands near Tamworth, NSW.
- African lovegrass: Southern Tablelands near Cooma, NSW.

Each site will showcase the Best Management Practice, that is well suited to local conditions and overall weed invasion scenario.

- Serrated tussock site: The focus is yet to be determined.
- Chilean needle grass site: This site demonstrated the efficacy of chemical control (glyphosate and flupropanate applied as spot and boom spray) in simulated grazing and non-grazing situations. Flupropanate has been applied as a pre-emergent herbicide in order to suppress potential new emerging seedlings of Chilean needle grass while providing any existing native pasture species a head start. Grazing has been implemented early in the season (early spring) followed by post-emergent herbicide treatments. An untreated control treatment was included in all cases for comparison.
- African lovegrass site: This site evaluated and demonstrated the efficacy of a range of alternative residual and post-emergent herbicides in comparison with the existing, limited registered chemical options (glyphosate and flupropanate) for African lovegrass control. Another treatment looks at integrating chemical options with crop/pasture competition to provide long term management solutions for African lovegrass. An untreated control treatment is included in all cases for comparison.

This is how its going... results!

There have been some exciting results from the crop/pasture competition trials on African lovegrass. These can be seen in the photos below. Winter crops (wheat and canola) slowed the growth and development of African lovegrass. An active summer growing mix of lucerne/chicory was highly suppressive on African lovegrass.



Top image: Left of the marker after wheat harvest; right no crop, African lovegrass is much advanced. Middle image: Left lucerne/chicory mix crop; right after wheat harvest. Bottom image: Lucerne/chicory mix crop. Showing excellent suppression of African lovegrass. Images by Dr Hanwen Wu, NSW DPI.



Chilean needlegrass (*Nassella neesiana*) field day. Image by Dr Stephen Johnson, NSW DPI



African lovegrass (*Eragrostis curvula*).
Image by Hanwen Wu, NSW DPI

Below image: Serrated tussock (*Nassella trichotoma*). Image by Andrew Mitchell (CISS)

The future of invasive grasses – to a National Level!

The Invasive Grasses Program is intended to grow. Proof Sites inform Adaptation sites. Adaptation sites inform landholders. Landholders inform other landholders. Networking is an essential element of the Program.

Over 2022-2027, the Program will grow from the three Proof Sites and 21 Adaptation Sites in NSW to extend to many more sites across Australia, with a focus on those invasive grasses of particular interest to the regions covered.

The Centre for Invasive Species Solutions is currently working with other States and Territories to develop this truly national scale approach to overcoming the impact of invasive grasses across Australia.

This project is funded by



Department of
Primary Industries



African lovegrass (*Eragrostis curvula*) seed head
Image by Andrew Mitchell (CISS)

For more information,

contact: Ali Bajwa, ali.bajwa@dpi.nsw.gov.au,
NSW Department of Primary Industries
or Dr Hanwen Wu, hanwen.wu@dpi.nsw.gov.au,
NSW Department of Primary Industries



Chilean needlegrass (*Nassella neesiana*),
Image by Andrew Mitchell (CISS)



Together, create and deliver valued invasive species solutions

invasives.com.au