

# Weed management by DBCA

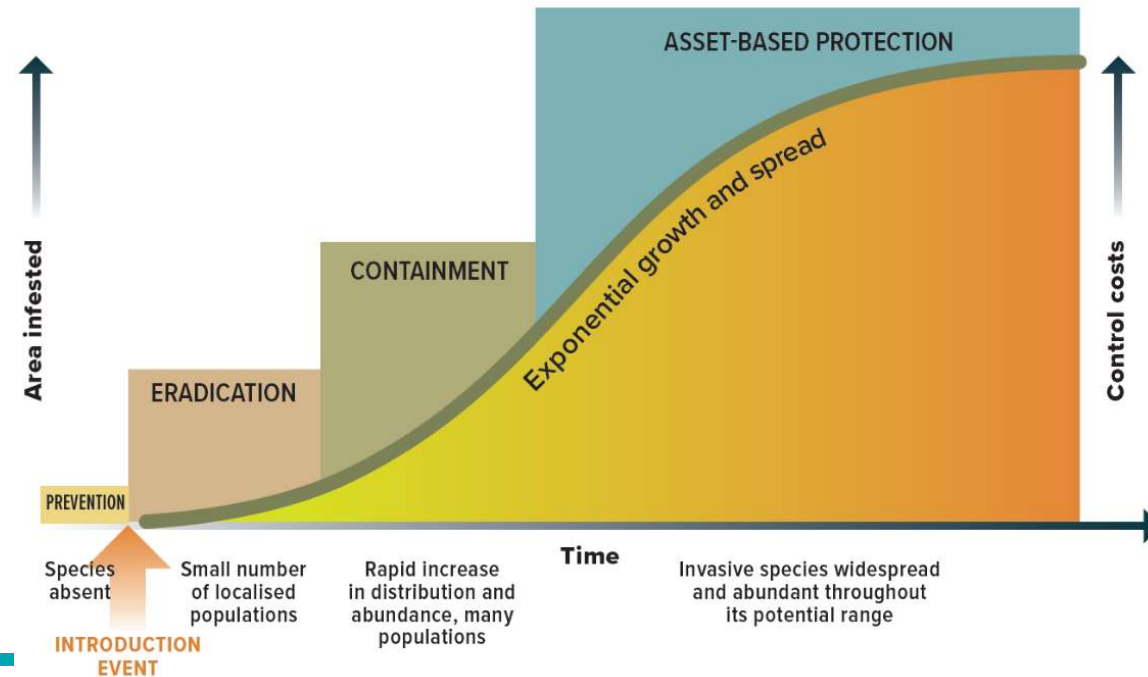
## Carl Gosper



# Weed management policy

DBCA implements weed management on DBCA-managed lands:

- to protect and maintain key environmental and other assets/values
- minimise the spread of priority weeds
- as a good neighbour
- to comply with legislation and codes
- to reduce the impact weeds have on public use and enjoyment of land
- to reduce economic impacts
- to minimise impacts on fire behaviour and fire regimes





# Weed management policy

- DBCA regards weeds as plants (not necessarily non-native) that grow in sites where they are not wanted and which have undesirable environmental or economic impacts, or both
- CALM Act, SCRM Act, BGPA Act lands – also UCL
- Programs may be prioritised by species- or asset-led approaches



# Regional Weed Prioritisation

- ecological impact
- invasiveness
- current distribution
- potential distribution
- feasibility of control

Three lists:

- ranked
- further assessment
- alert

**Ecological Impact and Invasiveness Ratings from the Department of Parks and Wildlife Swan Region Species Prioritisation Process 2016**

Scientific Name	Common Name	Ecological Impact	Invasiveness
<i>Acacia iteaphylla</i>	Flinders Range	H	R
<i>Acacia longifolia</i> subsp. <i>longifolia</i>	Sydney Golden	H	R
<i>Acacia longifolia</i> subsp. <i>sophorae</i>	Sydney Golden	H	R
<i>Acetosa vesicaria</i>	Rosy Dock,	H	R
<i>Agapanthus praecox</i>	Agapanthus	H	R
<i>Alisma lanceolatum</i>	Water Plantain	H	R
<i>Arctotheca calendula</i>	Capeweed,	H	R
<i>Asparagus asparagoides</i>	Bridal Creeper	H	R
<i>Avena barbata</i>	Bearded Oat	H	R
<i>Babiana angustifolia</i>	Baboonflower	H	R
<i>Babiana nana</i>	Baboonflower	H	R



# Asset protection

- Nature Conservation plans
- Management plans
- Threatened species recovery plans



Interim Recovery Plan No. 360

## Pyramid Mulla-mulla (*Ptilotus pyramidatus*)

Interim Recovery Plan  
2016–2021



Department of Parks and Wildlife, Western Australia  
February 2016



Department of Biodiversity,  
Conservation and Attractions



Biodiversity and  
Conservation Science

# Weed research and management guides

- Expertise and recent projects on:
  - Weed genomics
  - Weed-fire interactions
  - Weed control and off-target impacts
  - Weed prioritisation
  - Weed ecology and impacts on biodiversity
  - Weed detection and mapping
  - Weed identification and taxonomy
  
- Communication of best-practice weed management

Biodivers Conserv (2015) 24:2789–2807  
DOI 10.1007/s10531-015-0973-x



ORIGINAL PAPER

## Combining asset- and species-led alien plant management priorities in the world's most intact Mediterranean-climate landscape

Carl R. Gosper<sup>1,2</sup> · Suzanne M. Prober<sup>2</sup> · Colin J. Yates<sup>1</sup> · John K. Scott<sup>2,3</sup>

frontiers  
in Plant Science

ORIGINAL RESEARCH  
published: 29 July 2021  
doi: 10.3389/fpls.2021.651805



## Revealing the Introduction History and Phylogenetic Relationships of *Passiflora foetida sensu lato* in Australia

Tara Hopley<sup>1\*</sup>, Bruce L. Webber<sup>2,3,4</sup>, S. Raghu<sup>5</sup>, Louise Morin<sup>6</sup> and Margaret Byrne<sup>1</sup>



Department of  
Environment and Conservation  
Our environment, our future

Information Sheet 10 / 2009  
Science Division

## Fragmentation but not fire facilitates weed invasion in mallee

by Carl Gosper<sup>1,2</sup>, Colin Yates<sup>1</sup> and Suzanne Prober<sup>2</sup>,

Florabase Find • Nuytsia • Our Flora • Help

Search Names

## Swan Weeds

Information on the Swan Region's major environmental weeds

The Swan Weeds Database



# Lovegrass (*Eragrostis curvula*) control

- High-priority weed on the SCP – high impact, rapid invasiveness
- Perennial, prefers heavier soils, C4
- Threat to numerous threatened flora and TECs
- Alters fire risk
- Non-selective herbicide control





# Lovegrass control

Aim – test the effects of flupropanate on:

- Lovegrass
- Co-occurring native flora

Methods –

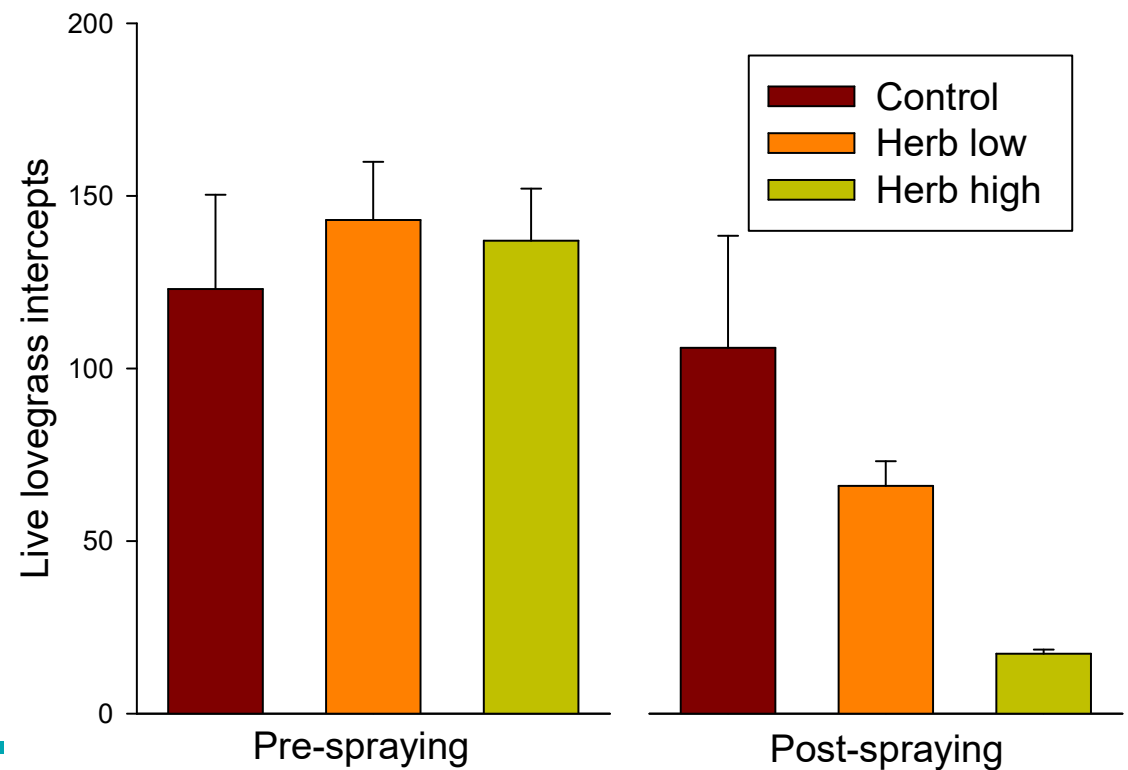
- BACI design
- 3 herbicide levels (control, 1.5 mL L<sup>-1</sup>, 3 mL L<sup>-1</sup>)
- Herbicide applied late spring
- Replicated 10 x 10 m plots
- 200 point intercepts per plot





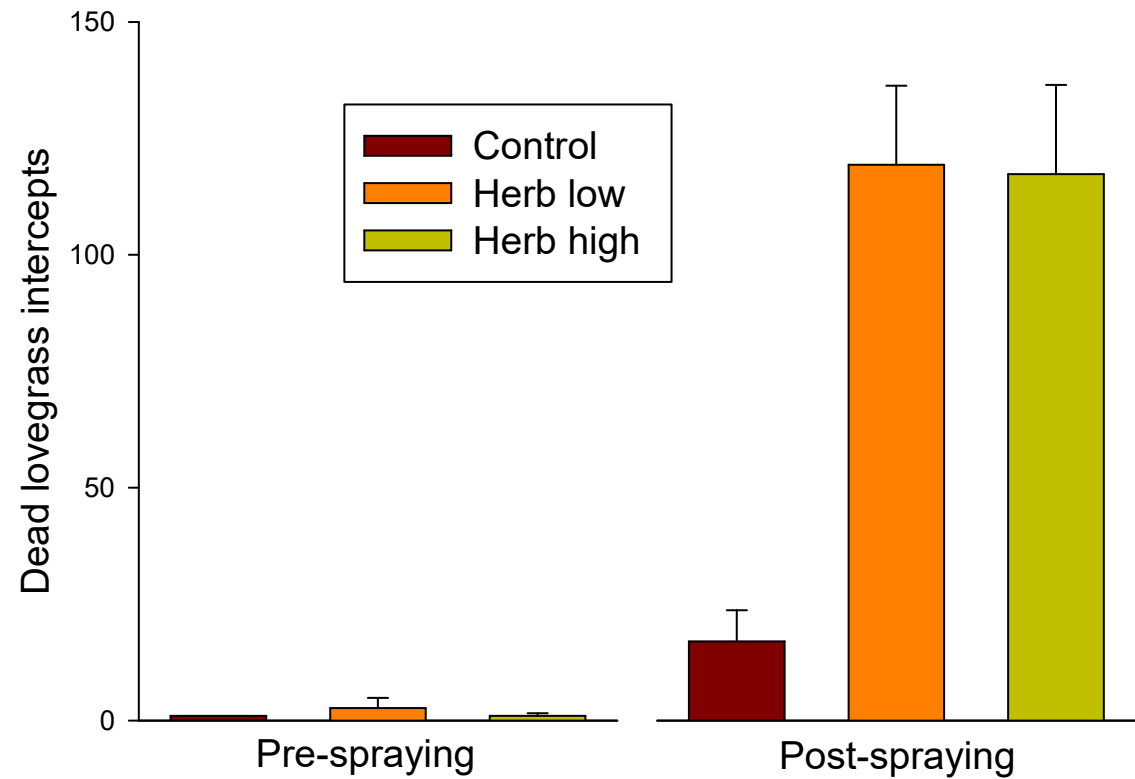
# Lovegrass control

- Flupropanate was effective in killing lovegrass
- Lower rates of survival at the higher application rate



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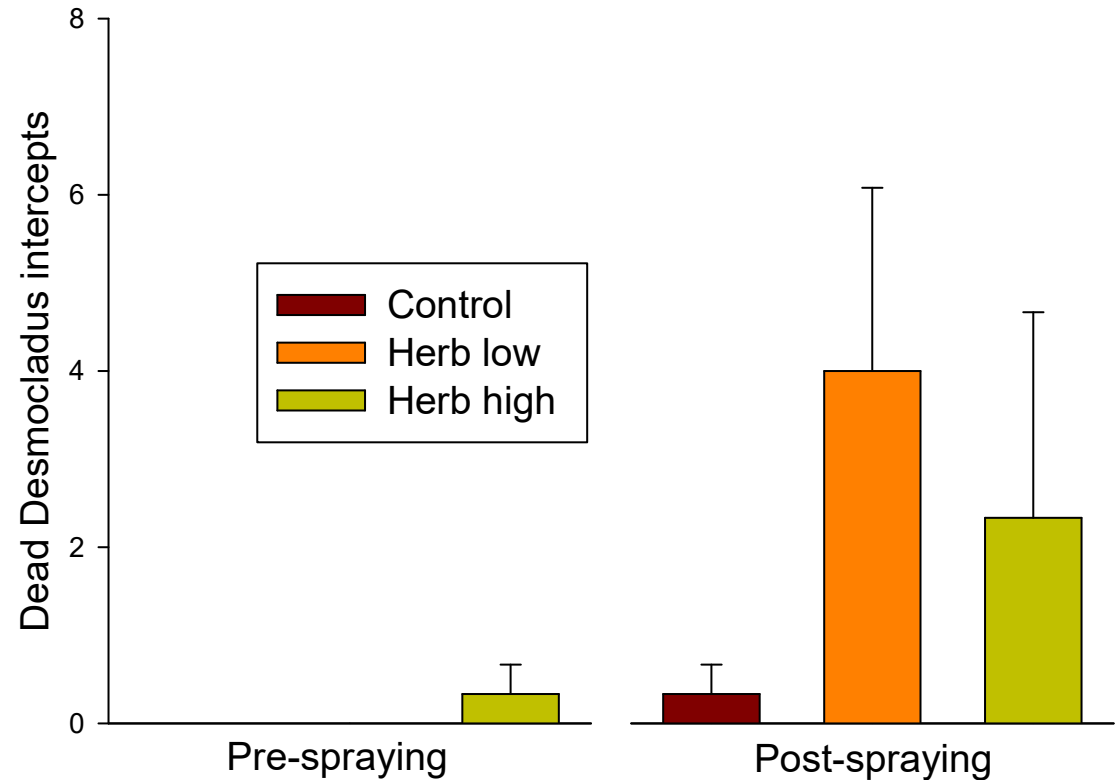




# Lovegrass control

- Most natives appeared tolerant
- Suggestion of off-target impacts in *Desmocladus virgatus*

<https://florabase.dbca.wa.gov.au/>





# Flupropanate – ongoing work

- Trial for *Watsonia* control
- Test susceptibility of more native species





# Grader grass (*Themeda quadrivalvis*) management

- Kimberley high-priority weed – high impact, moderate invasiveness
- Declared pest
- Wet season annual, prolific seed production
- Spread by vehicle and machinery movement
- Alters fire behaviour
- Ground and aerial non-selective herbicide control
- Uncertain effectiveness and role of interactions





# Grader grass management

Aim – test effects of putative integrated weed management approaches on

- Grader grass
- Co-occurring native flora

Treatments –

- Two herbicides (glyphosate, glufosinate and control)
- Early dry season fire and no planned fire





# Grader grass management

## Methods –

- BACI design
- Replicated 25 x 12 m plots
- 200 point intercepts per plot





# Grader grass management

Pre-treatment measurements April 2023

Post-treatment measurements April 2024

Initial observations:

- Some significant off-track infestations
- Access limitations may prevent herbicide application prior to seed-set
- Early dry season fire often did not carry through grader grass swards

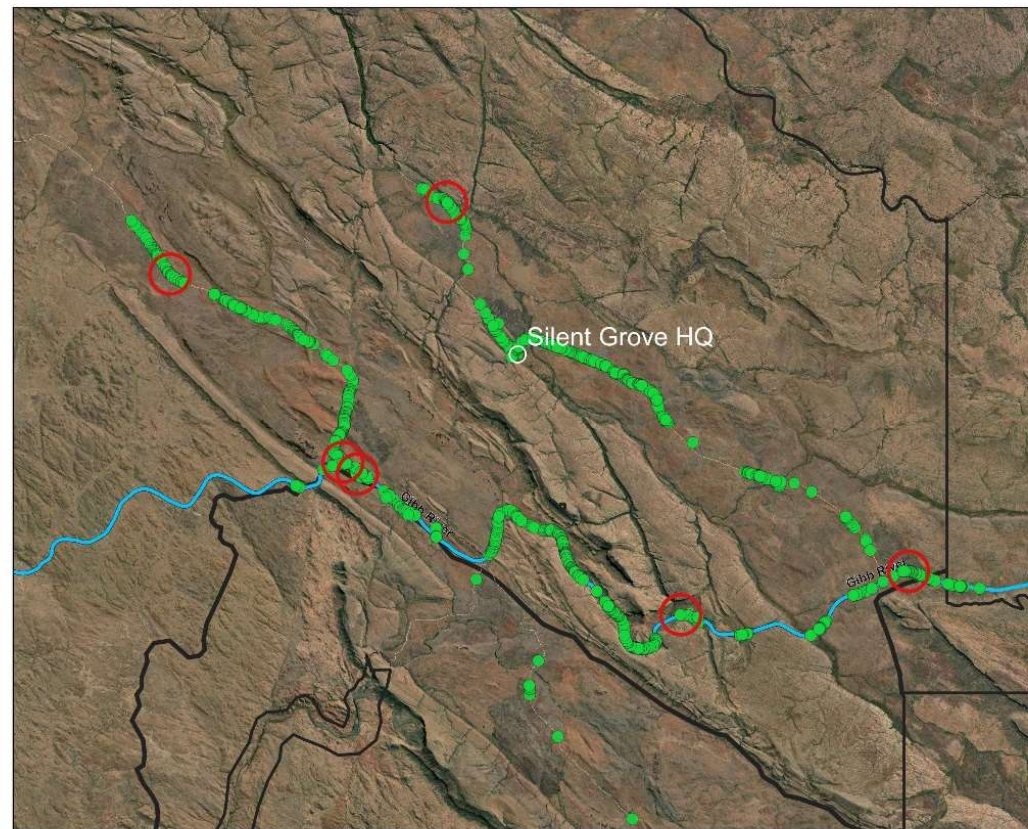




# Grader grass management

## Future directions

- Improved grader grass detection and mapping a priority, especially to detect off-track infestations
- Integrate findings with other control trials



## Proposed Grader Grass Control Sites 2023

### Legend

- WVCP\_infrastructure\_2022
- Proposed GGCS Control Sites 2023
- Mapped & Controlled Grader Grass Control Points
- King Leopold Ranges Conservation Park

N  
1:150,000 (A4)  
0 1 2 3 km  
Geographic Projection  
Datum: WGS84



Produced by D. Barrow,  
Department of Biodiversity,  
Conservation and Attractions



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**Grader grass project** - Ben Miller, Kellie Passeretto, Bruce Greatwich, Emily Minchin, Ian Radford, Matt Chick, Bunuba rangers

**Lovegrass project** – Julia Cullity, Grazyna Paczkowska, Anne Harris

## **Further information:**

DBCA Corporate Policy Statement 14 – Weeds Management

<https://www.dbca.wa.gov.au/about-us/legislation/corporate-policies>

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