

Weed management by DBCA

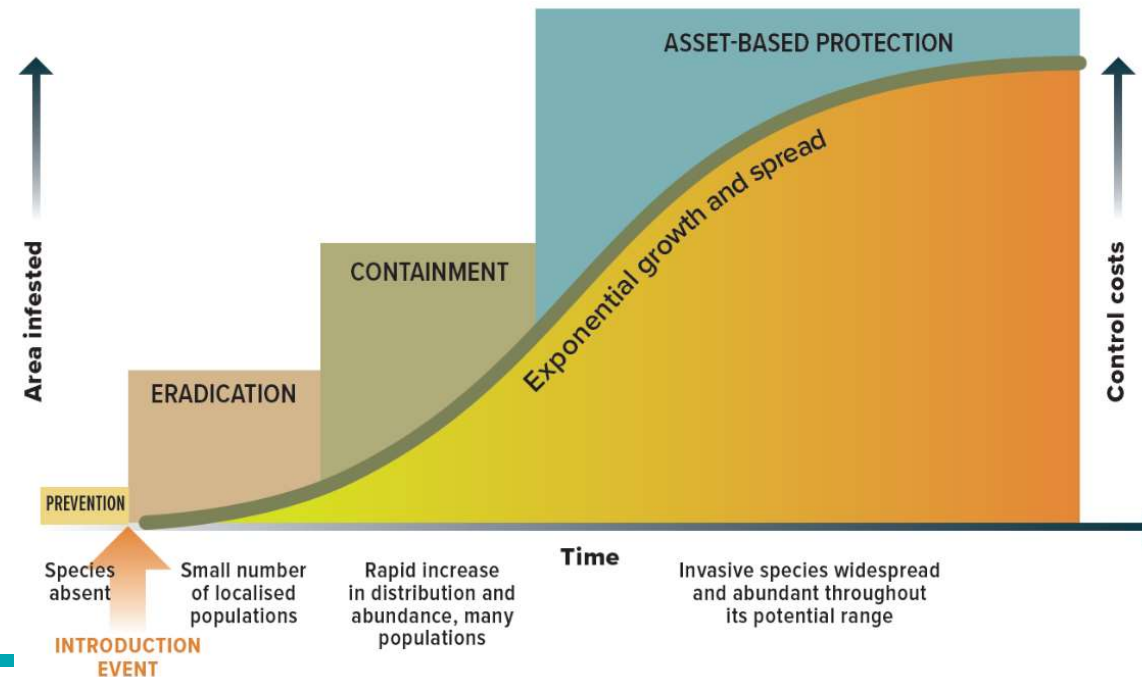
Carl Gosper



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



Department of
Parks and Wildlife



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^{1,2} · Suzanne M. Prober² · Colin J. Yates¹ · John K. Scott^{2,3}

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^{1*}, Bruce L. Webber^{2,3,4}, S. Raghu⁵, Louise Morin⁶ and Margaret Byrne¹



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^{1,2}, Colin Yates¹ and Suzanne Prober²,

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

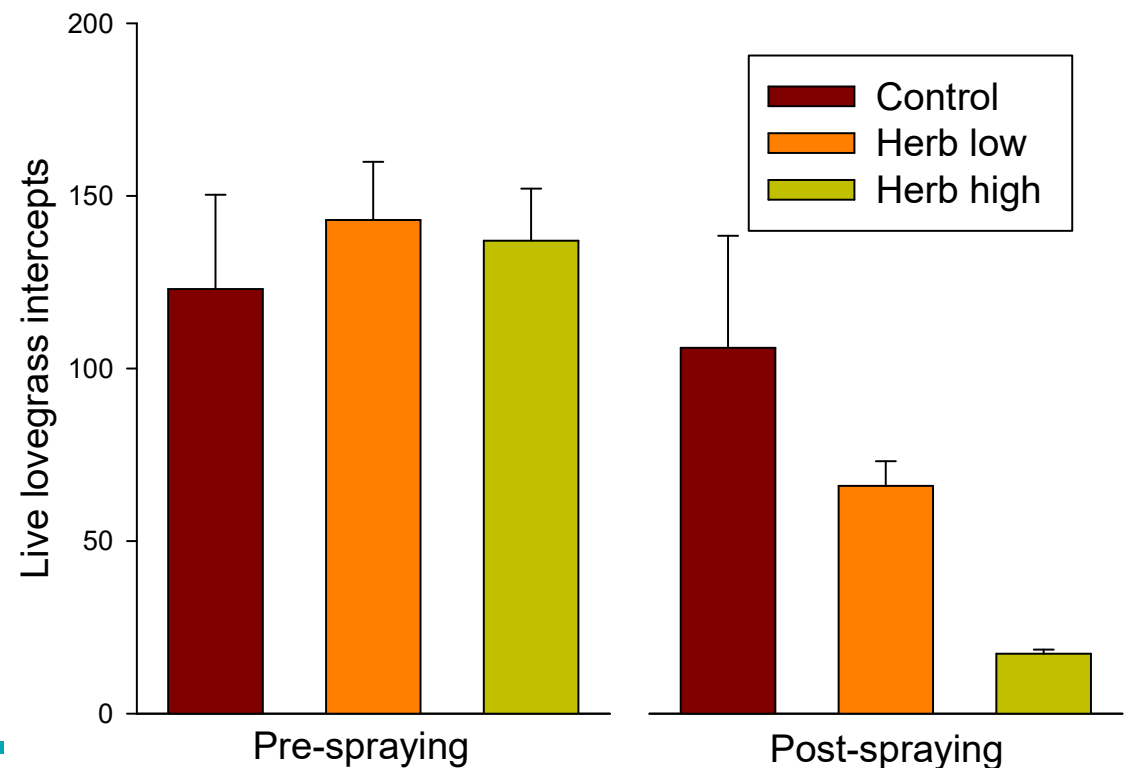
Methods –

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



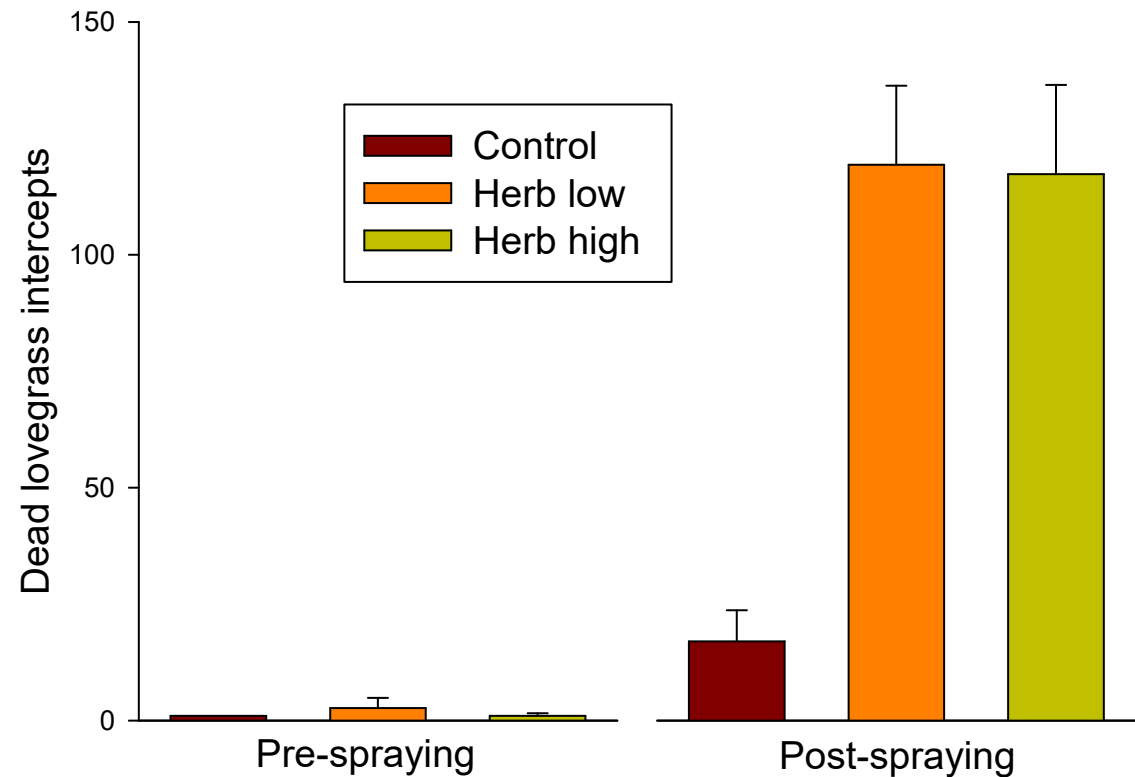
Lovegrass control

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



Lovegrass control

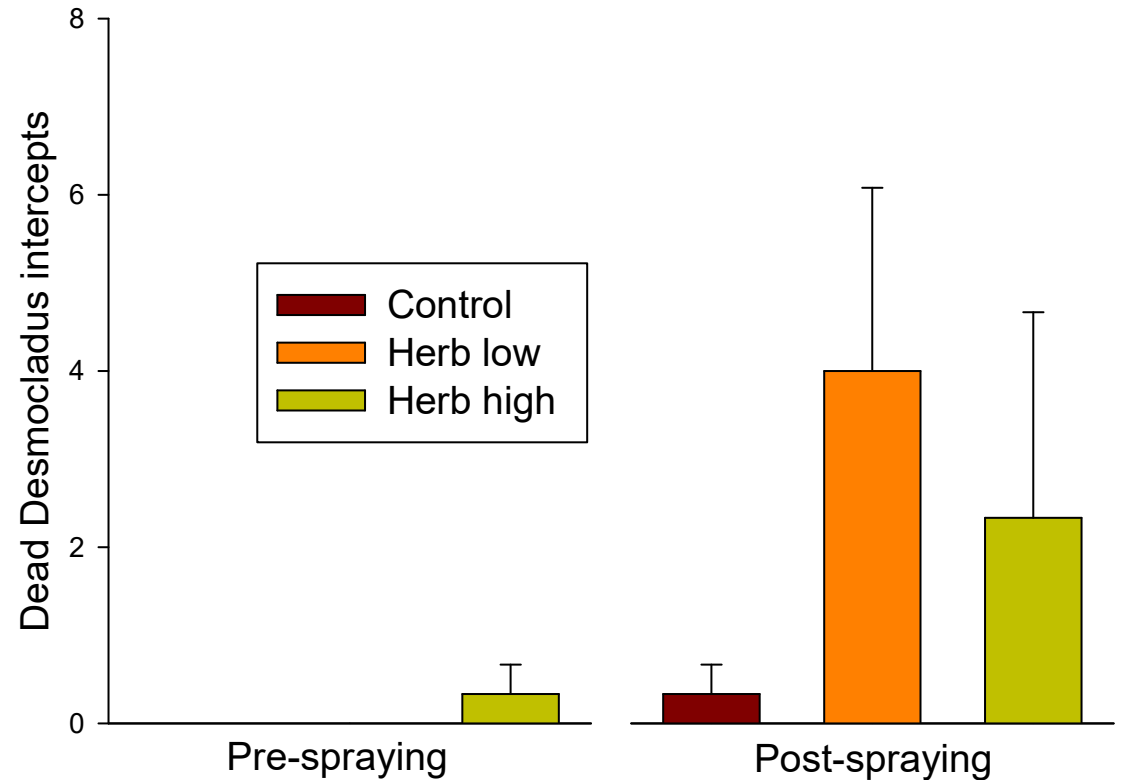
- Flupropanate was effective in killing lovegrass
- Lower rates of survival at the higher application rate



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:

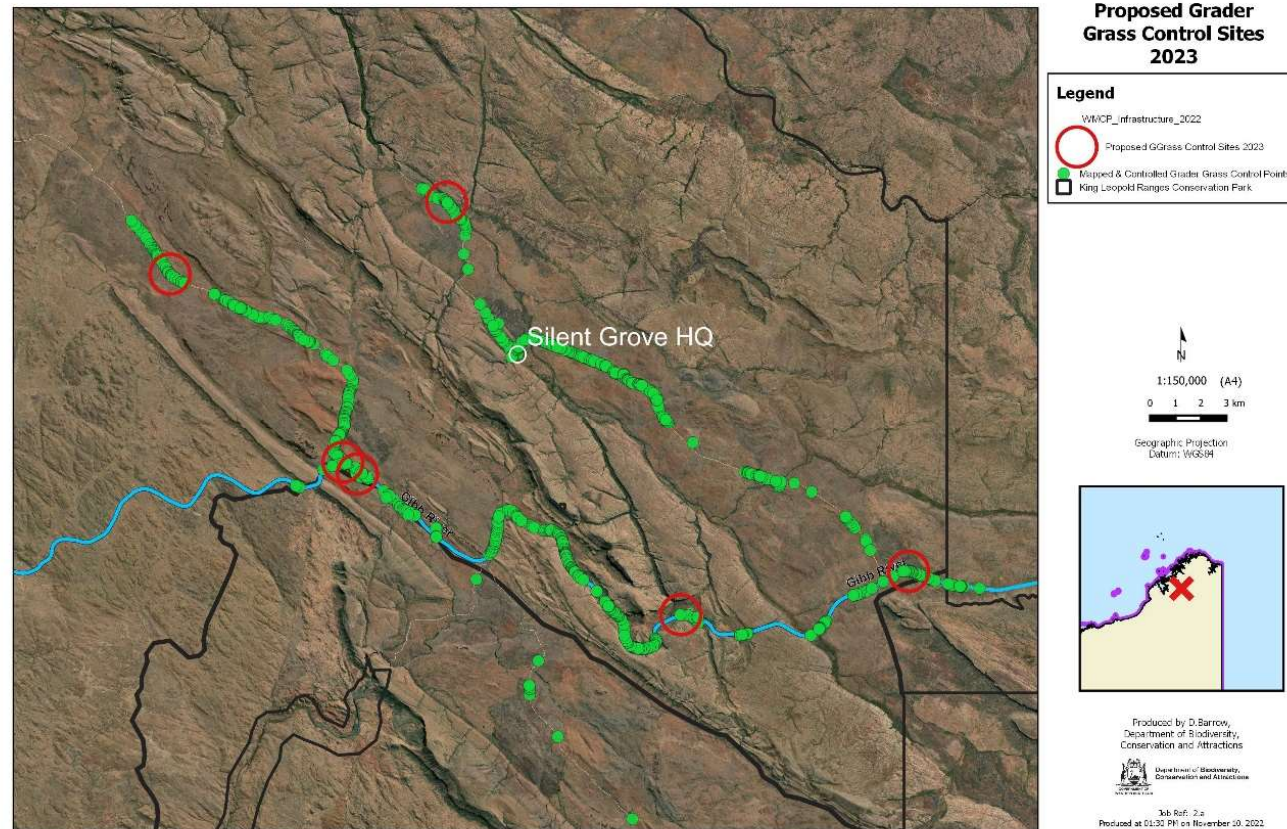
- Some significant off-track infestations
- Access limitations may prevent herbicide application prior to seed-set
- Early dry season fire often did not carry through grader grass swards



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





Acknowledgements:

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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