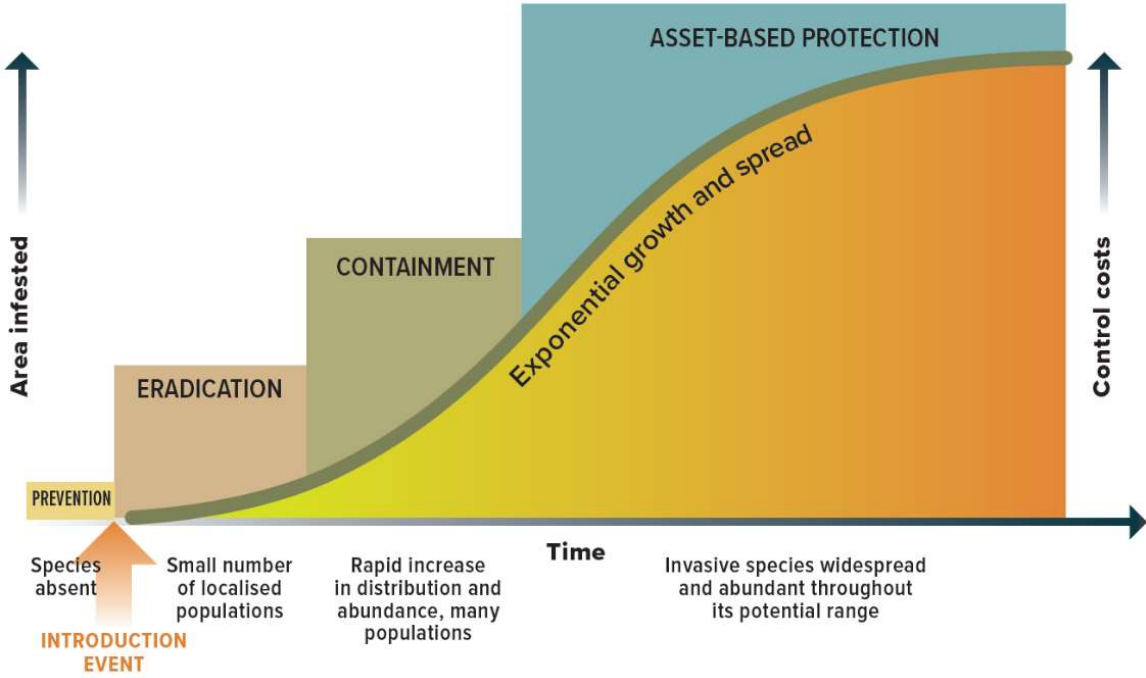
Weed management by DBCA

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



Webber, B.L. (2021). Addressing weed threats to biodiversity. The Western Australian Biodiversity Science Institute

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:

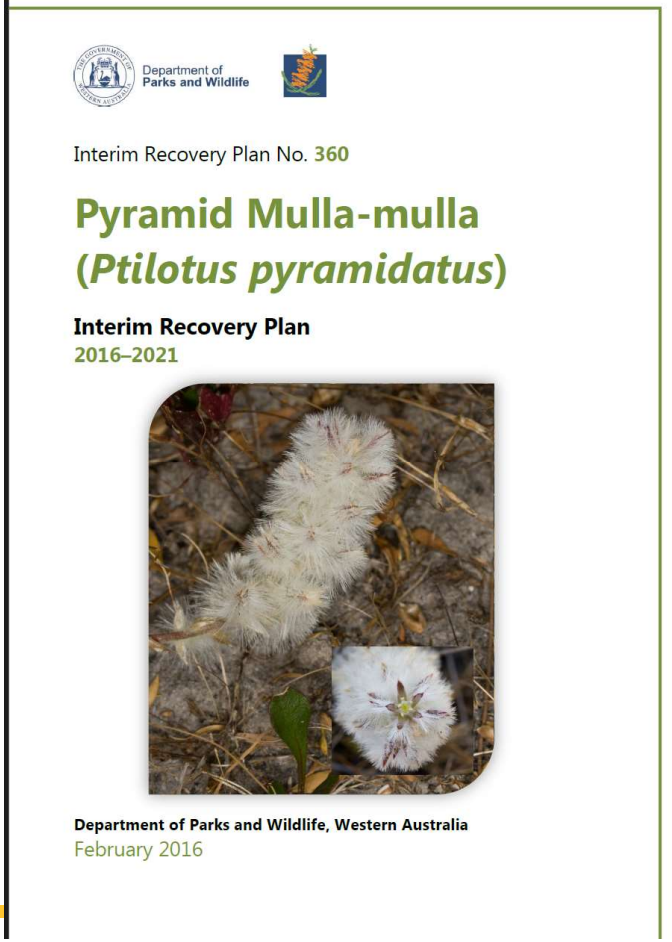
- ranked
- further assessment
- alert

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
Acacia iteaphylla	Flinders Range	H	R
Acacia longifolia subsp. longifolia	Sydney Golden	H	R
Acacia longifolia subsp. sophorae	Sydney Golden	H	R
Acetosa vesicaria	Rosy Dock,	H	R
Agapanthus praecox	Agapanthus	H	R
Alisma lanceolatum	Water Plantain	H	R
Arctotheca calendula	Capeweed,	H	R
Asparagus asparagoides	Bridal Creeper	H	R
Avena barbata	Bearded Oat	H	R
Babiana angustifolia	Baboonflower	H	R
Babiana nana	Baboonflower	H	R

Asset protection

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



Department of Biodiversity, Conservation and Attractions

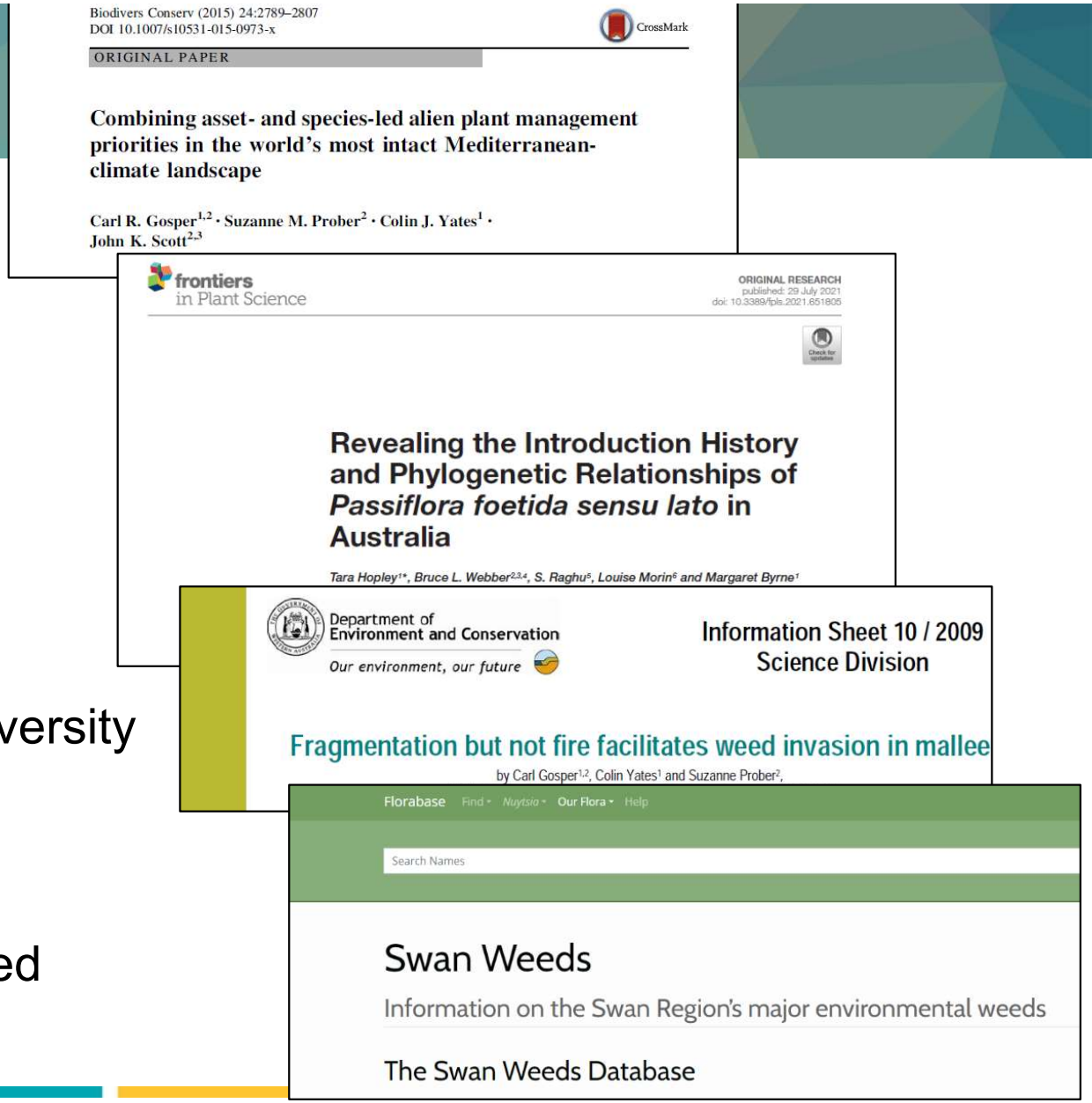
GOVERNMENT OF WESTERN AUSTRALIA

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



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:

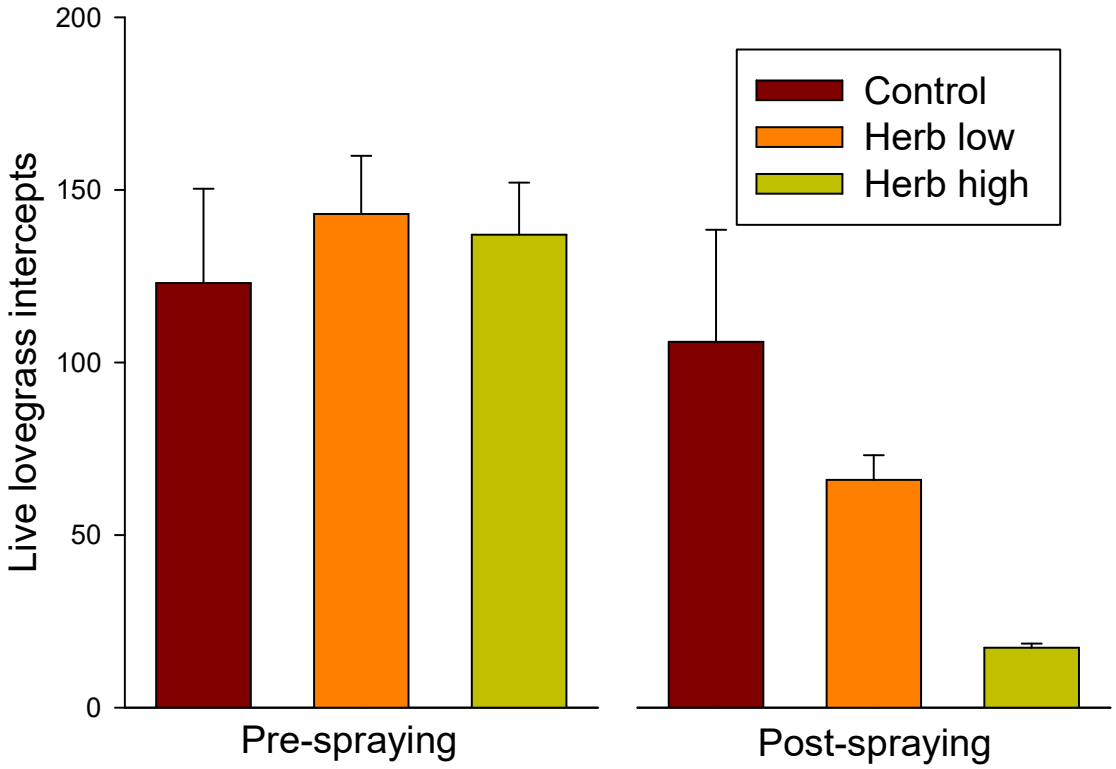
- Lovegrass
- Co-occurring native flora

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



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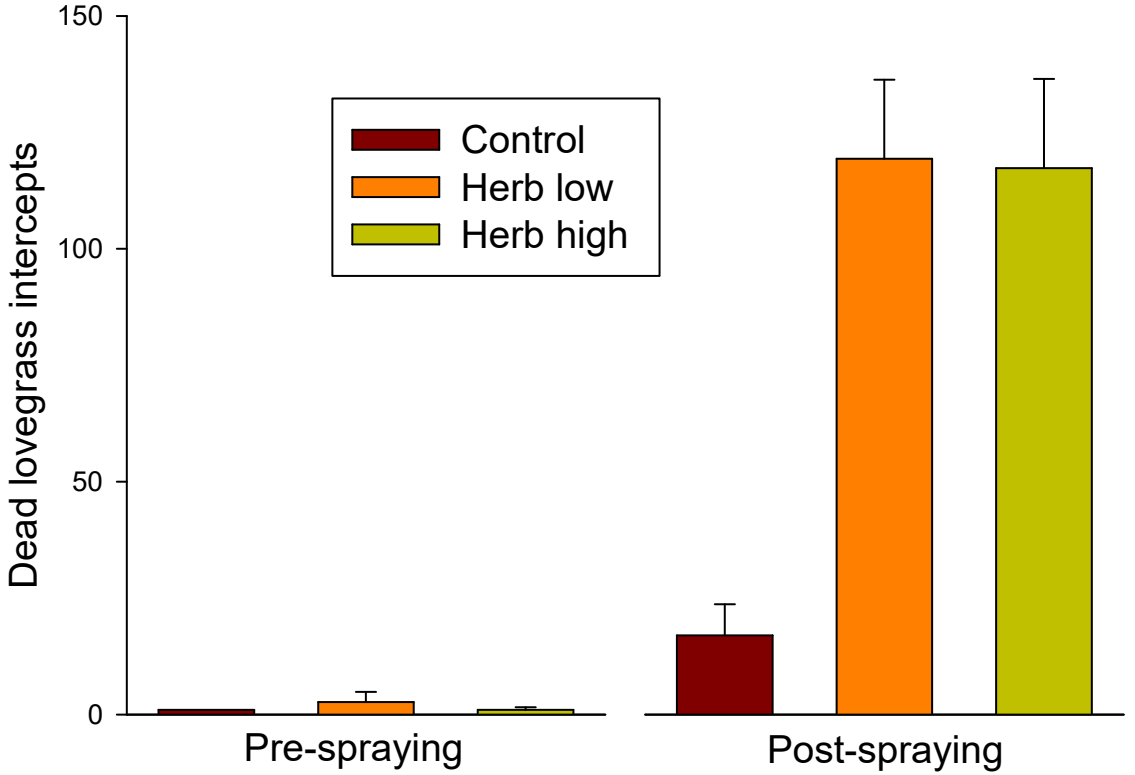
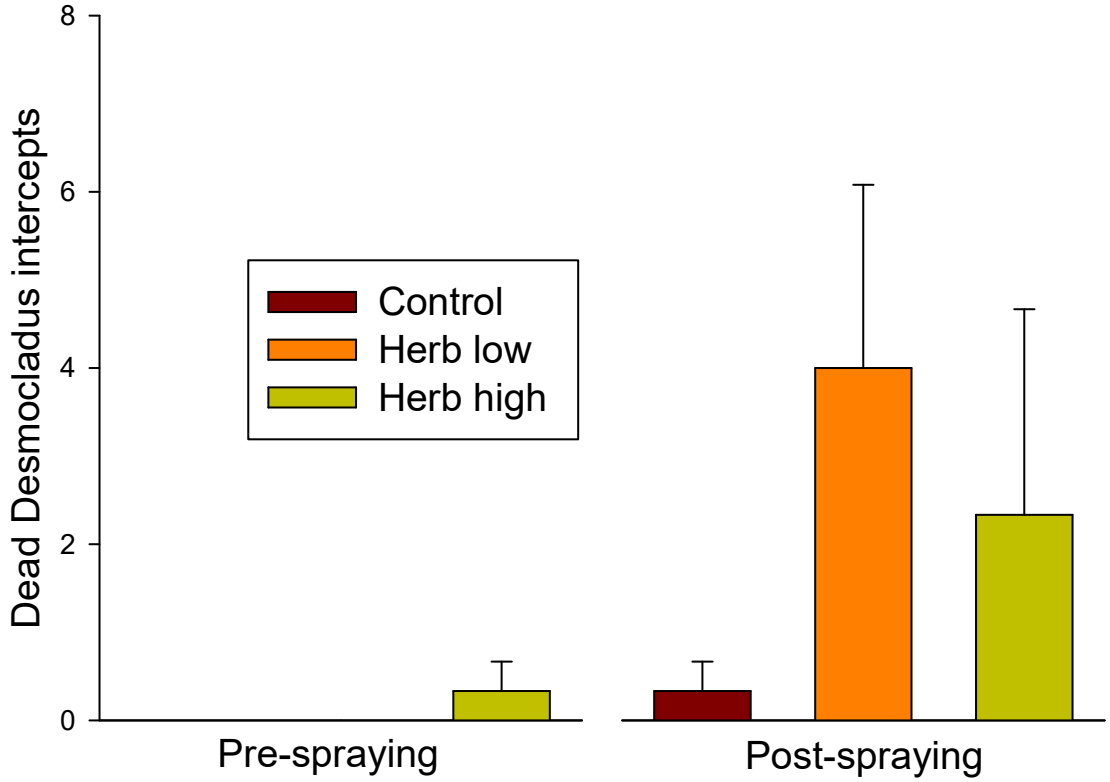


Lovegrass control

- 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

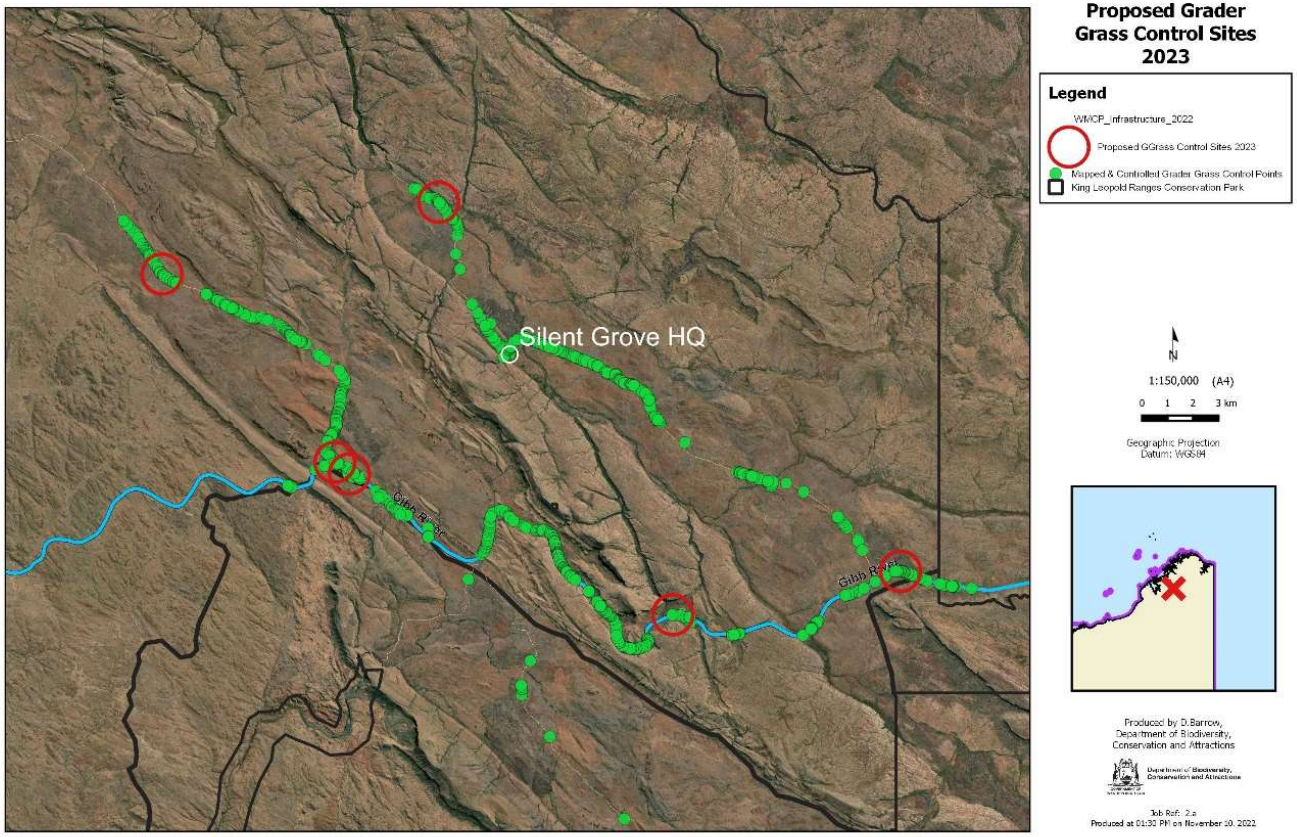
Initial observations:

- 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



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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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