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Department of Agriculture, Fisheries and Forestry

Future Drought Fund

CENTRE FOR INVASIVE SPECIES SOLUTIONS

NATION-WIDE WEED BIOCONTROL MASS-REARING & RELEASE NETWORK: Enhancing Australia's drought resilience

AWC2026 Christchurch Tuesday 25 August

Maree Wright, John Virtue, Karen Gregory, Ben Gooden, Jens Froese, Kumaran Nagalingam, Raelene Kwong, Hasan Rahmani, Jackie Steel, Andrew McConnachie, Fritz Heystek, Kunjithapatham Dhileepan, Kelli Murree, Boyang Shi, and more...

This program is jointly funded through the Australian Government's Future Drought Fund and:

CSIRO

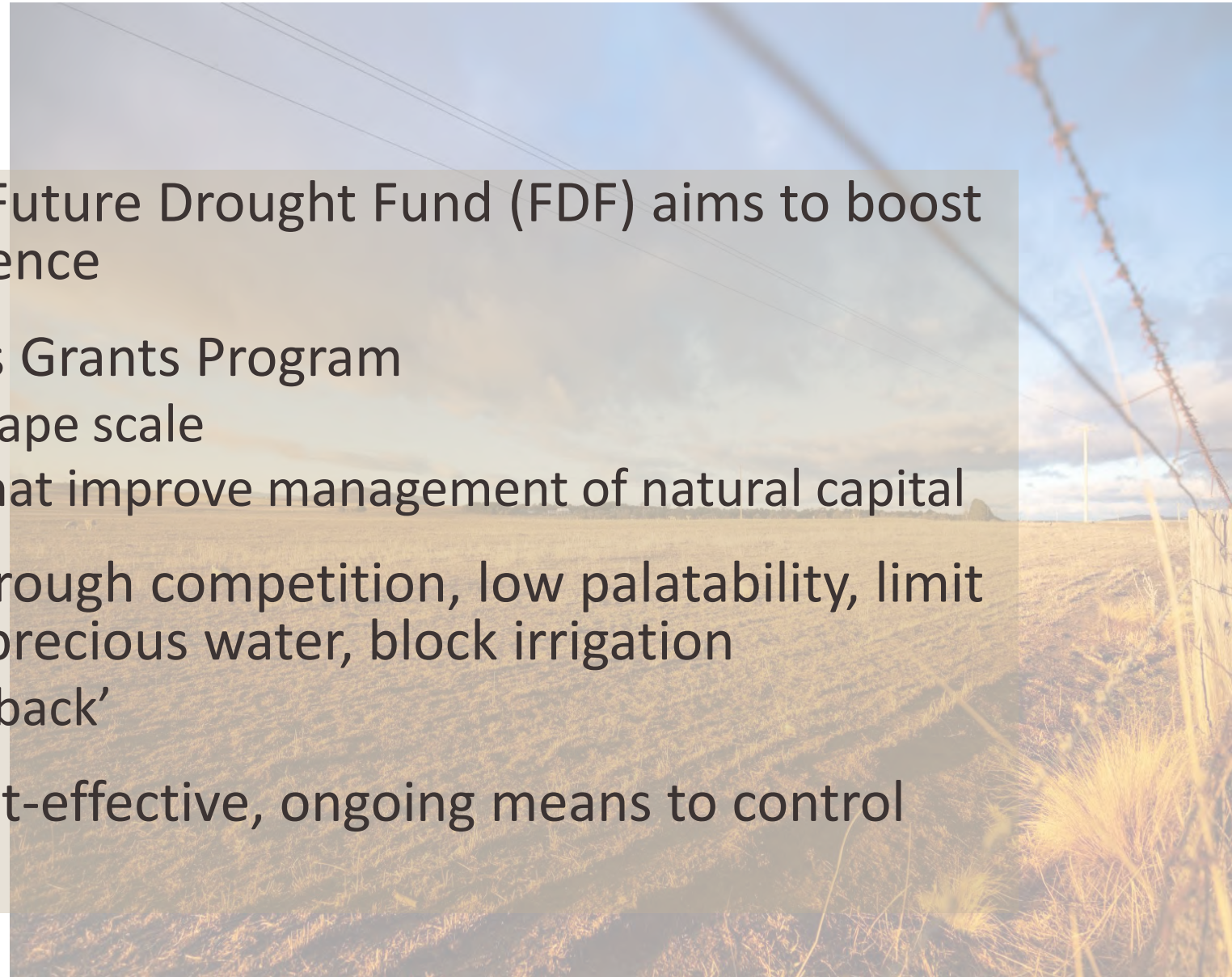
Queensland Government

AGRICULTURE VICTORIA

NSW GOVERNMENT

Weed biocontrol network for drought resilience

SCENE SETTING



- Australian Government's Future Drought Fund (FDF) aims to boost drought and climate resilience
- FDF's Resilient Landscapes Grants Program
  - achieve impact at landscape scale
  - demonstrate practices that improve management of natural capital
- Weeds affect resilience through competition, low palatability, limit livestock movement, use precious water, block irrigation
  - 'last to die, first to grow back'
- Biocontrol is a proven, cost-effective, ongoing means to control weeds at landscape scales

Weed biocontrol network for drought resilience

A nationally coordinated consortium to fast-track the mass-rearing, release, monitoring, and evaluation of biocontrol agents targeting 7 priority weed taxa

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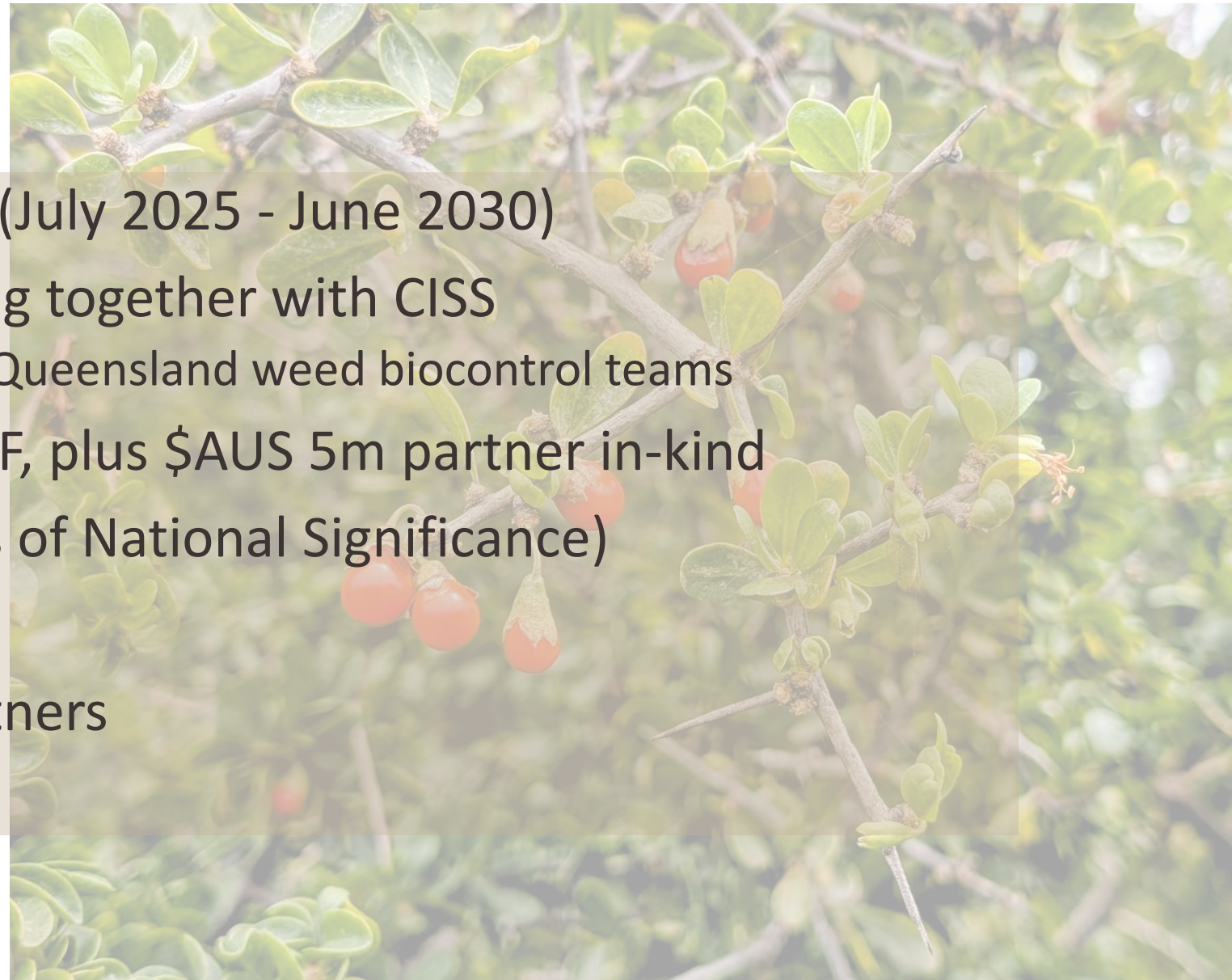
Weed biocontrol network for drought resilience

PROJECT SUMMARY



- 5-year project led by CISS (July 2025 - June 2030)
- 4 delivery partners working together with CISS
  - CSIRO, Victoria, NSW, and Queensland weed biocontrol teams
- $AUS 6m funding from FDF, plus $AUS 5m partner in-kind
- 7 target taxa (6 are Weeds of National Significance)
- 9 biocontrol agents
- Hundreds of enabling partners

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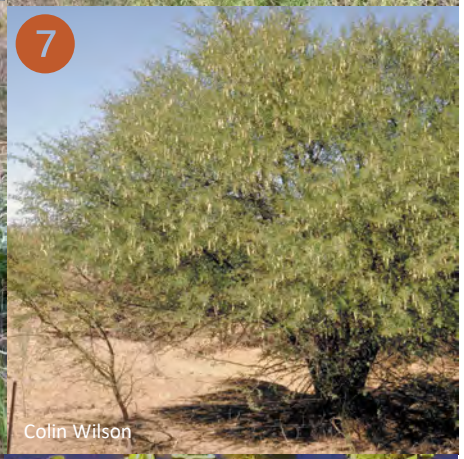
TARGET WEEDS

1. **African boxthorn** – *Lycium ferocissimum*
2. **arrowhead** – *Sagittaria platyphylla*
3. **cabomba** – *Cabomba caroliniana*
4. **horehound** – *Marrubium vulgare*
5. **opuntioid cacti** – *Cylindropuntia* spp.
6. **opuntioid cacti** – *Opuntia* spp.
7. **prickly acacia** – *Vachellia nilotica* subsp. *indica*
8. **salvinia** – *Salvina molesta*



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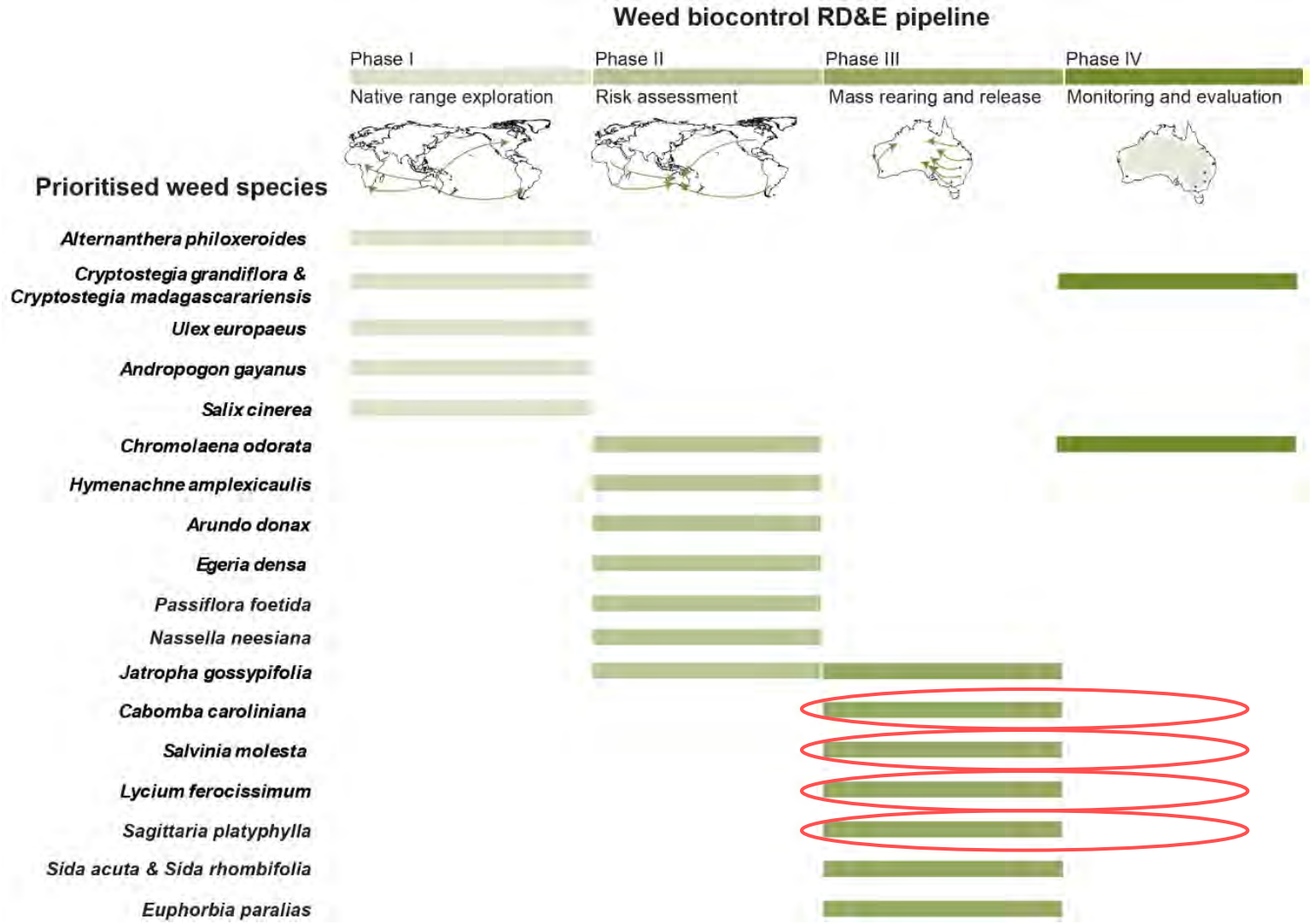
3. Investment priorities



weeds.org.au/weed-biocontrol-hub/

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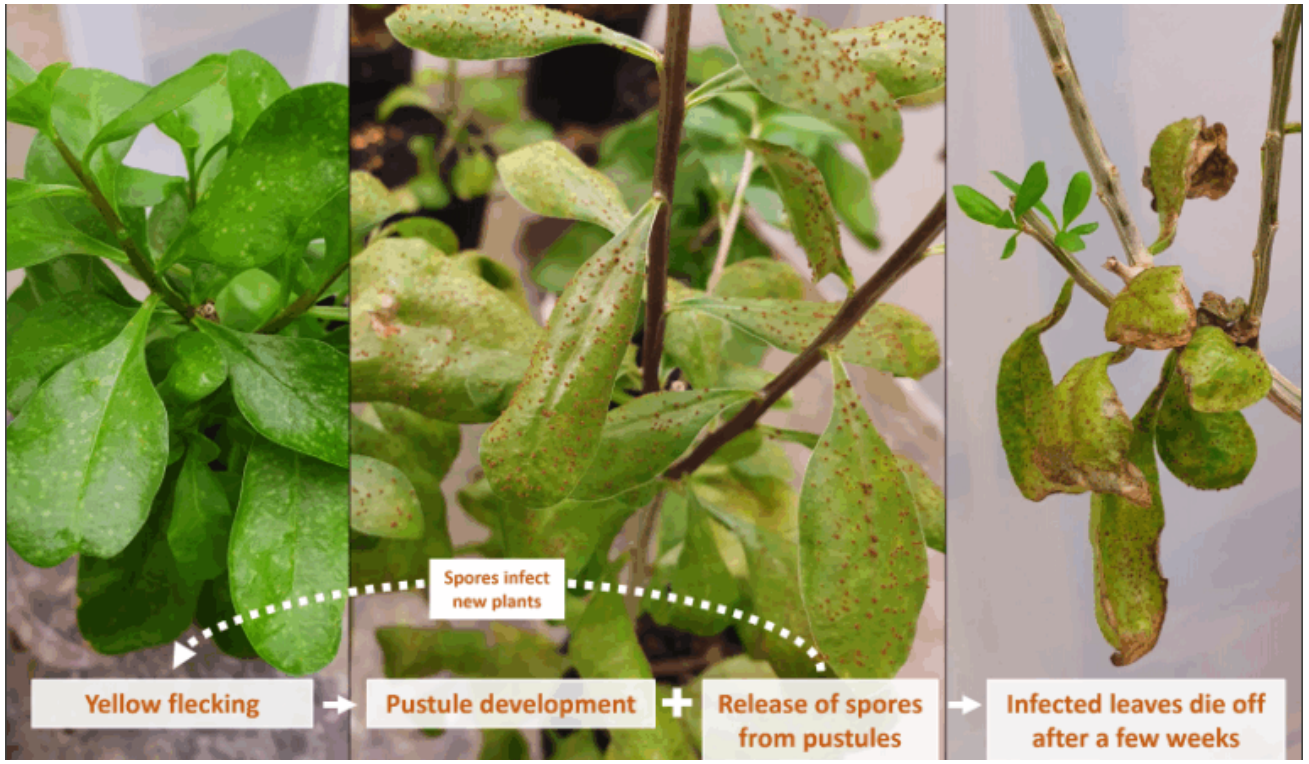
AFRICAN BOXTHORN

Delivery Partners: CSIRO, AgVic

Biocontrol agent: *Puccinia rapipes* - a rust fungus

Images: CSIRO



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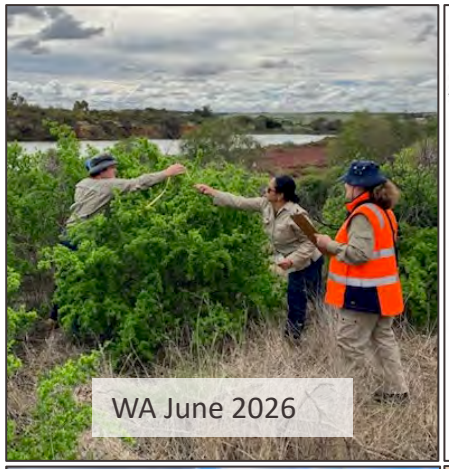
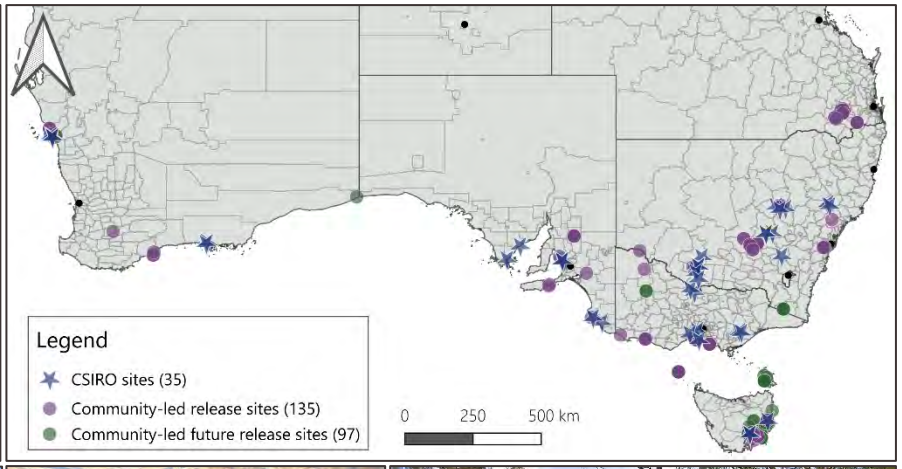
AFRICAN BOXTHORN

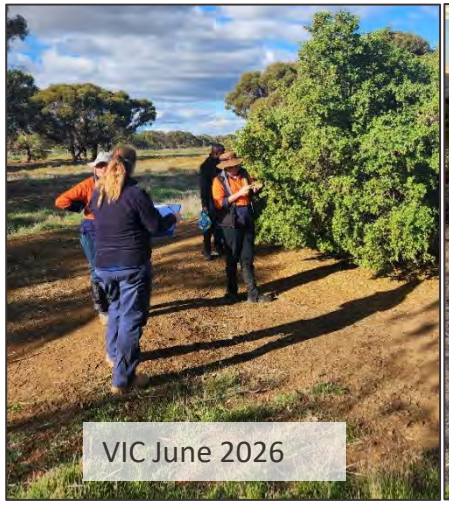
Monitoring & community involvement:

- 33+ release research sites across Aust.
- Partnership with Geraldton, WA
- 241+ biocontrol release kits distributed to community in 2026
- 7+ community workshops /presentations in 2026

Images: CSIRO







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ARROWHEAD / SAGITTARIA

Delivery Partners: AgVic, NSW DPIRD

Biocontrol agent: *Listronotus appendiculatus*
- a fruit-feeding weevil

ARROWHEAD / SAGITTARIA

Rearing, release & monitoring

- Weevils released 33+ sites Vic & NSW
- NSW replenished Vic rearing
- Monitoring establishment & impact
- 180+ landholders engaged
- PhD student investigating role of weevil microbiome with international comparison

Images: NSW DPIRD

AgVic & NSW DPIRD staff collecting sagittaria weevil and evaluating impact, NSW

Sagittaria weevil release in an irrigation channel in NSW

CABOMBA

Delivery Partners: NSW DPIRD, CSIRO

Biocontrol agent: *Hydrotimetes natans*
- a stem-boring weevil

Images: NSW DPIRD

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CABOMBA

Rearing, release & monitoring

- 261+ weevils released in 2026
- Long-term evaluation sites

NSW evaluation sites	Evaluation dates		Weevil Presence
Mooball	28/4/26	14/7/26	Yes
Bucca	23/2/26	16/6/26	Yes
Mayers Flat	26/2/26	20/05/26	Yes
Nana Glen	01/26	5/5/26	Yes
Kentucky	9/3/26	2/06/26	Yes
Golden Ponds	26/2/26	20/05/26	Yes

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NSW DPIRD

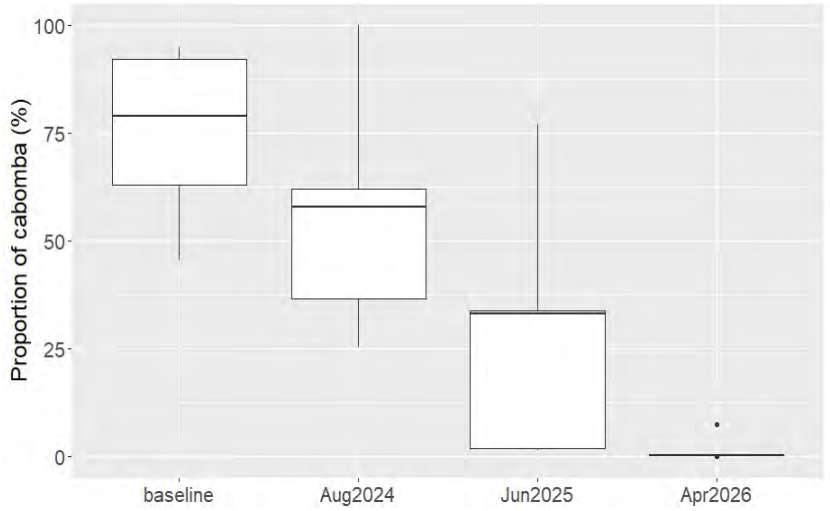
NSW DPIRD releasing weevils at Glenugie, NSW

CSIRO

CSIRO field release of cabomba weevils in Lake Kurwongbah (QLD) in partnership with seqwater

NSW DPIRD

NSW DPIRD sampling water quality, plant biomass and weevil presence at Nana Glen, NSW



CSIRO post-release monitoring of % cabomba

CSIRO

First weevil release in Victoria; CSIRO, AgVic & Goulburn Broken CMA

HOREHOUND

Delivery Partners: AgVic

Biocontrol agent: *Chamaesphecia mysiniformis* - a clearwing moth

www.landcareresearch.co.nz/discover-our-research/managing-invasive-species/weed-biocontrol/projects-agents/biocontrol-agents/horehound-clearwing-moth

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HOREHOUND

Collection, release & monitoring

- Larvae from old release site in SA
- Eggs onto toothpicks and inserted into horehound shoot tips
- 20+ release sites
- Monitoring sites for est. & impact
- Trialing non-destructive pheromone trapping for adults

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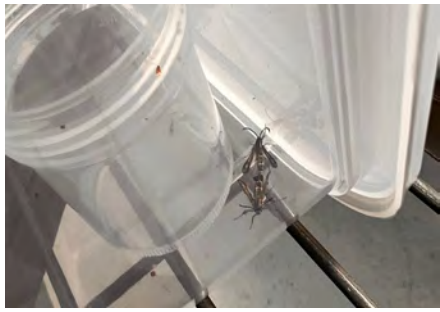
1. Field collections of larvae

Images: AgVic



2. Adult emergence and mating

3. Egg stick release trial

4. Establishment of long-term monitoring plots

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OPUNTIOID CACTI

Delivery Partners: QDPI, NSW DPIRD
Biocontrol agents: 3

1. *Lagocheirus funestus*
   - brown prickly pear stem borer
2. *Coenopoeus palmeri*
   - a longhorn beetle
3. *Dactylopius tomentosus (californica var. parkeri)*
   - a cochineal insect

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Ben Sale
www.flickr.com/photos/33398884@N03/16902600977/

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OPUNTIOID CACTI

Lagocheirus funestus

- 1,223+ adults released to date
  - Qld (10), NSW (2), SA (6)
  - *O. tomentosa*, *O. ficus-indica*, *O. monacantha*, *O. strepacantha*, *O. robusta*
- Est. & damage weather-dependant
- Community workshops

Images: QDPI

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OPUNTIOID CACTI

Dactylopius tomentosus

- Further releases Qld, NSW, SA
- Opuntia ID & best practice workshops
- Long-term monitoring by NSW DPIRD showing substantial control of Hudson pear populations:

Grawin: 2,048 ▸ 977 plants/ha in 8 yrs
= **52% reduction**

Cumborah: 1,537 ▸ 584 plants/ha in 8 yrs
= **62% reduction**

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Releasing cochineal at Cooladdi, Qld

Monitoring Hudson pear cochineal impact

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PRICKLY ACACIA

Delivery Partners: QDPI

Biocontrol agent: *Acaciothrips ebneri* - a gall thrip

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PRICKLY ACACIA

Rearing, release and extension

- >2m thrips collected & released
  - 10,000 galls at 10 sites Qld
  - 5,000 galls at 4 sites NT
- Access challenges for monitoring
- 2 field days in western Qld

Field day in western Qld

Images: QDPI

Gall thrips first release in Northern Territory

Argo (amphibious all-terrain vehicle) was used to survey gall thrips on flooded site in Rockhampton

SALVINIA

Delivery Partners: NSW DPIRD, NT

Biocontrol agent: *Cyrtobagous salviniae* - a weevil

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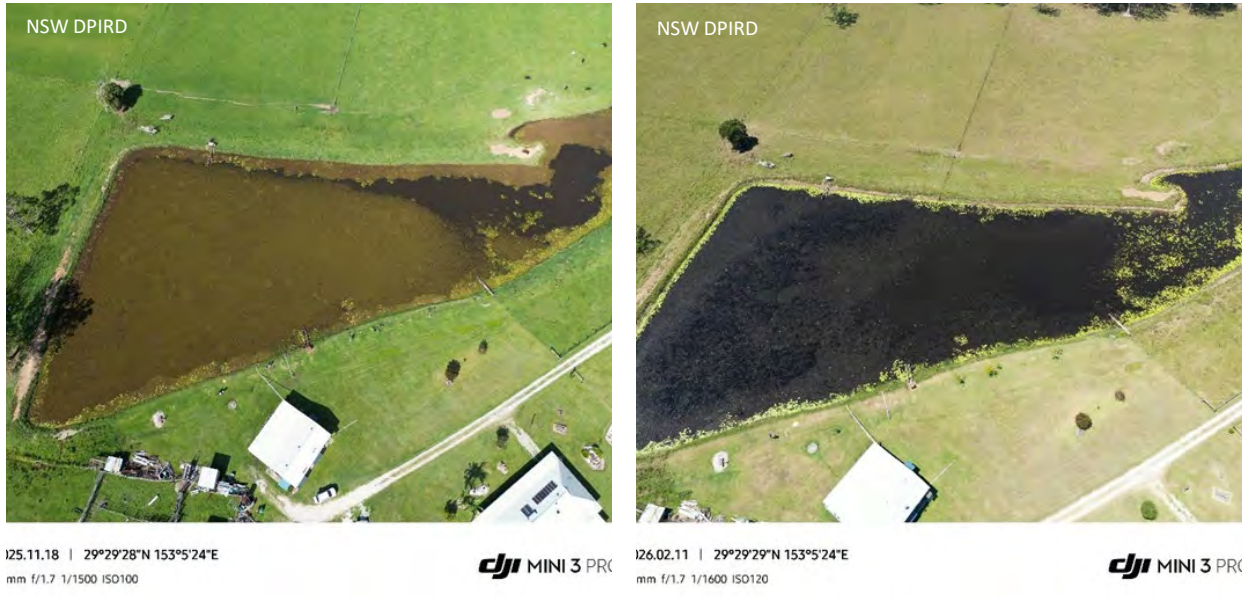
SALVINIA

Rearing, release and training

- 3 long-term monitoring sites in NSW
- 2,400+ weevils released since Feb 2026
- Heat pumps enable winter weevil breeding at Grafton Primary Industries Institute
- Training of First Nations Rangers from NT

Salvinia infestation at a long-term study site, Lawrence, NSW. Nov 2025 vs. Feb 2026



Group photo at Byron Bay wetlands of personnel from NSW DPIRD, NT Government, Parks Australia, Djurrubu Rangers, Malak Malak rangers, and consultants involved at Byron Bay wetlands - Nov 2025

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SALVINIA

First Nations leadership

- NT Government working with Djurrubu Rangers:
  - improve weevil rearing
  - support ranger training and capacity building
  - refine monitoring methods
  - plan implementation of release and monitoring activities across priority wetlands in Kakadu NP

Images: NT Government

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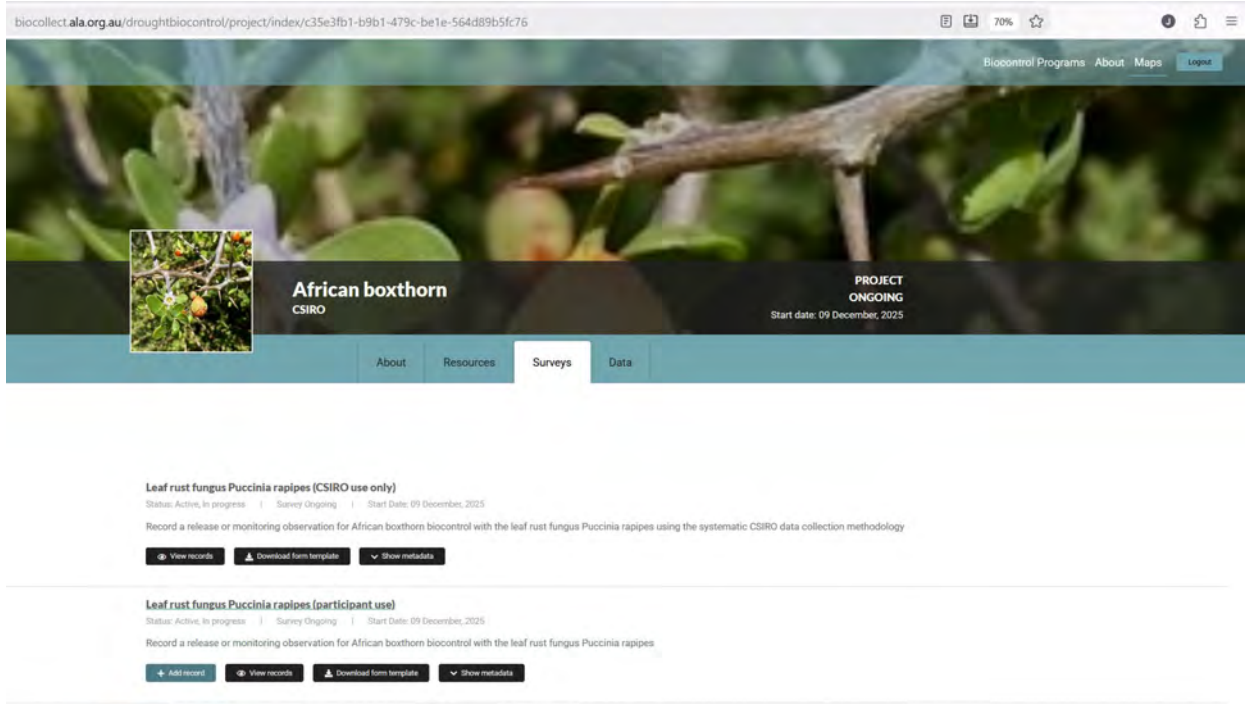
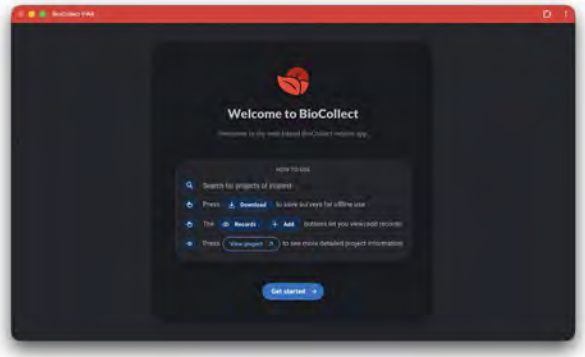
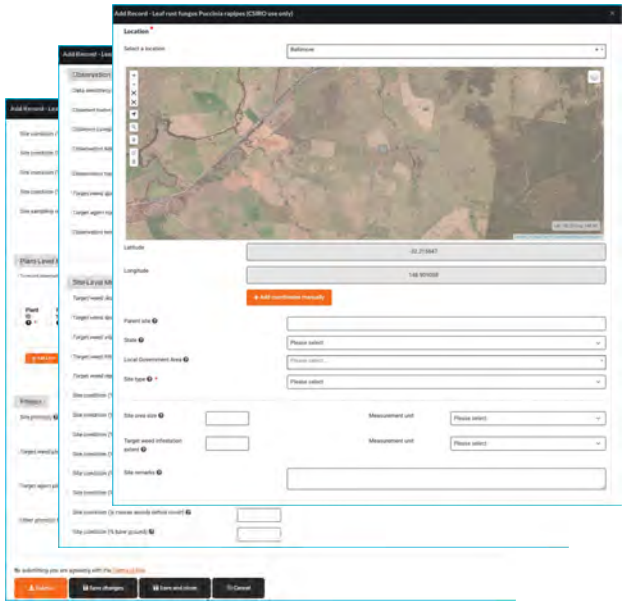
DATA ANALYTICS

Delivery Partners: CSIRO
Biocontrol agent: *all*

- Establish a contemporary, digital, data recording and analysis system to measure impacts achieved from biocontrol agent releases
  - Within Atlas of Living Australia's BioCollect platform
  - Starting with African boxthorn leaf rust fungus







Images: CSIRO

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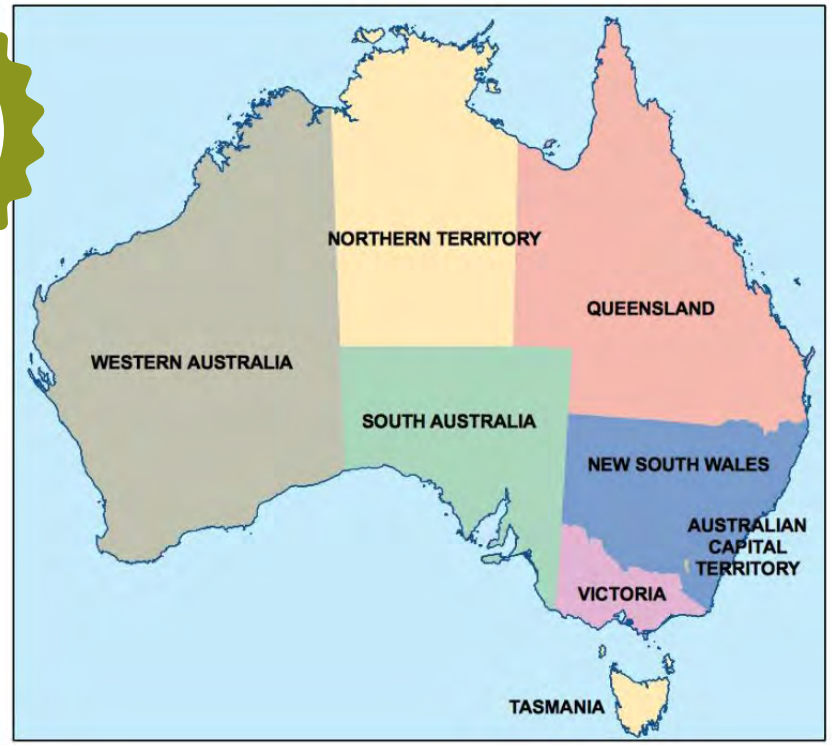
Weed biocontrol network for drought resilience

A nationally coordinated consortium to fast-track the mass-rearing, release, monitoring, and evaluation of biocontrol agents targeting 7 priority weed taxa

YEAR 1