zoetis

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For the latest in red meat research and development

Broken Hill, NSW – 14 October 2026

Rangelands Living Skin

Key findings and practical insights

Dr Sarah McDonald

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Rangelands Living Skin

1. Measure and understand productivity, business and environmental impacts of a variety of interventions and practices designed to achieve producer- and context-specific outcomes.

2. Improving capacity of producers to trial and adopt new practices to improve productivity, environmental and profitability outcomes







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Research

Herd impact & deep ripping





Water ponding

Biological stimulants



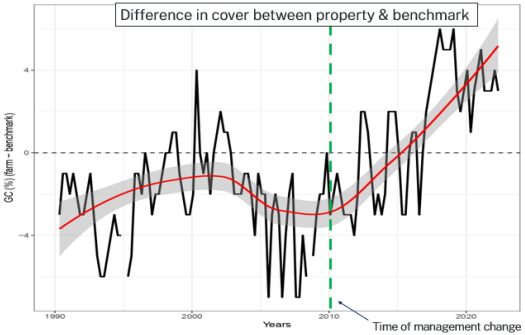
Soil carbon

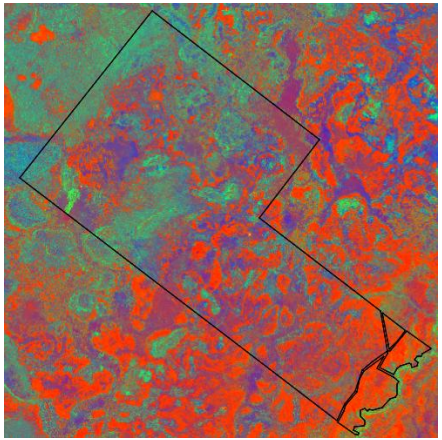


Gypsum rates



Grazing management





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Extension



- 1M+ hectares
- 17 in-person field day and workshop events
- 13 online webinars, discussions and workshops
- 200+ unique attendees (rangeland producers and stakeholders)
- Newsletter articles
- Fact sheets
- Presentations
- Case studies (Soils For Life)
- Social media





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Rangelands Living Skin






Designed in close collaboration with producers alongside researchers, educators, carbon project managers, extension and communication organisations

NSW Department of Primary Industries

NSW Local Land Services

RCS

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Australian National University

CarbonLink

SoilsForLife

SelectCarbon

Producer-centric design and involvement

- Select and install trials
- Attend and contribute to project meetings and milestone reports
- Monitor soil, pasture and landscape attributes across trial sites
- Provide input and feedback to planning of extension events
- Host & present at on-property field days and workshops
- Review project communications and extension outputs
- Promote project and project findings through networks, presentations and case studies.





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Fostering producer engagement

- **Set realistic and achievable R, D & E objectives**
- **Co-design** R & D projects with producers and industry stakeholder
- Outline a **clear value proposition** for producers
- **Engage producers in all aspects of project**
- **Incorporate producer knowledge** and feedback into project design, activities and outputs
- **Value the time, expertise and contribution** of producers
- **Encourage producer-led initiatives** and peer-peer learning
- **Highlight success stories**
- **Provide opportunities for connection** between producers and with industry experts



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Demonstration sites



Herd effect & deep ripping – Bokhara Plains



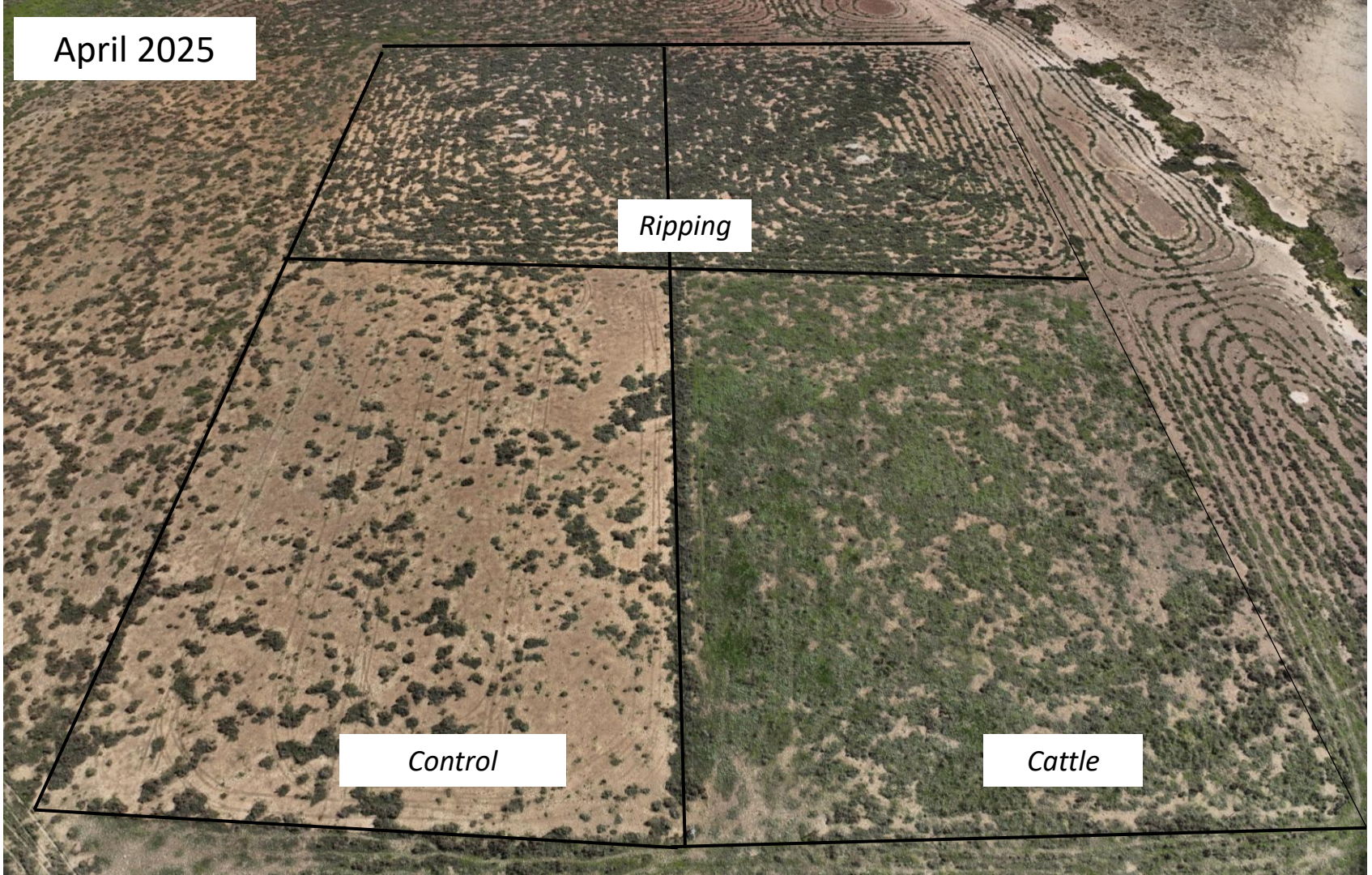


June 2024 – (2 years after initial cattle)








April 2025
Ripping
Control
Cattle

Waterponding – Willow Point station





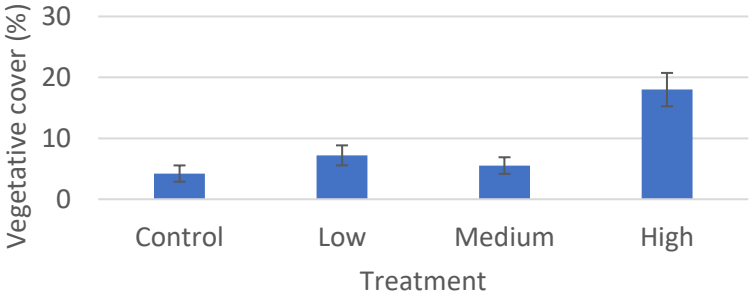








Gypsum - Gurrawarra









Grazing management

Does adoption of planned grazing management increase ground cover in NSW rangelands?

Seven rangeland grazing properties

→ Flexible stocking rates, matched to feed availability

→ Moving stock through multiple paddocks (30-170) & long rest

→ Managing with the aim to improve land condition, biodiversity and soils

→ Maintaining profitable businesses



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Grazing management

Does adoption of planned grazing management increase ground cover in NSW rangelands?

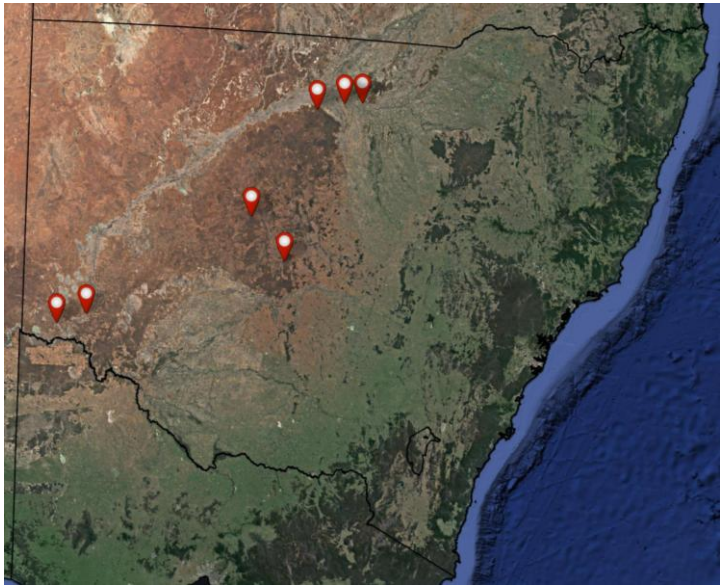
Seven rangeland grazing properties

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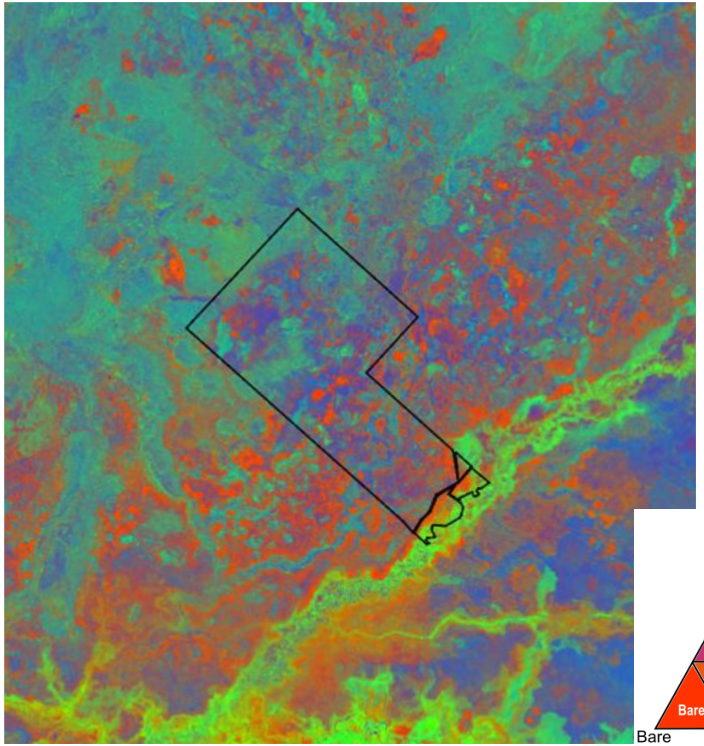


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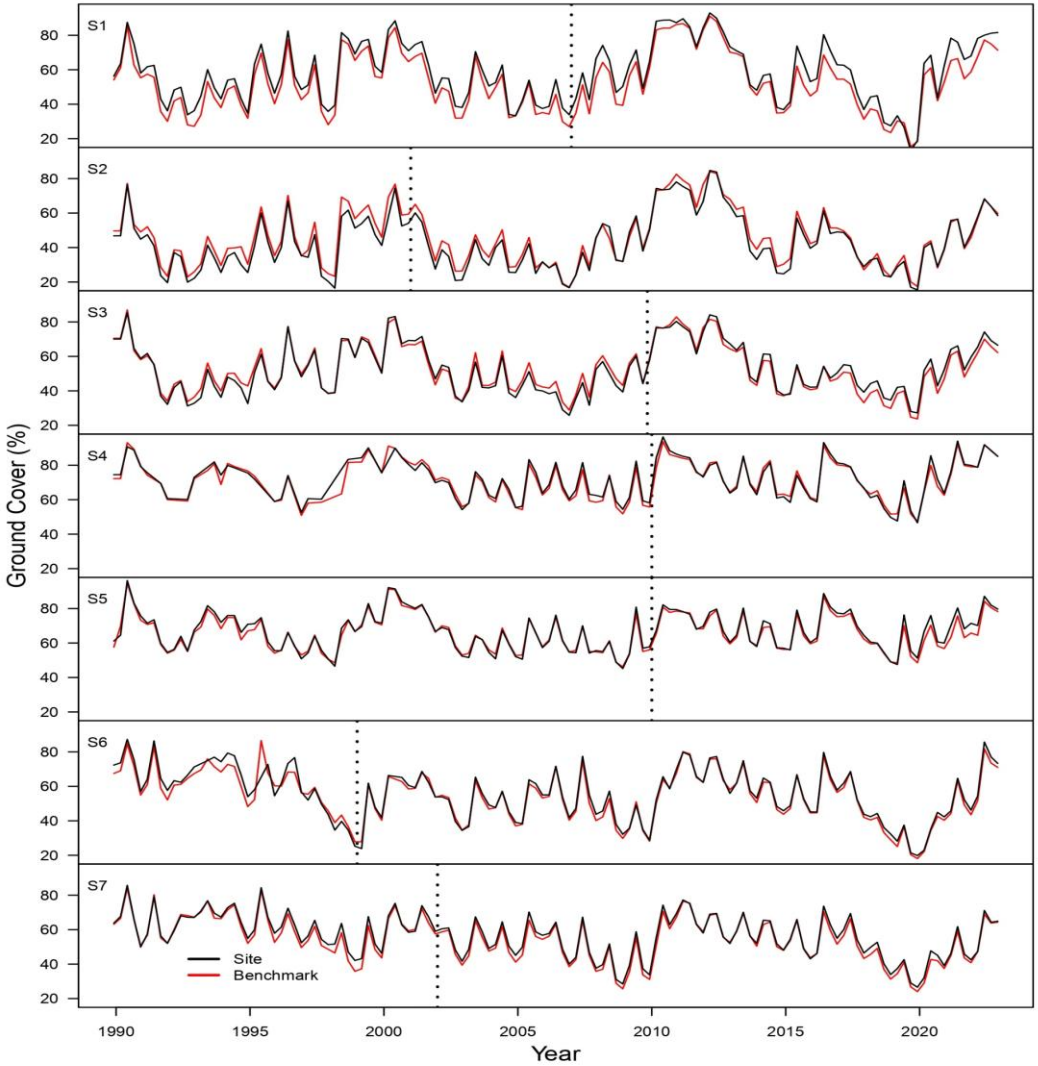
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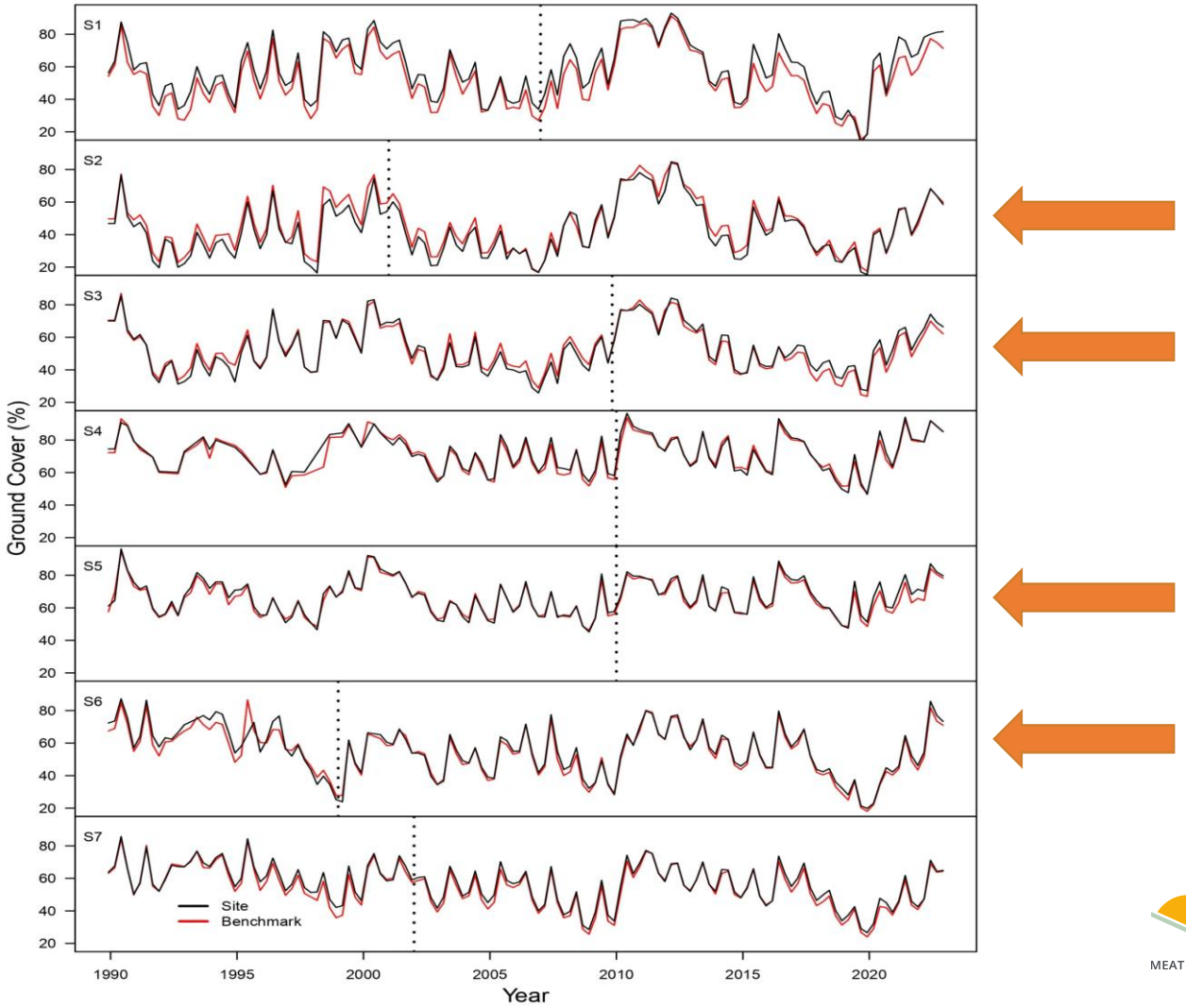
Grazing management





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S1
S2
S3
S4
S5
S6
S7
Ground Cover (%)
20
40
60
80
Site
Benchmark
1990
1995
2000
2005
2010
2015
2020
Year


S1
S2
S3
S4
S5
S6
S7
Ground Cover (%)
20
40
60
80
Site
Benchmark
1990
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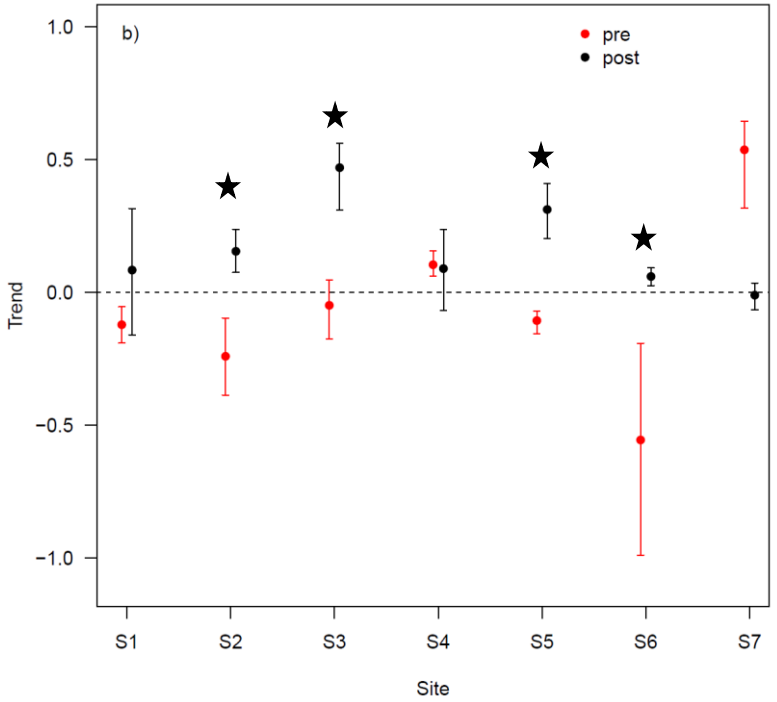
Grazing management – take home

Evidence that changed grazing management can benefit landscape condition (significant (2-7%) increase in cover at 4 of 7 sites)

But difference is dependent on property, land type and preceding rainfall

And we did not monitor changes in livestock productivity, vegetation composition and diversity or other landscape indicators which may be affected by grazing management.

https://www.publish.csiro.au/rj/pdf/RJ24021



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Trigger points to predict low cover

Aim: Identify decision trigger-points 4-8 months before cover falls below a critical threshold

Model used 25 years of ground cover data from 24 properties in western NSW

→ Critical cover threshold level (Historic 20th cover decile in summer)

→ Trigger month (between June-August, when a decision needs to be made)

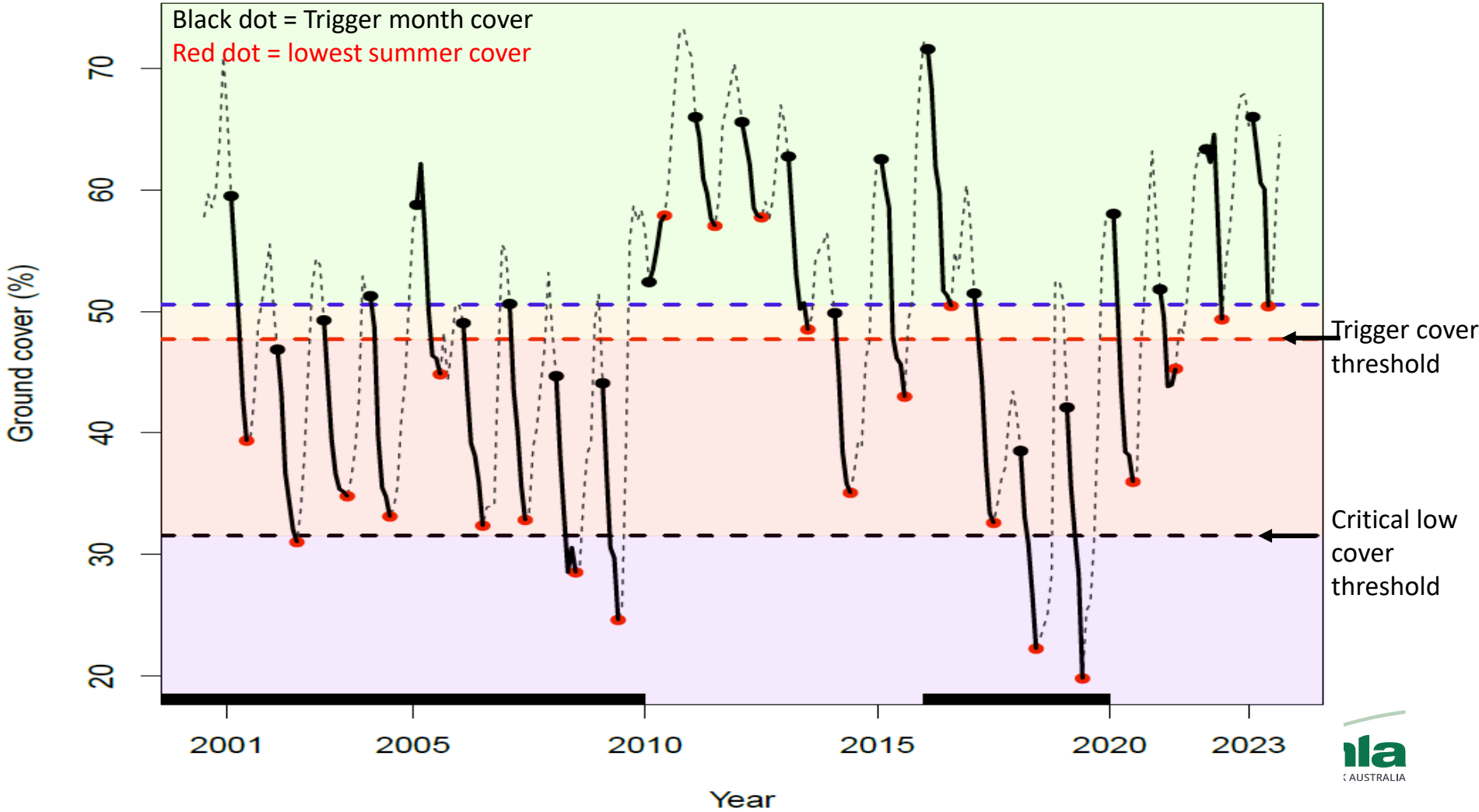
→ Trigger cover (threshold for decision to be made)

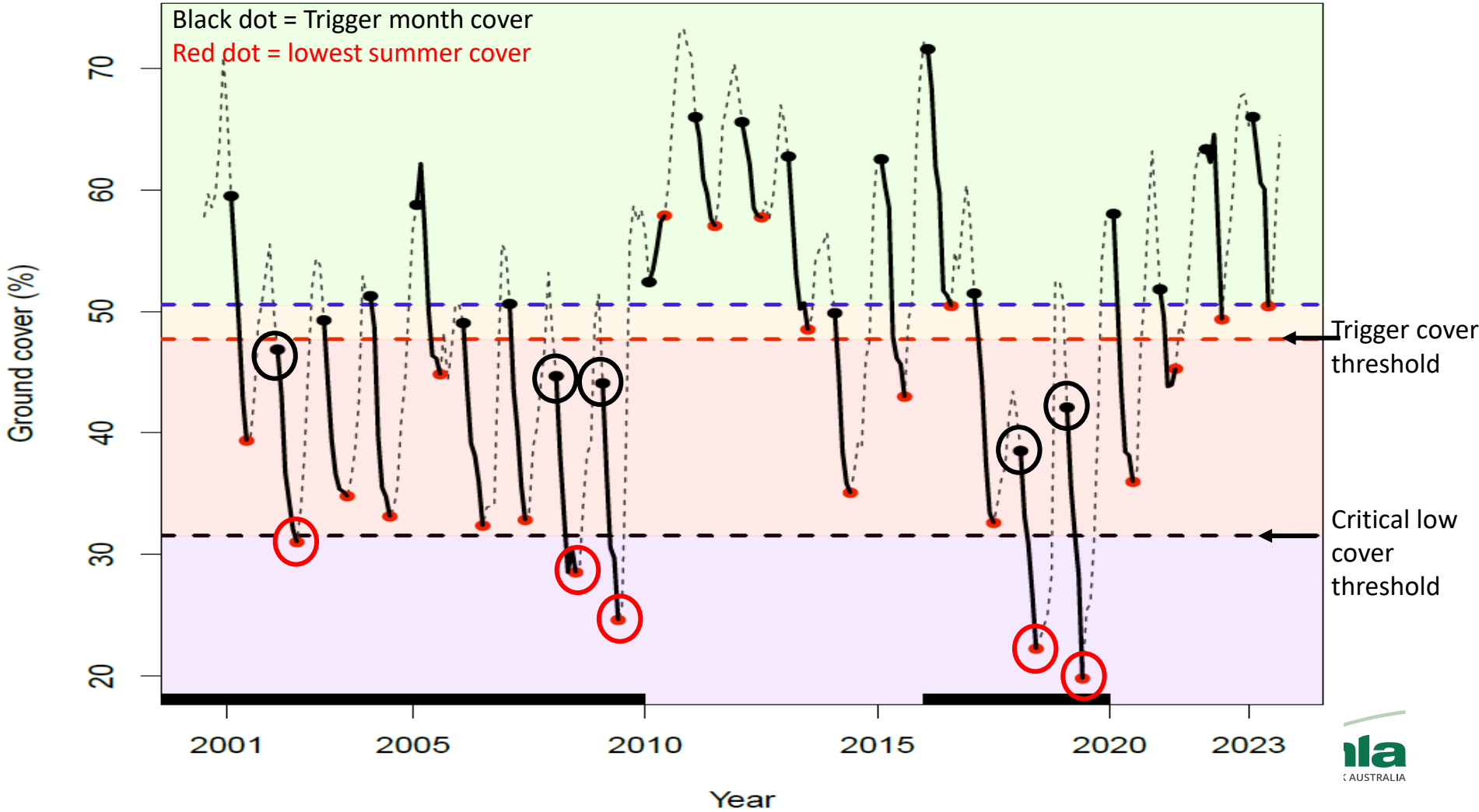
When the cover drops below the threshold during the trigger month, it is likely to fall below the critical cover threshold in the next 4–8 months

Monitoring cover levels in the trigger month can warn whether a change in land management is required to maintain cover and avoid land degradation

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Black dot = Trigger month cover
Red dot = lowest summer cover
Ground cover (%)
70
60
50
40
30
20
2001
2005
2010
2015
2020
2023
Year
Trigger cover threshold
Critical low cover threshold


Black dot = Trigger month cover
Red dot = lowest summer cover
Ground cover (%)
70
60
50
40
30
20
2001
2005
2010
2015
2020
2023
Year
Trigger cover threshold
Critical low cover threshold

Trigger points to predict low cover

- Tool successfully identified when cover is above or below critical threshold in 89% of years.
- If the tool is adopted and management adjusted, expect to see a reduction in % of years below critical threshold.

What's next?

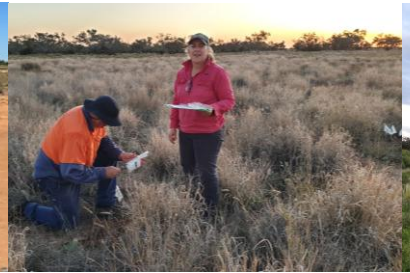
- Undergoing further development and testing with John Leys via CSU, LLS, CSIRO
- CSIRO are developing web tool for landholders
- Landholders provide polygon and receive traffic light indicator & data
- Potential to build into other farm management tools via API (longer term)

https://connectsci.au/rj/article-pdf/doi/10.1071/RJ25051/1949301/rj25051.pdf

Take home messages

1. Producer centric, collaborative research is important for industry relevant outcomes and maximising engagement
2. Targeted management interventions, including water ponding, deep ripping, gypsum and strategic, intensive animal impact can be used successfully to rehabilitate degraded, sodic and saline scalds in NSW rangelands.
3. Planned grazing management can significantly increase ground cover in NSW rangelands
4. Property-specific trigger points can be used to inform early management decisions to improve ground cover deficits
5. It is possible to remain a profitable livestock business whilst simultaneously managing for environmental outcomes in NSW rangeland grazing systems




Acknowledgements & Further information

- Thanks to all project partners and producers involved in project
- Project funder: Meat and Livestock Australia & NSW DPI

- E: sarah.mcdonald@dpird.nsw.gov.au

- Final report: https://www.mla.com.au/research-and-development/reports/2025/l.adp.2019---rangelands-living-skin---final-report/















