

Dung beetles – Ecosystem engineers



Jacob Berson

School of Biological Sciences

The University of Western Australia

jacob.berson@uwa.edu.au



Australian Government
Department of Agriculture
and Water Resources



THE UNIVERSITY OF
WESTERN
AUSTRALIA



Department of
Primary Industries and
Regional Development



WARREN CATCHMENTS COUNCIL



Manaaki Whenua
Landcare Research



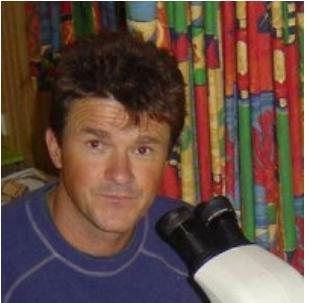
Dung Beetle
Solutions
Australia



Beetles with benefits.



Australian Government
Department of Agriculture



Beetles with benefits.

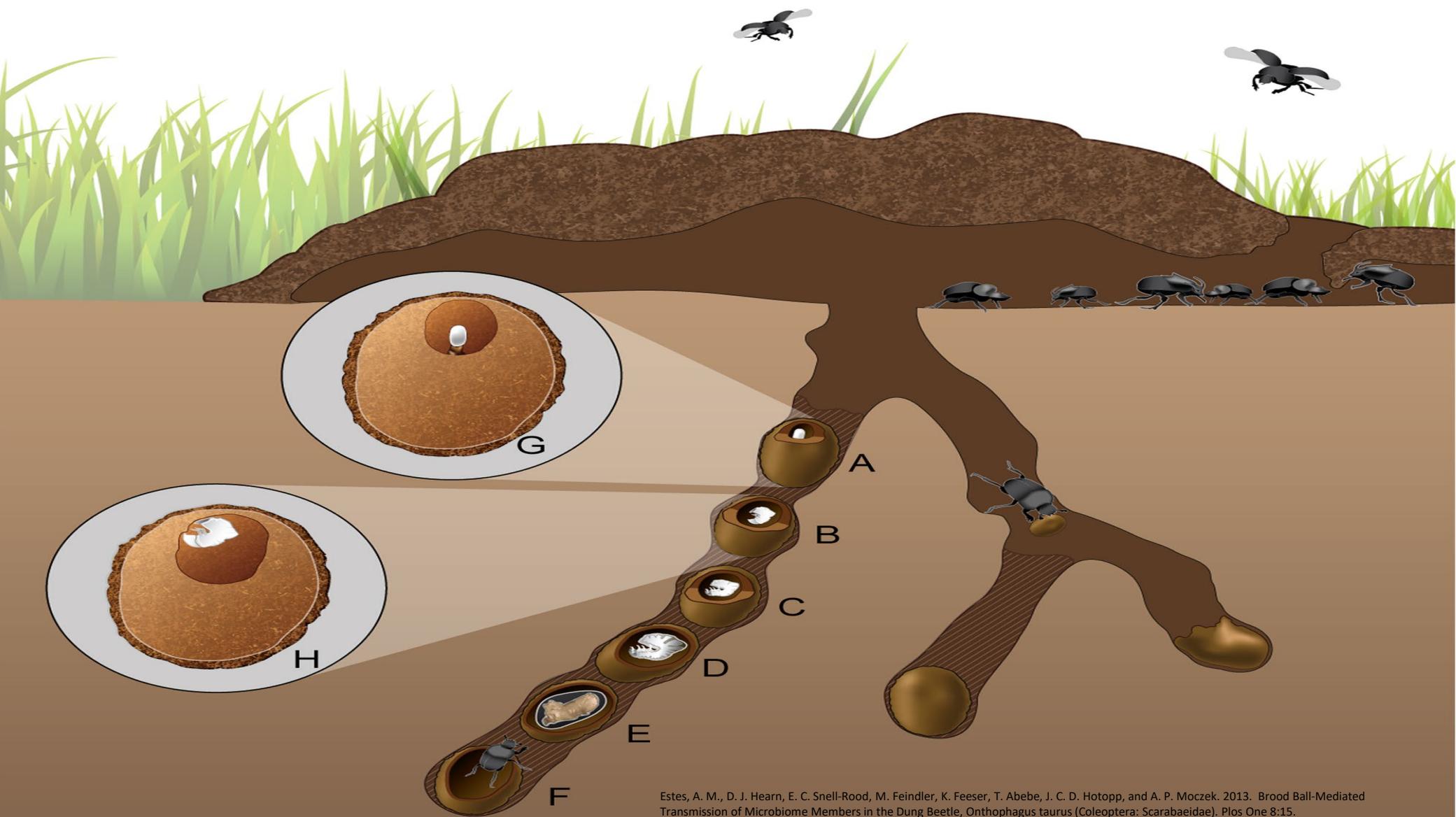


Quick overview

- Dung beetle biology
- History of exotic dung beetles
- Current research







Estes, A. M., D. J. Hearn, E. C. Snell-Rood, M. Feindler, K. Feeser, T. Abebe, J. C. D. Hotopp, and A. P. Moczek. 2013. Brood Ball-Mediated Transmission of Microbiome Members in the Dung Beetle, *Onthophagus taurus* (Coleoptera: Scarabaeidae). *Plos One* 8:15.

Original CSIRO Dung Beetle Project

- Aims:
 - Clear pastures of dung to increase pasture availability
 - Reduce dung breeding flies
- Achievements:
 - Established 23 exotic dung beetle species in Australia





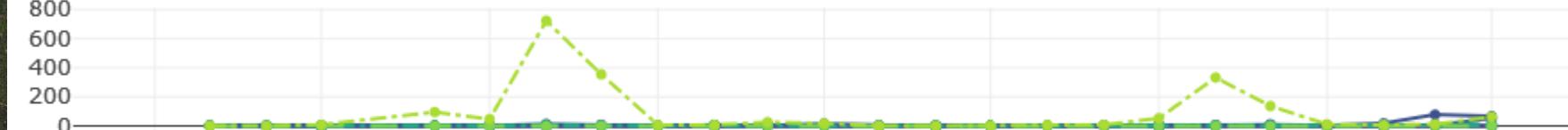
- 
- 100 monitoring sites
 - 12 monitoring groups
 - Many individual property owners



Beermullah



Bullsbrook



Mardella



Meelon



—●— *Bubas bison*

—●— *Euoniticellus fulvus*

—●— *Euoniticellus intermedius*

—●— *Euoniticellus pallipes*

—●— *Onitis alexis*

—●— *Onitis aygulus*

—●— *Onitis caffer*

—●— *Onthophagus binodis*

—●— *Onthophagus taurus*



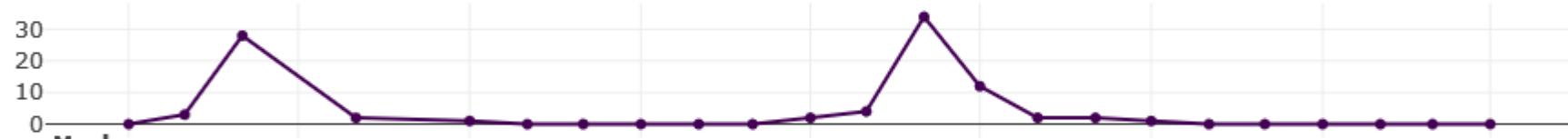
Beermullah



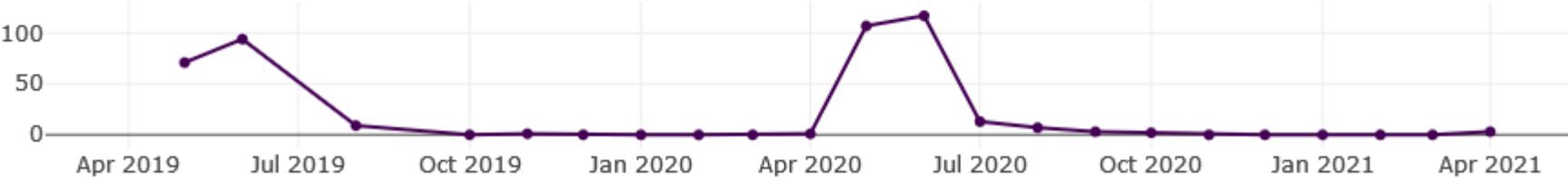
Bullsbrook



Mardella



Meelon



—●— *Bubas bison*

—●— *Euoniticellus fulvus*

—●— *Euoniticellus intermedius*

—●— *Euoniticellus pallipes*

—●— *Onitis alexis*

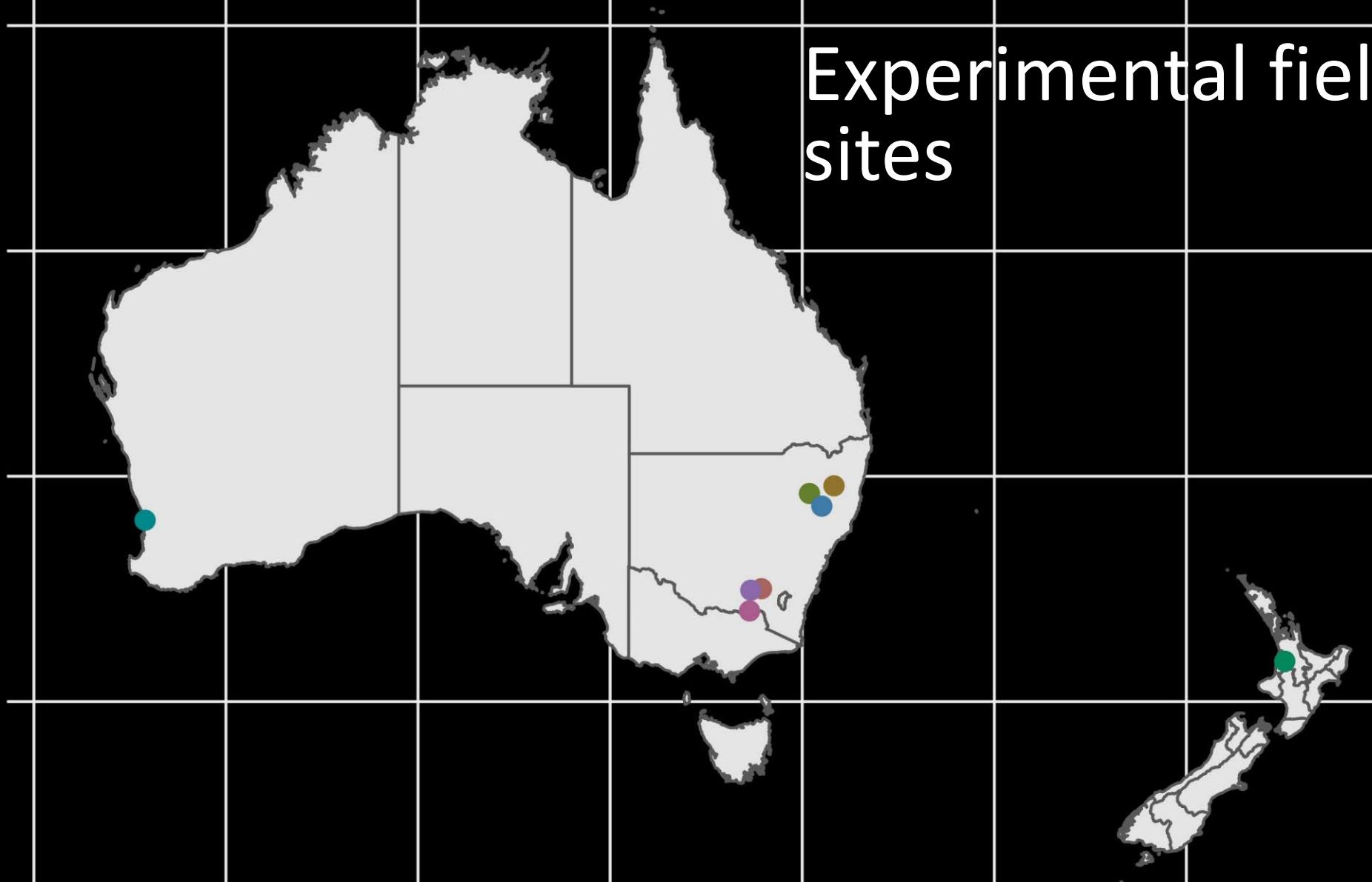
—●— *Onitis aygulus*

—●— *Onitis caffer*

—●— *Onthophagus binodis*

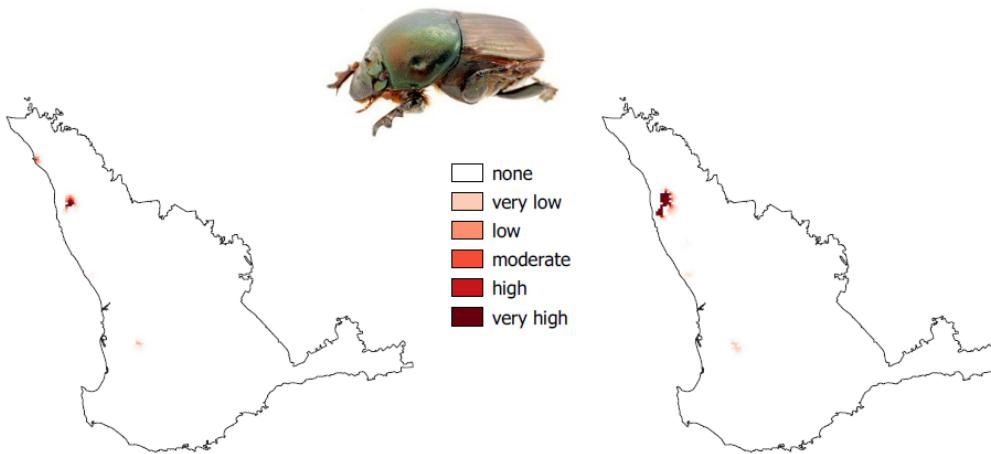
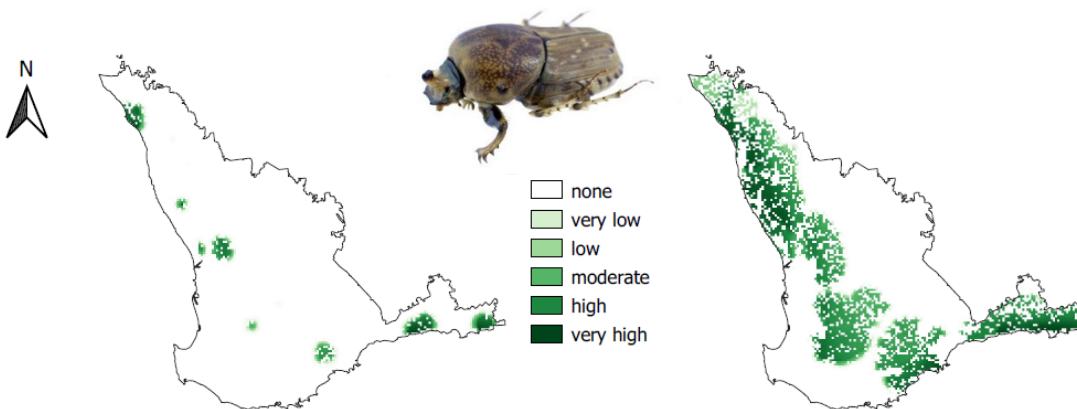
—●— *Onthophagus taurus*

Experimental field sites



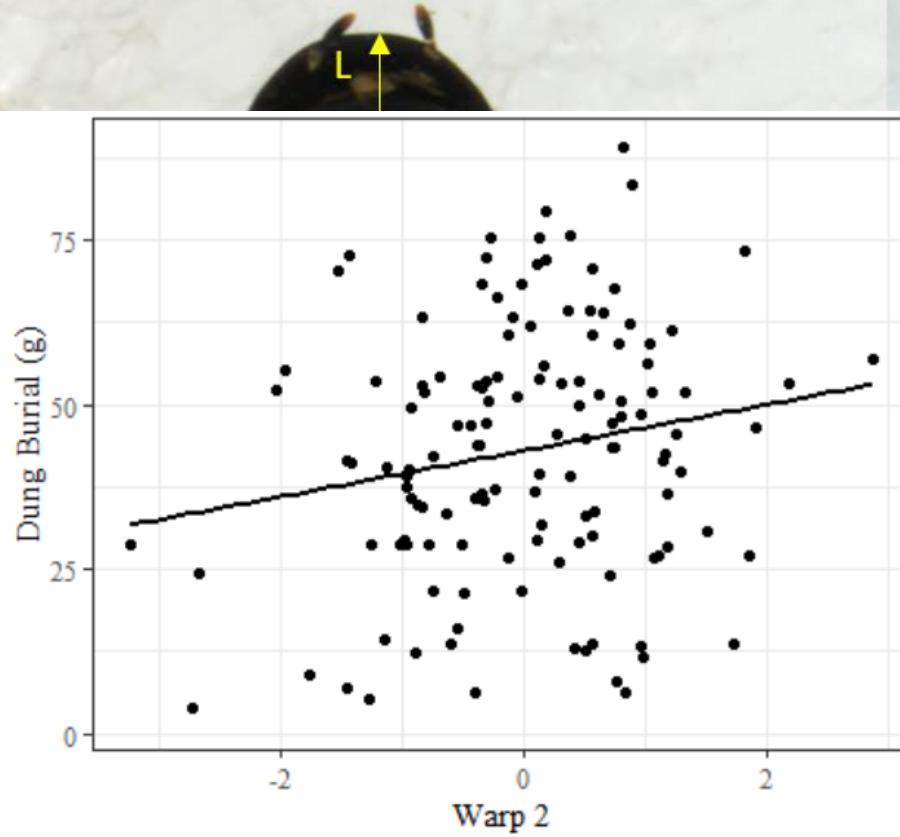
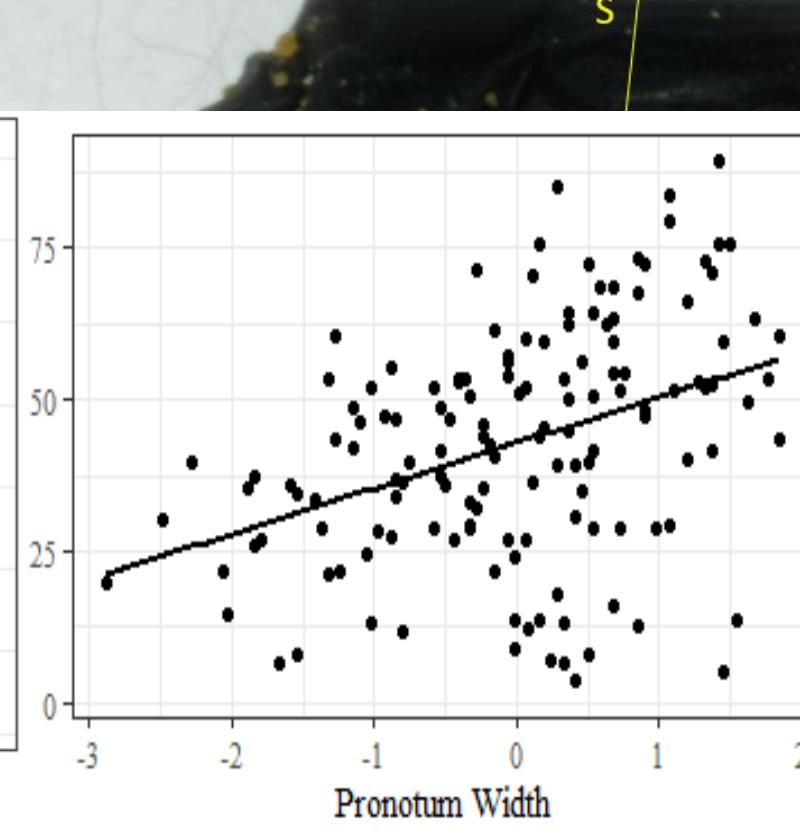
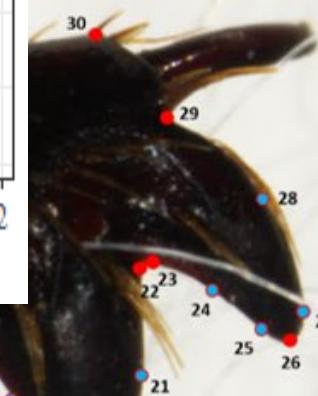
5 years from release

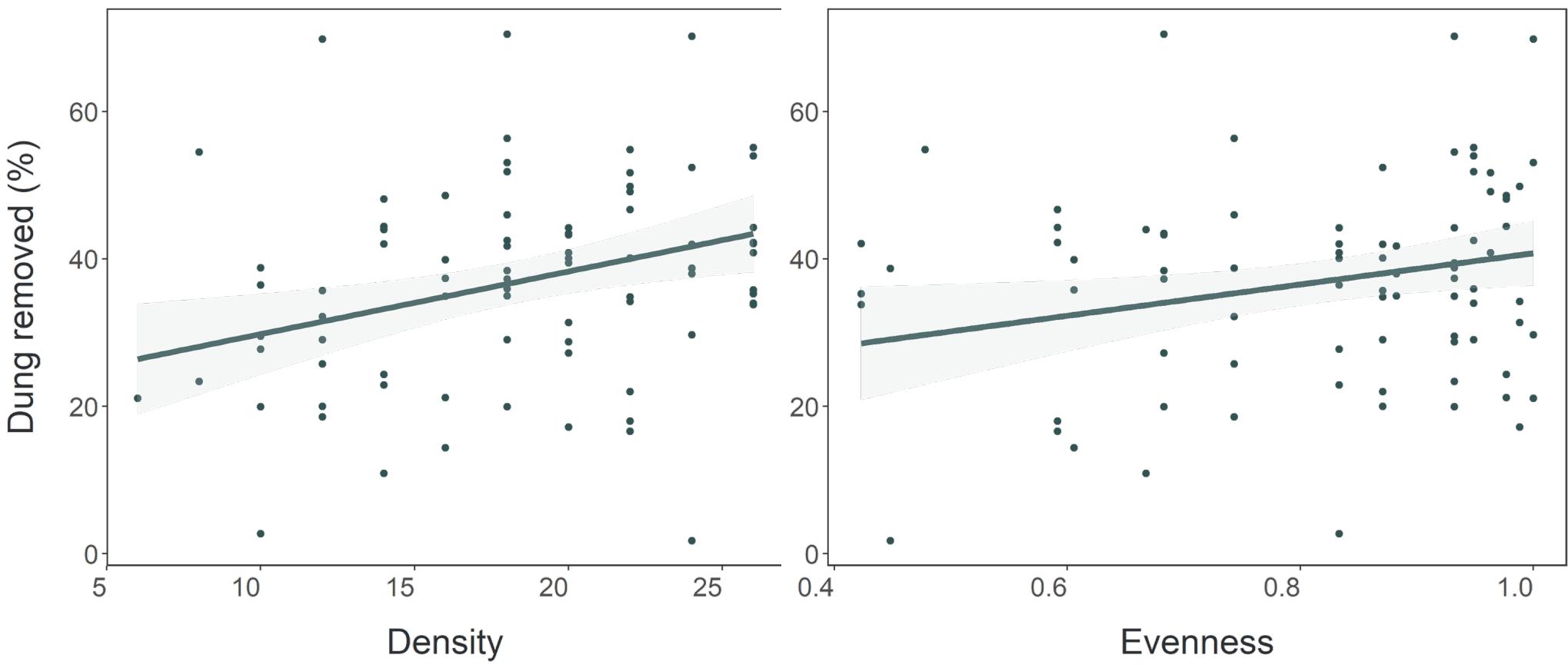
10 years from release

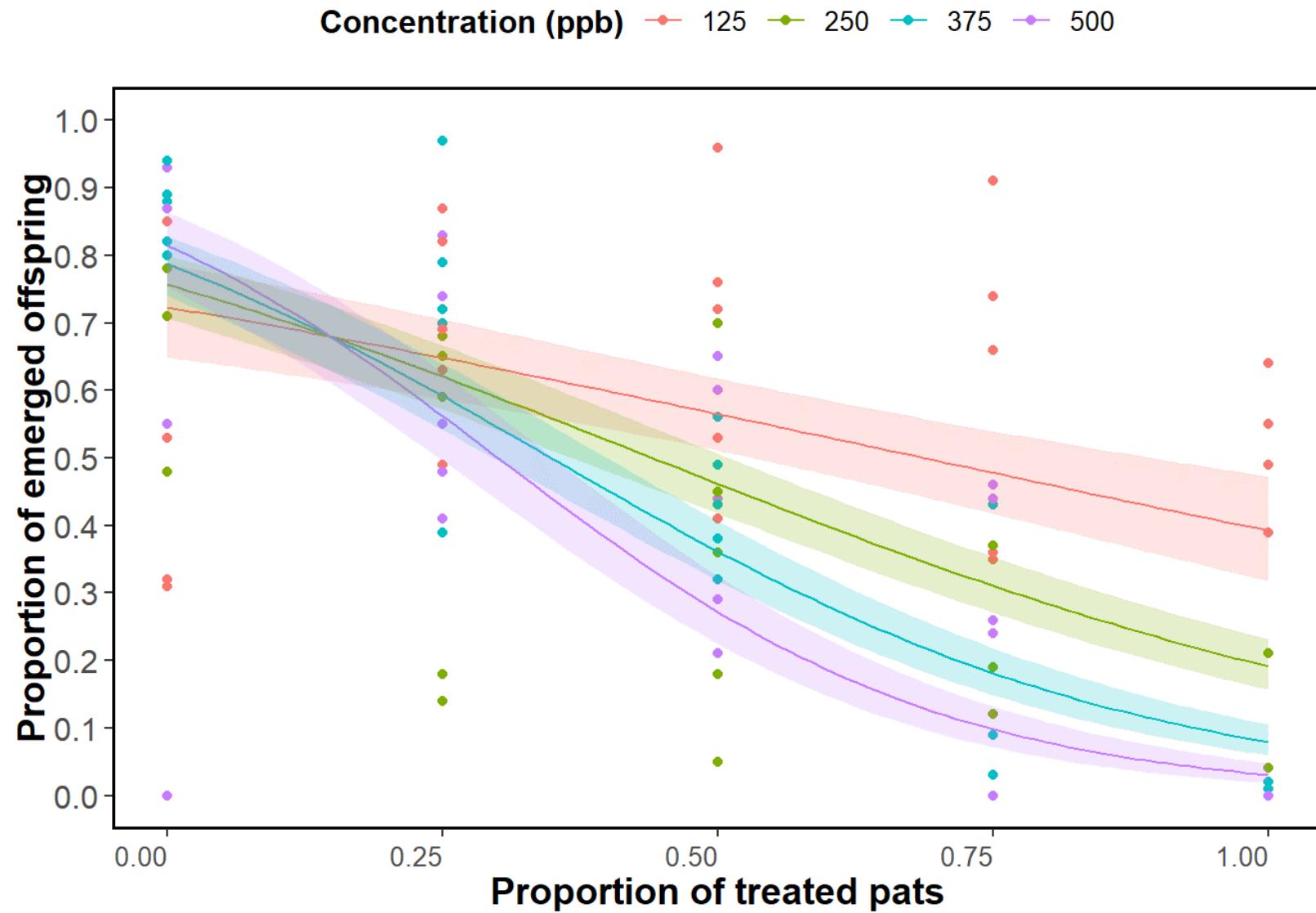


\$\$



A**B****C**





What's missing...

- Sheep
- Mixed systems
- Critters other than dung beetles



Thanks for listening!

jacob.berson@uwa.edu.au

dungbeetles.com.au

This project is supported by Meat & Livestock Australia, through funding from the Australian Government Department of Agriculture and Water Resources as part of its Rural R&D for Profit program.



**DUNG
BEETLE**
Ecosystem Engineers