

# Unintentional human mediated weed seeds dispersal

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# Structure of presentation

- Background
- Rationale & aims
- What we know
- Implication for management
- Further reading



# Background

- Weed species
- Ecological impact
  - ✓ soil properties,
  - ✓ fire regimes, &
  - ✓ Hydrology
- Economic impact
  - ✓ ~ 20M AUS\$ in 01/02





# Background

“Tomorrow’s weeds are already here”. (Tim Low, Feral Future)

Human mediated dispersal

Includes seed on:

- Equipment
- Clothing
- Vehicles

Why is this a problem?



# More humans moving:

- By trains, planes & automobiles
  - > 32.5 M crossings of Aus's international borders (2013-14)
  - 108 million visits to parks in Au
  - >12.7 M passenger cars in Aus
- Potential increase in **human mediated dispersal**





# Conceptual model

## THE CONVERSATION

Academic rigour, journalistic flair

Search analysis, research, academics ...

Arts + Culture Business + Economy Education **Environment + Energy** Health + Medicine Politics + Society Science + Technology

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23 December 2013, 7:44am AEDT

### Wash and go for a weed-free Christmas holiday

#### AUTHORS



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#### DISCLOSURE STATEMENT

Catherine Pickering has received funding and/or conducted consultancies from the Queensland Government, Brisbane City Council, New South Wales National Parks and the Australian Alos Liaison



While native in Europe, gorse has become one of the world's worst weeds, particularly in Australia and New Zealand. [Photo: www.ozherbarists.com](#)

# So what do we know?

Cars including those use by park visitors can disperse weed seeds

- From 13 studies:
- 626 species (599 weeds)
- 370- naturalized in Australia
- Seed traits matters:
- Small, shorter & lighter
- persistent seed bank



## Are Weeds Hitchhiking a Ride on Your Car? A Systematic Review of Seed Dispersal on Cars

Michael Ansong<sup>1</sup>, Catherine Pickering



# What about visitors clothing?

- From 21 studies:
- 449 species (391 weeds)
- 211- naturalized in Australia
- Seed traits
  - long awns, hairs & hooks
- Clothing:
  - clothing type, material type



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Journal of Environmental Management

journal homepage: [www.elsevier.com/locate/jenvman](http://www.elsevier.com/locate/jenvman)



Weed seeds on clothing: A global review

Michael Ansong\*, Catherine Pickering





# Weed seeds can also germinate from dungs

- From 15 studies:
- 249 species (246 weeds)
- 156- naturalized in Australia
- Seed traits important:
  - smaller, shorter & lighter
  - hard seed coat
  - persist in soil

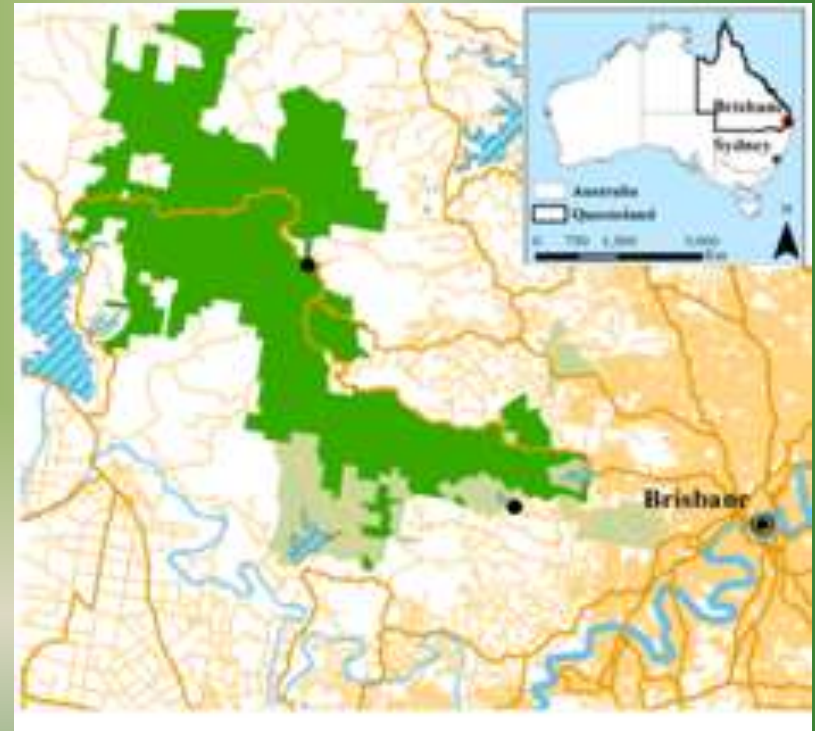


A global review of weeds that can germinate from horse dung

By Michael Ansong and Catherine Pickering

# Are park visitors aware?

- Yes,
- 49% support cleaning visitor's clothing before entering parks



D'Aguilar National Park

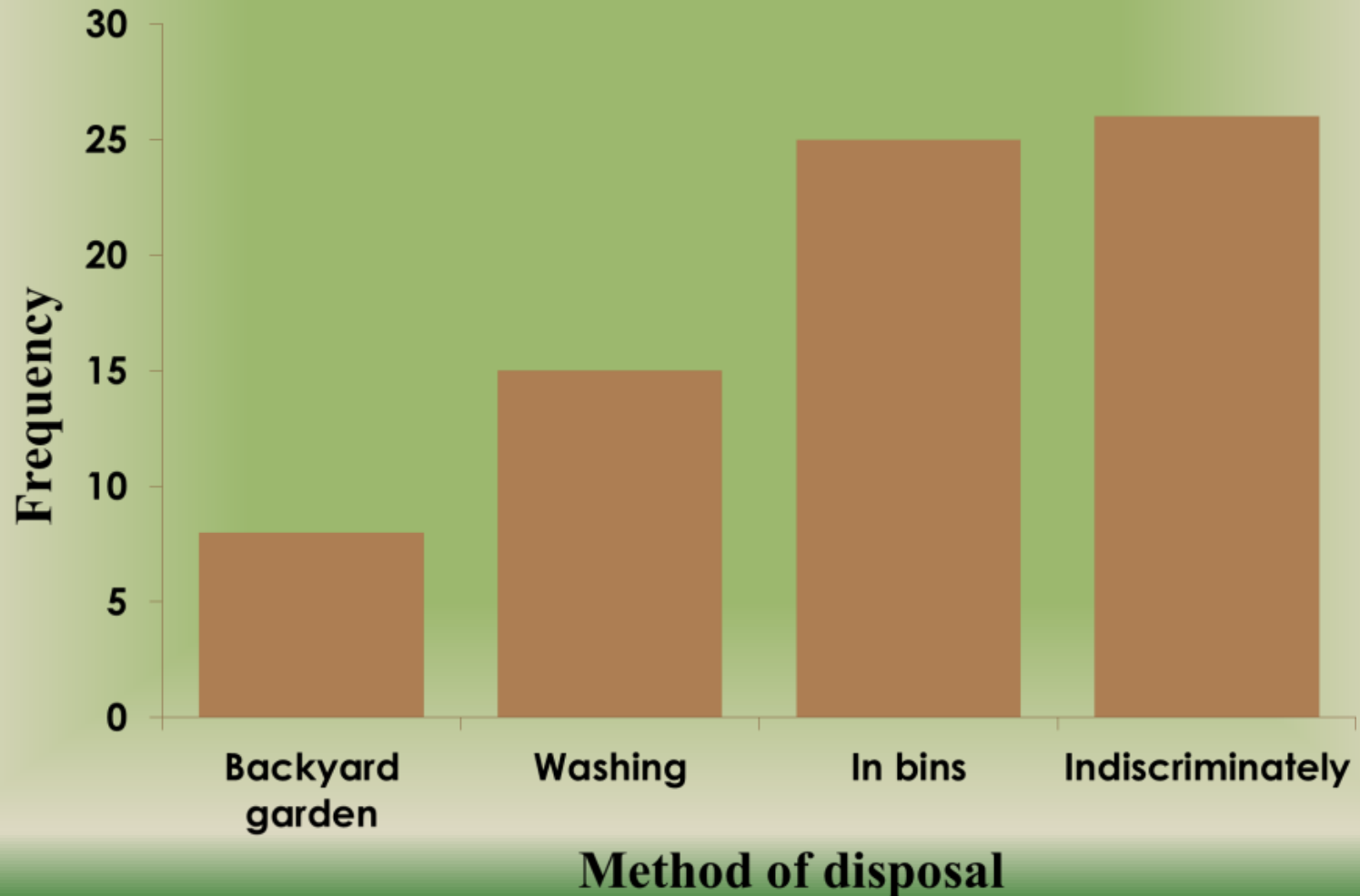


How concerned are they about weeds?

**Was this reflected on how they disposed of seeds that they found attached to their clothing?**

# When asked how they dispose of seeds...

- Method of disposing seed varied





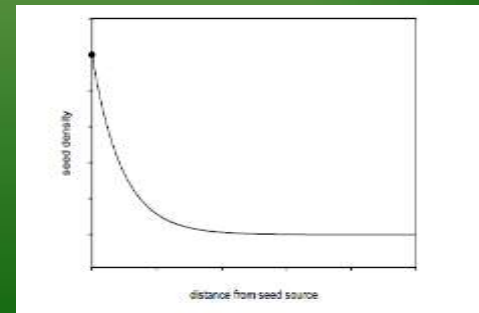
# Management implication

- More educational programmes
- How can we help?
  - inspecting & cleaning
  - covering socks, zipped pockets
  - avoiding walking through weedy areas
  - mow road verges & around car parks



# Ongoing work

- Modelling seed retention curves for weed species on clothing
- Using seed traits to predict attachment potential of weed seeds on different types of clothing





# Further reading

1. Ansong, M. and Pickering, C. (2013a). Are weeds hitchhiking a ride on your car? A systematic review of seed dispersal on cars. *PLoS One* 8, e80275.
2. Ansong M. & Pickering C. (2013b) Long-distance dispersal of Black Spear Grass (*Heteropogon contortus*) seed on socks and trouser legs by walkers in Kakadu National Park. *Ecol Manag and Restor* 14, 71-4.
3. Ansong, M. and Pickering, C. (2013c). A global review of weeds that can germinate from horse dung. *Ecol Manag and Restor* 14, 216-223.
4. Ansong, M. and Pickering, C. (2014a). Weed seeds on clothing: a global review. *J Environ Manage* 144, 203- 211.
5. Ansong, M. and Pickering, C. (2014b). Weed hygiene: what do we do with seeds we find on our clothing? Paper presented at the 19th Australiasian Weeds Conference-Science, Community and Food Security: the weed Challenge.
6. Ansong M. (2014c) Watch out for free riders: unintentional weed seed dispersal. *WeedWise* 15, 4-5

# Acknowledgement

- To my supervisors
- Lab group members
- Volunteers
- Griffith university

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