

Harnessing the problem as a solution: *Imperata* management for tropical reforestation

The problem: *Imperata* grassland ecology

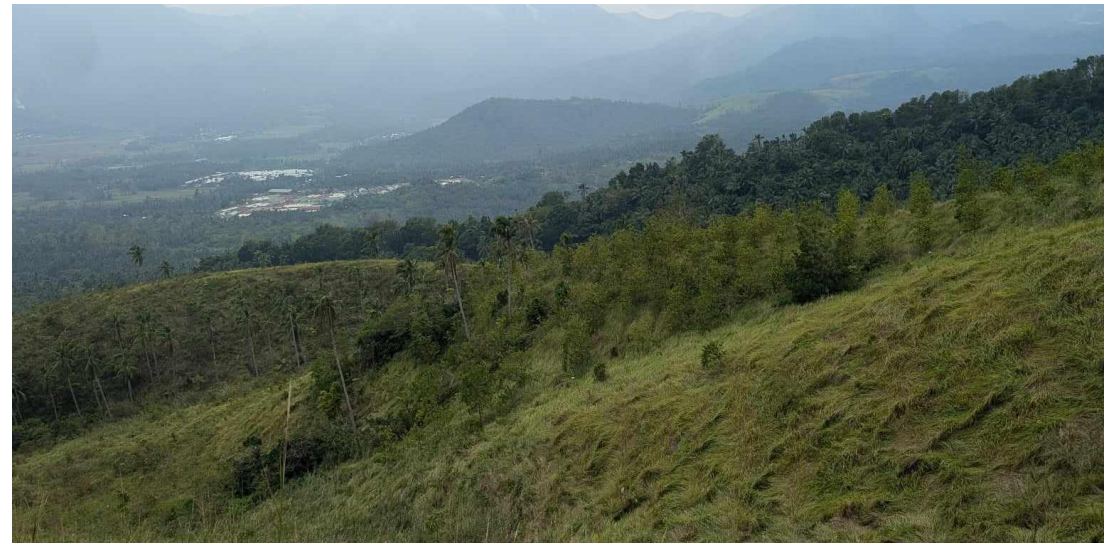
SUCCESSFUL REFORESTATION

- Fast growing trees, high survival
 - Cost-effective



BARRIERS

- *Imperata* shades out trees
 - Expensive to manage
 - Remote areas
- Limited labour availability



Research to maximise labour investment

1. How does *Imperata* affect seedling growth and survival through above- and below-ground interactions?
2. How can *Imperata* regrowth be effectively reduced?



Field experiment to test *Imperata* management

300 *Pterocarpus indicus* and *Swietenia macrophylla* seedlings



1 m cut



2 m cut



Mulch

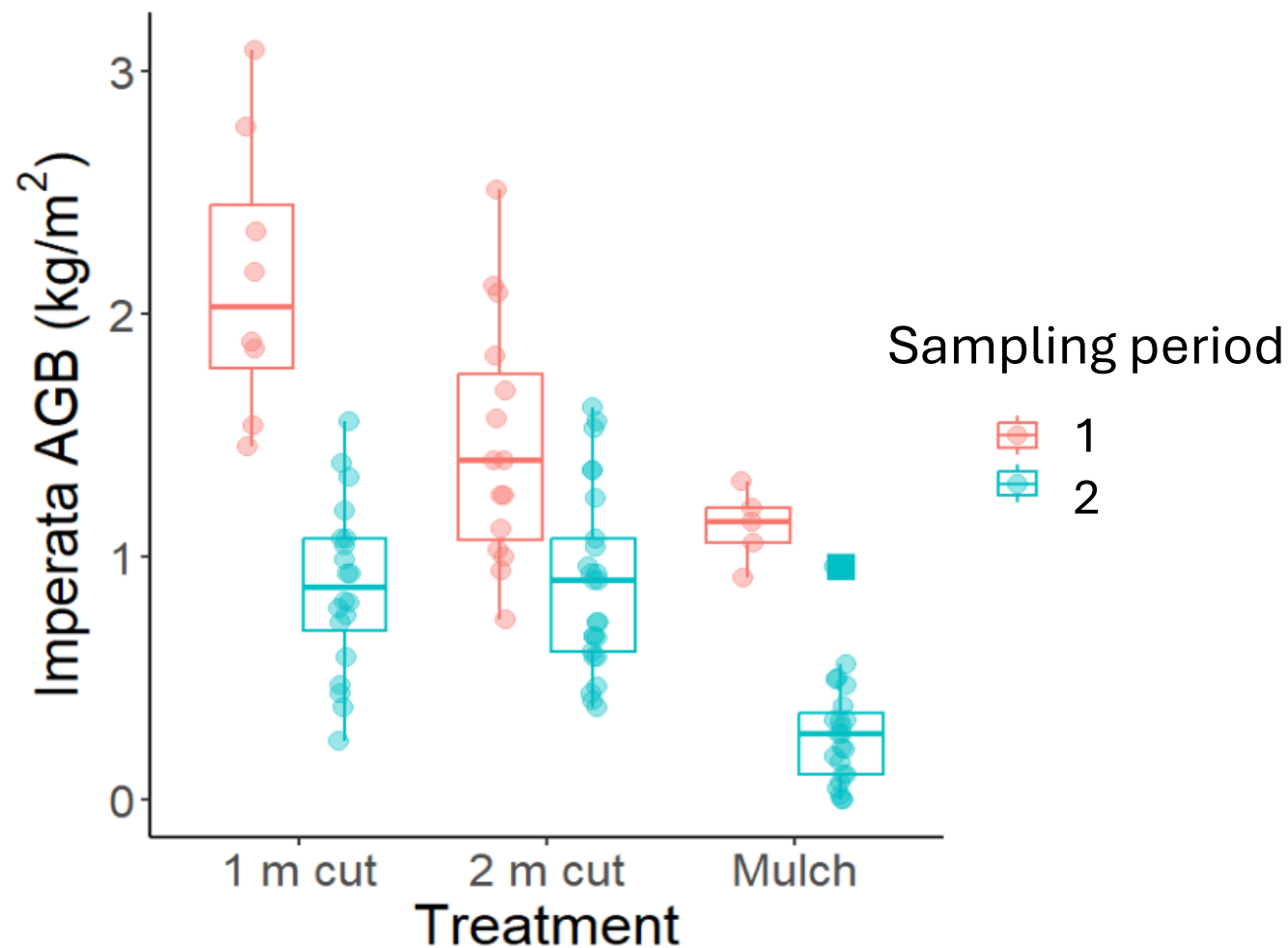
Rhizomes
removed



Root barrier
(+ rhizomes
removed)

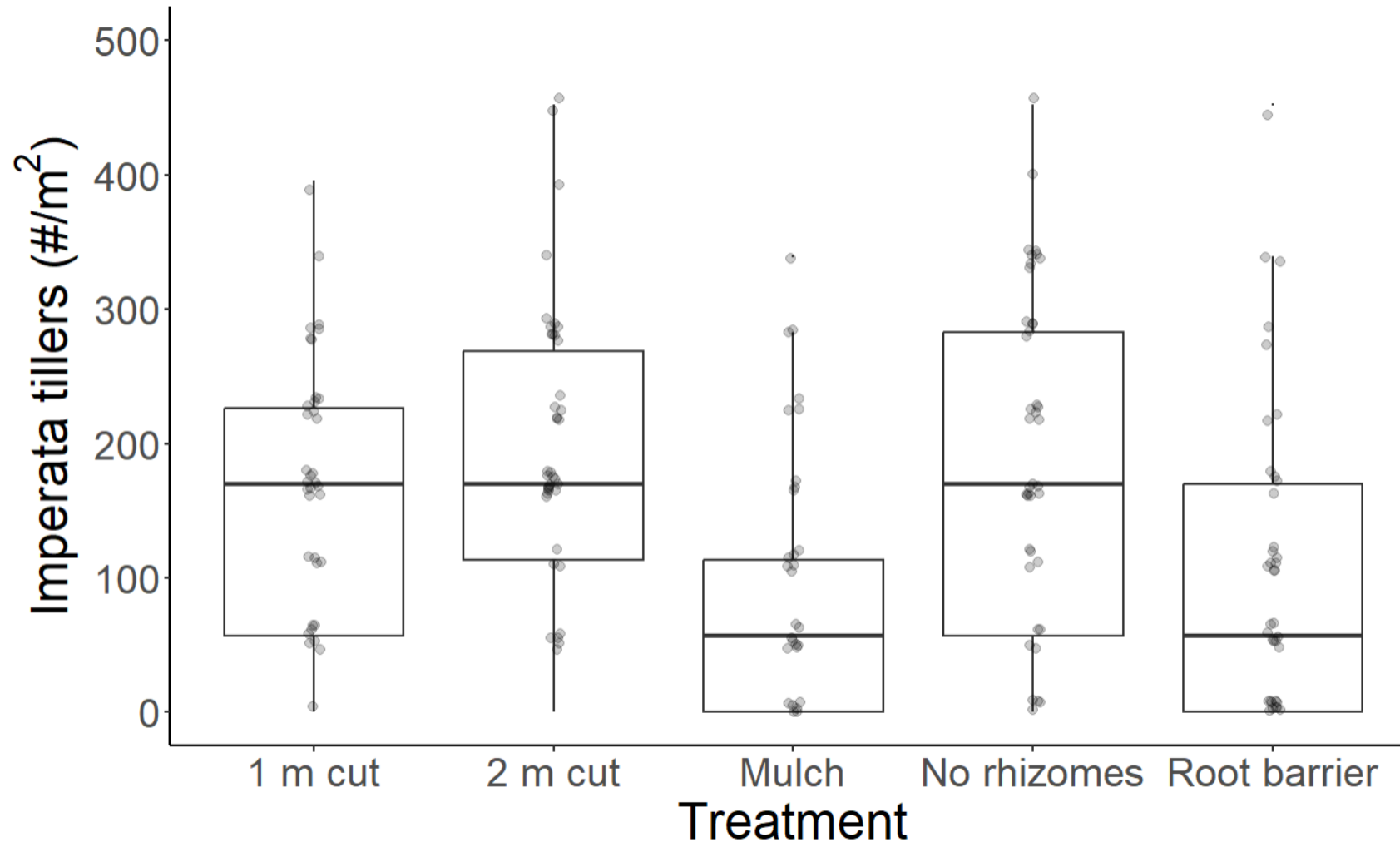


Mulching reduced *Imperata* biomass by 70%



Mulching halved number of *Imperata* tillers

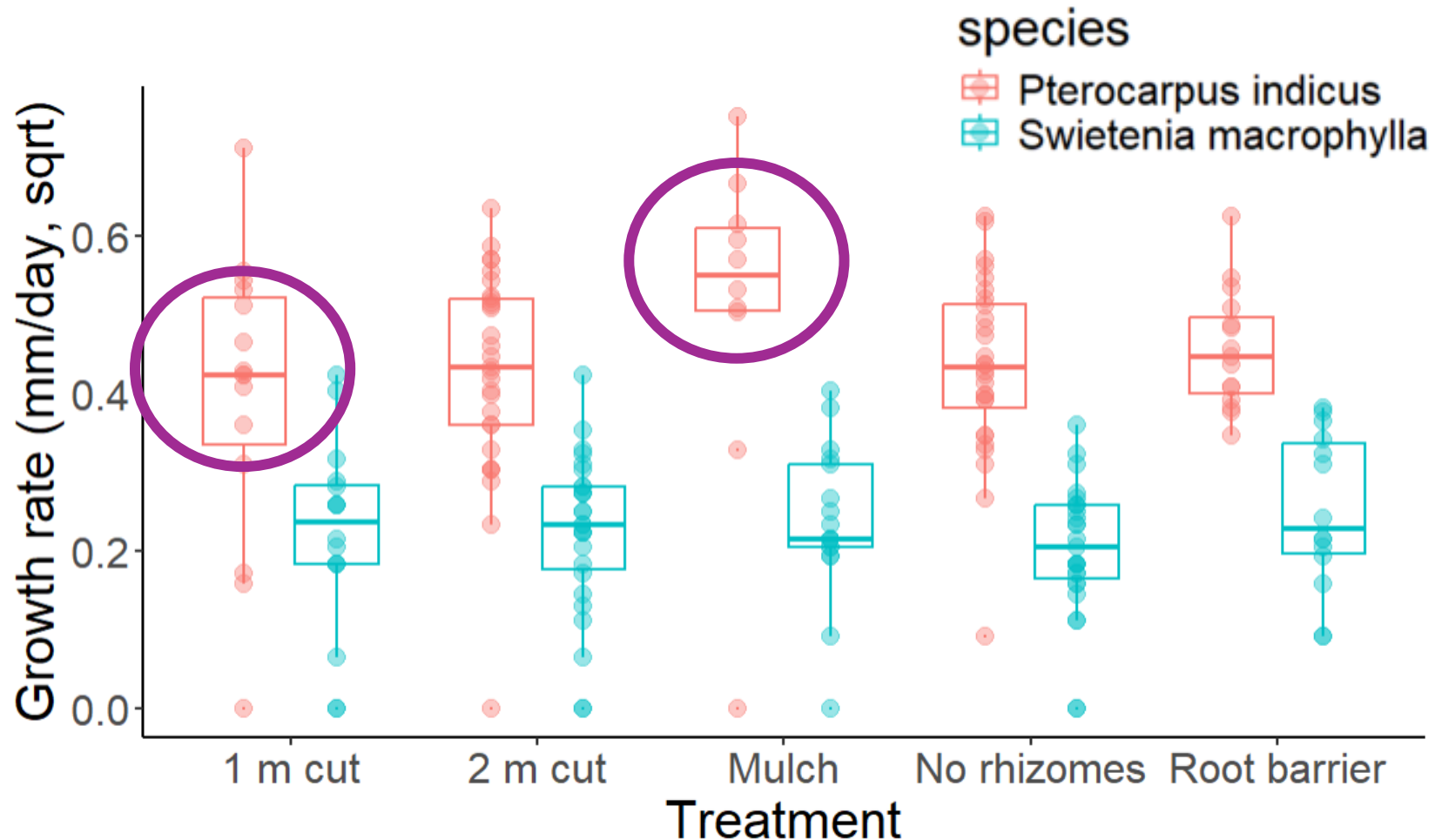
- probability of having any tillers less in mulch and root barrier



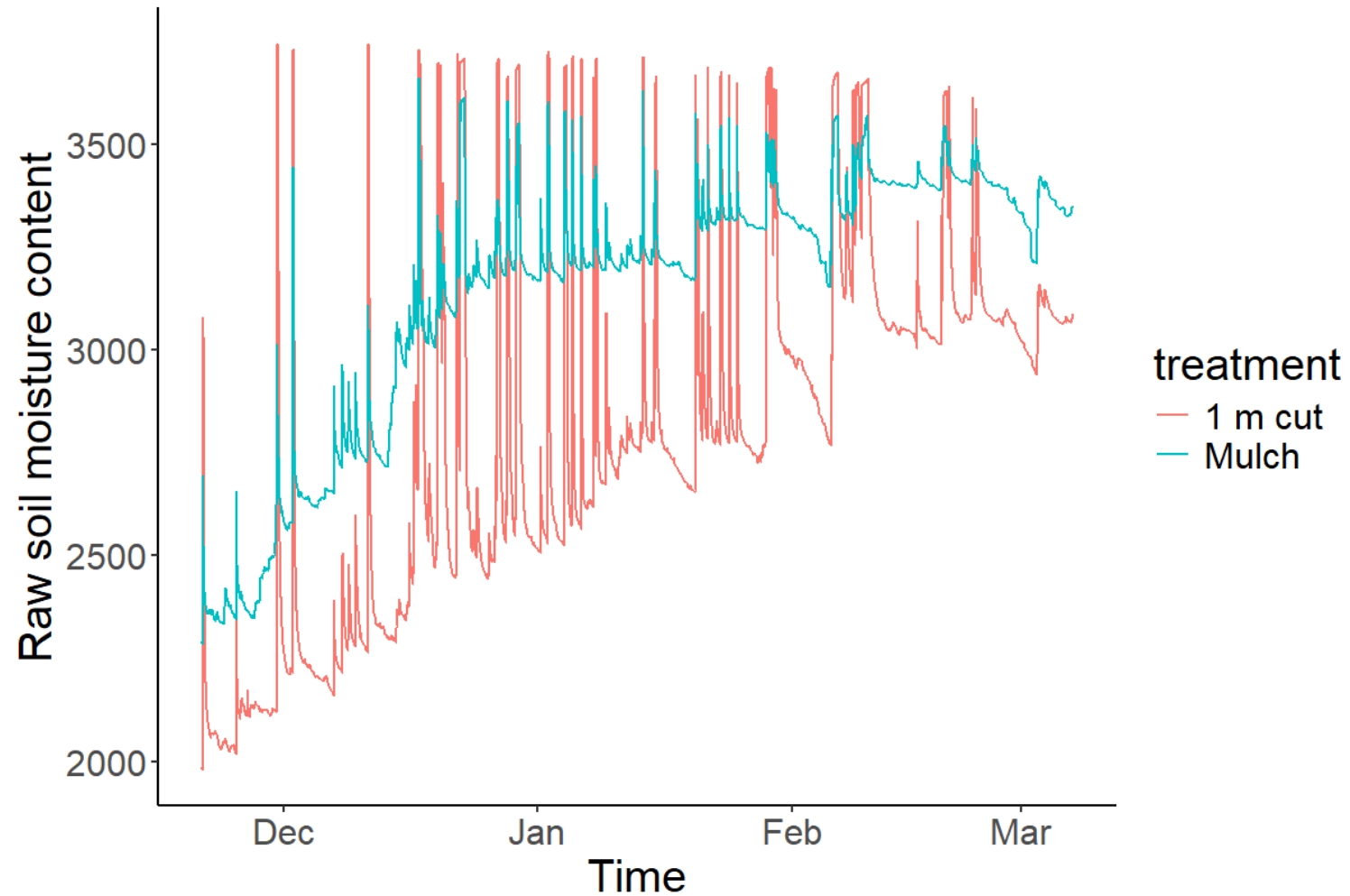
Mulched seedlings grew better (taller, thicker, more leaves) for one species



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Mulching likely sustains wetter soil for longer



The solution: *Imperata* as a tool

- Mulching with *Imperata* limits *Imperata* regrowth (# tillers, AGB)
- Promotes tree growth



- Mulching may improve maintenance and monitoring

