

Landscape structure influences pest control by ants in sun-coffee farms

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I just had my first first-author scientific paper accepted for publication and I'm stoked. I want to share the main findings of my work with my academic peers and non-scientific audiences.

Main questions

- ▶ How does landscape structure affect pest control by ants in sun-exposed coffee farms?
- ▶ What ecological processes are behind “pest control by ants” and how are they affected differently by land-use change?
- ▶ Are ecological processes affected at different scales?

Hypothesis

- ▶ Forest loss will decrease pest control services provided by ants
- ▶ Ants will defend more coffee plants and predate more on coffee borer beetle with increasing forest cover
- ▶ Results will be scale-dependent

How did we answer these questions?



We set camp in sun-exposed coffee farms in Brazil and followed one year of coffee production. We set up 300 ant-exclusion traps in ten 2-km radii landscapes that varied in forest cover and compare abundance of **coffee berry borer**, CBB with and without ants. We measured CBB at three different stages as indicators of the different ecological processes involved in pest control by ants.

We controlled for

- ▶ farm management

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- ▶ farm management
- ▶ coffee variety

Independent variables and landscape metrics

- ▶ presence/absence of ants

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- ▶ forest cover in 2 km radii around ant-exclusion experiments

Independent variables and landscape metrics

- ▶ presence/absence of ants
- ▶ forest cover in 2 km radii around ant-exclusion experiments
- ▶ forest cover in 300 m radii around ant-exclusion experiments

Independent variables and landscape metrics

- ▶ presence/absence of ants
- ▶ forest cover in 2 km radii around ant-exclusion experiments
- ▶ forest cover in 300 m radii around ant-exclusion experiments
- ▶ coffee cover in 300 m radii around ant-exclusion experiments

Independent variables and landscape metrics

- ▶ presence/absence of ants
- ▶ forest cover in 2 km radii around ant-exclusion experiments
- ▶ forest cover in 300 m radii around ant-exclusion experiments
- ▶ coffee cover in 300 m radii around ant-exclusion experiments
- ▶ distance to nearest forest fragment from ant-exclusion experiments

Main results

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Stay tuned! As soon as the paper is officially online and ready to be shared, I'll update this slide. For now an example of a coffee berry borer attacking coffee beans on next slide.

Pest system



Coffee berry borer, or CBB, is considered the worst coffee pest. Females drill galleries on coffee beans to lay eggs, which then feed off the bean.