

# Propagule pressure and functional traits: Utilizing invasion mechanisms to promote restoration

Sierra T. Lauman and Erin J. Questad

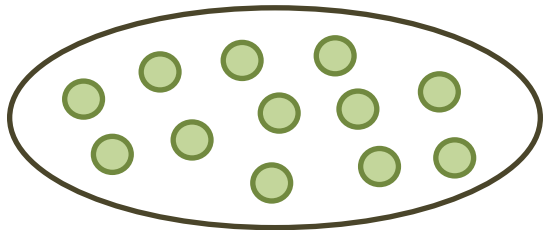
California State Polytechnic University, Pomona

# Propagule Pressure and Invasion

- The supply of seeds released into a region

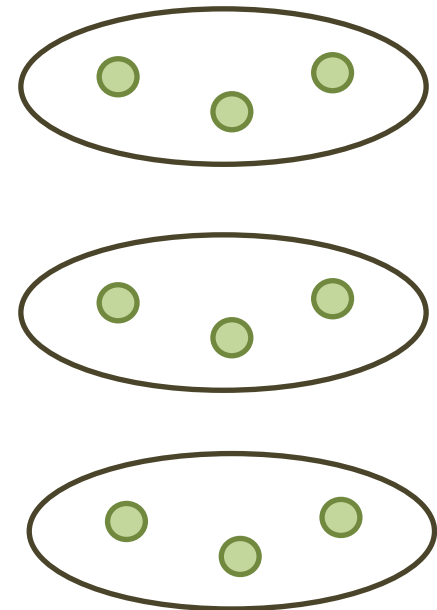
**Propagule size**

(# of seeds introduced)



**Propagule number**

(# of introductions)



# Functional Traits

- Attributes related to resource capture strategies
- Reflect a species' environmental tolerances and competitive ability

Plant height  
Canopy shape  
Rooting depth

Leaf area  
Leaf mass per area



© E. J. Gnaore

## Implication

- Reverse invasion mechanisms to benefit native species
- Promote native “reinvansion”



# Objectives

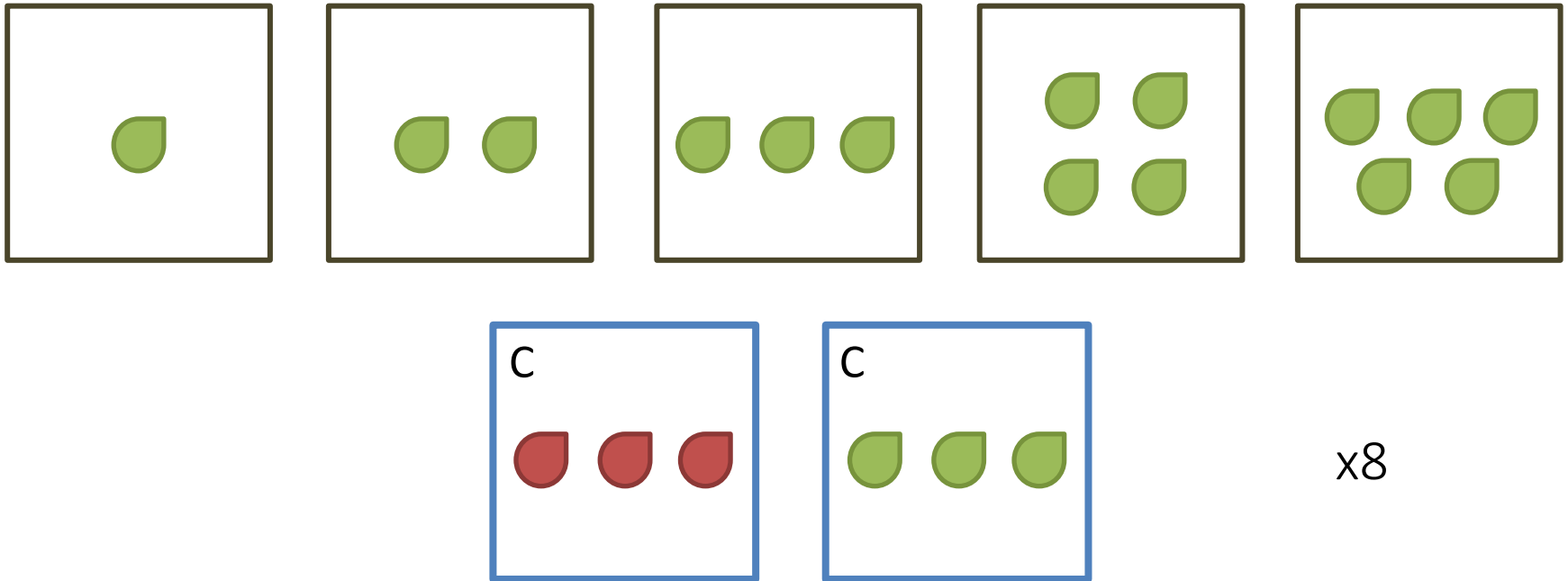
1. Investigate how the relationship between propagule pressure and invasion success applies to native species, allowing them to overcome competition with invasive species.
2. Assess how the functional composition of the invasive community will affect the success of native reestablishment at varying propagule pressures.

# Methods – Study site



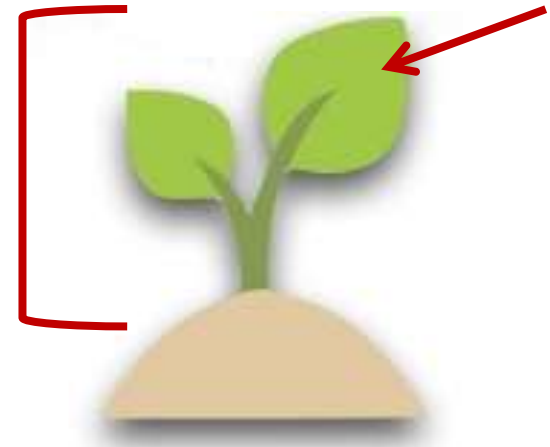
# Methods – Field experiment

- 1.5m x 1.5m plots
- 13 different native annual species sown in equal proportion
- 5 levels of propagule pressure
- 2 controls



# Methods – Functional traits

- Each species will be grown to full maturity in field monocultures and a greenhouse
- Functional traits measured at peak biomass
  - Per capita seed production
  - Maximum plant height
  - Maximum leaf area
  - Rooting depth





# Significance

- Increase the use of studies which reverse mechanisms related to invasion to benefit natives
- Broaden the window for weed management opportunities



# Acknowledgements

- Committee
  - Edward Bobich
  - Nathan Kraft
- Lab mates
- Friends and family
- Funding Sources:
  - RISE
  - MENTORES



CAL POLY POMONA

DISCOVERY  
*The*  
College of Science  
CAL POLY POMONA

**MBRS RISE**

