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

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Propagule Pressure and Invasion

- The supply of seeds released into a region

**Propagule size**
(# of seeds introduced)

**Propagule number**
(# of introductions)

Simberloff 2009; D'Antonio et al. 2001; Levine et al. 2003; Lockwood et al. 2005
Functional Traits

- Attributes related to resource capture strategies
- Reflect a species’ environmental tolerances and competitive ability
**Implication**

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