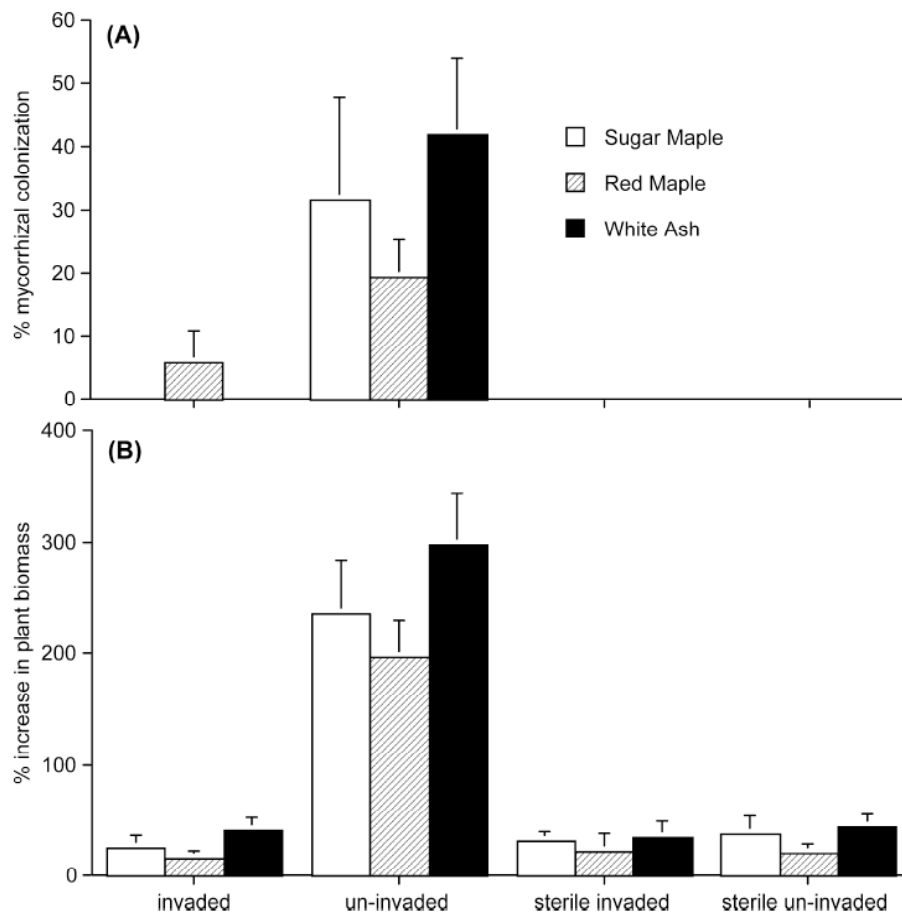


Invasive exotic species

Example 1. Most plant species depend on mycorrhizal fungi on their roots to help them take up nutrients. Garlic mustard is an invasive species found throughout forests of North America, and this invasive is non-mycorrhizal (it does not associate with the soil fungi). As garlic mustard populations increase, scientists wonder whether there will be negative impacts on native species that require mycorrhizae. In this study, Stinson et al (2006) tested whether garlic mustard kills the beneficial soil fungi, and thereby suppresses native tree species. They first collected soil from sites that were either uninfested or infested with garlic mustard. They also sterilized half of those samples to kill off the beneficial soil fungi. Then they grew native tree species and recorded A) the percent of roots with mycorrhizal colonization, and B) plant growth in these soil treatments. Bars represent means \pm standard error (a measure of variation).



(Source: Stinson et al. (2006). Invasive plant suppresses the growth of native tree seedlings by disrupting belowground mutualisms. PLoS Biol 4(5): e140. DOI: 10.1371/journal.pbio.0040140)

- What are the independent and dependent variables in this study?
- Why did the authors include sterilized soil treatments?
- What points are the authors trying to make with this graph?

Example 2 (from Mack et al 2000, *Ecol Appl.* **10**: 689-710).

Brazilian fire ants have invaded Texas woodlands and grasslands and compete with native ants. Scientists tried to study whether the fire ants impact the diversity of ant communities. They set up pitfall traps to catch ants in sites that were either "infested" with fire ants or "uninfested." Species richness is simply the number of species found in the traps. Look carefully at the scale of the y-axis when interpreting the graphs.

- A. What are the independent and dependent variables in this study?
- B. What points are the authors are trying to make with this graph?

