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# IMPACT OF BELOWGROUND ARTHROPODS AND FUNGI ON GERMINATION RATES AND SEEDLING SURVIVAL OF EXOTIC AND NATIVE PLANT SPECIES IN MISSOURI

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Although biological invasion is one of the largest threats facing our ecosystems today, we still do not have reliable methods to help predict which species will become potential invaders. Belowground arthropods and fungi have been shown to strongly influence species invasion capacity, as well as influence plant community assembly. According to the enemy release hypothesis, exotic plants become invasive by escaping their co-evolved belowground enemies and by being unrecognized or unpalatable to belowground enemies occurring in the introduced range. I tested this hypothesis through an exclusion experiment using three native and four exotic species common to central Missouri. In a greenhouse study, I tested how the exclusion of belowground insects and fungi affected seedling germination, establishment and early development of native and exotic species. I found that removal of belowground insects and fungi significantly altered the germination success of native species, while having no significant effect on exotic species. I also found that above and belowground biomass of the native species significantly increased when soil-borne insects and fungi were removed, while such removal had no effect on plants exotic to the region. These results lend support for the enemy release hypothesis and suggest that belowground insect and fungi communities may play a role in shaping plant community assembly and invasion.