

ARE ALIEN PLANTS THE ECOLOGICAL EQUIVALENTS OF NATIVES?

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ABSTRACT

Alien plant invasions have been the focus of study for decades, but the impact alien plant invasions have on the insect communities in the ecosystems they invade has not been fully explored. Understanding the relationship between alien plants and native insect herbivores is particularly important because of the essential role insects play in moving energy through trophic levels. This study compared the degree to which alien and native herbaceous plants supported native insect generalists and their natural enemies in a common garden setting. We measured the biomass, abundance, and species richness of insect herbivores, predators, and parasitoids produced on six species of native plants and six species of alien plants over 2 years in Newark, DE. Insects were sampled by collecting whole plants in bags, bringing bagged plant samples into the lab, and removing the insects. Insects were identified to

species whenever possible, classified according to feeding guild, dried, and weighed. Leaves were removed from plants, dried, and weighed. Insect community parameters (biomass, species richness, and abundance) were controlled for plant biomass to account for variations in plant biomass. Alien plants consistently produced significantly less insect biomass, abundance, and species richness per gram of plant material than native plants. These results suggest that alien plants do not always perform the same ecological functions as the native plants they replace. Alien plants in this study did not support critical components of terrestrial food webs as well as native plants. Additionally, these results document that generalist insect herbivores are not catholic enough in diet breadth to compensate for the loss of insect specialists in alien plant communities.