Alien impact 4. Plant-pollinator interactions: methodological approaches from the field to an experimental design

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Indirect interactions between plant species may be mediated by shared pollinators and modification of their services. The presence of an invasive species can have either a negative impact on pollination and subsequent seed set of native species by competing for pollinators (decreasing visitation rate and/or transferring heterospecific pollen), or a positive effect by facilitating pollinator visitation. Within the framework of the ALIEN IMPACT project, plants-pollinators interactions are being studied for 4 HIPS (highly invasive plant species) in Belgium. For two HIPS (*Fallopia* spp. and *Solidago gigantea*), given the lack of information on pollinator guilds and their sharing with native species, a food web approach was applied as a first step to study plants-pollinators interactions in the field. Our results show not only an integration of HIPS into the plant-pollinator networks, but a dominance of the HIPS in terms of frequency of visits. A bioassay with relevant native competitors will be performed as a second step. In parallel, for the HIPS with known pollinator guilds (*Senecio inaequidens* and *Impatiens glandulifera*), an approach in outdoor controlled competition experiments with potted plants was chosen in order to provide a detailed analysis of the processes that lead to the reproductive success of native species. Experiments were carried out with pairs of invasive-native species and aimed at testing the effects of density (different numbers of alien individuals) and distance (different distances between alien and native). Pollinator-mediated impacts were specific to each pair of native-invasive, increased with alien density and were more marked at short distances.