Session 2 Impacts of invasions on biodiversity, health and economy

Impact of aquatic invasive species on native plant and benthic macro-invertebrate assemblages in Belgian ponds.

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Exotic invasive species such as *Ludwigia grandiflora*, *Hydrocotyle ranunculoides* and *Myriophyllum aquaticum* may alter the available structure in an aquatic habitat by creating monotypic floating mats. However, little is known about the impact of aquatic invasive species both on native vegetation and their associated food webs at pond level. We investigated the hypothesis that both native plant species richness and macro-invertebrate community structure is affected by invasive species by comparing invaded and adjacent non-invaded sites. Up to 32 ponds in Belgium were selected for this study with a cover gradient of the alien species (ranging 0-100%), most of them located in sites of high biological value. Our findings indicate that invaded ponds, regardless of the alien species, supported lower native plant species richness/diversity compared to non-invaded ponds and that submerged vegetation is most threatened. Native plant species richness is positively correlated with total macro-invertebrate abundance, suggesting a link between the replacement of native species by an invasive species and the reduction in overall macro-invertebrate abundance. A density effect of the alien cover was revealed for both native plant species and macro-invertebrates: with increased alien cover, native plant cover, macro-invertebrate abundance and taxon richness decreased. No difference in trophic groups (detritivore, herbivore, predator) could be detected between invaded and non-invaded ponds. The data suggest that a shift from a rather diverse vegetated habitat to a highly homogenous habitat of an alien species can present a threat to native plant species and macro-invertebrate abundance, but macro-invertebrate assemblage appears not to be affected.