Session 2. Impacts of invasions on biodiversity, health and economy

Alien impact 1. A project to quantify and explain the biodiversity impacts of highly invasive plant species (HIPS) at different spatial scales and trophic levels

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Alien Impact (2007-2010) is a large-scale, integrated study on patterns and mechanisms of impact of alien invasive plant species in Belgium, funded by the Belgian Science Policy (Belspo) under the programme Science for a Sustainable Development. It considers both terrestrial and fresh water ecosystems. Five groups collaborate on a shared set of highly invasive alien plant species (HIPS). The goals are: (1) To quantify impact on the diversity of native plant communities. Which native species experience the greatest impact? Can low densities already induce high impact? Do critical invader densities exist above which impacts enhance disproportionately? (2) To assess whether changes in native communities trigger diversity loss or changes in community structure at higher trophic levels, notably in soil fauna. Are such changes mediated by modification of ecosystem properties? (3) To identify mechanisms of HIPS impact on native plants. Is impact mediated primarily by competition for soil resources, by competition for pollinator resources, or by other mechanisms such as secretion of allelochemicals? Does modification of ecosystem properties (soil) triggered by HIPS reinforce impact on native plant species? (4) To analyse factors that may modulate HIPS impacts in the future: eutrophication and climate-warming. We present results and preliminary conclusions from the first two experimental years.