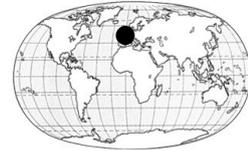


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ECOLOGICAL IMPACT OF JAPANESE KNOTWEED IN WESTERN EUROPE

Fallopia japonica (Houtt.) Ronse Decr. (Japanese knotweed) is considered to be one of the most serious invasive exotic weeds in Europe, causing significant damage to native ecosystems. However, with the exception of competitive exclusion of native vegetation, its suggested ecological impact is poorly supported by experimental studies.

In 2004, we started to investigate the ecological impact of Japanese knotweed in selected areas of France, Germany and Switzerland. Specifically, we aim to assess its effects on vegetation and invertebrate diversity, on soil parameters and on higher trophic levels (e.g. changes in predator fitness) in natural and semi-natural habitats. Ten locations were selected along river courses with different levels of Japanese knotweed infestations, and permanent study plots randomly established in vegetation invaded by Japanese knotweed, as well as in vegetation which can potentially be invaded by Japanese knotweed: open vegetation dominated by grasses and forbs, and bush-dominated vegetation.

The first results indicate that invasion by Japanese knotweed does not only have dramatic effects on native vegetation, but also on invertebrate abundance. Native plant species richness is significantly lower on plots invaded by this exotic plant species, compared to uninvaded plots. We also found a significant negative correlation between the plant species richness and Japanese knotweed shoot density. Analyses of the invertebrate assemblages indicate that overall abundance in plots invaded by Japanese knotweed is reduced by almost 50%, compared to control plots. However, invertebrate taxa differed widely in their response to Japanese knotweed invasion. Results from an ongoing experiment conducted under greenhouse conditions indicate that the high competitive ability of Japanese knotweed is not based on allelopathy, but rather on direct competition for light and other resources.

keywords: *Fallopia japonica*, invasive species, ecological impact