



The Control of Invasive Knotweed Species (*Fallopia* sp.). Research Experiences from Austria

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The alien plant species *Fallopia japonica* (Japanese Knotweed), *Fallopia sachalinensis* (Sakhalin Knotweed) and the clonal knotweed hybrid *Fallopia × bohemica* are invasive plant species which spread out within Europe. They often form dense stands along Rivers and have negative impacts on biodiversity and ecosystem functioning and also threaten the stability of river banks. Due to their life form, vitality and their enormous ability to regenerate themselves, they are extremely hard to fight. The control measurements against *Fallopia* species are therefore complicated and often do not have the desired results.

Our research tried two approaches to deal with these invasive plant species.

The first approach was the use of soil bioengineering techniques which have considerable potential for the management of *Fallopia*. In our study at the river Schwechat (Lower Austria) we tested two soil bioengineering methods for the control of *Fallopia*. The first method was the use of living brush mattresses with willows (*Salix* sp.) to fight the growth of *Fallopia* species. Within a second method a black liner was used in combination with willow cuttings. After cutting the *Fallopia* stands the liner was applied to the river bank and fixed with living willow cutting to the surface. The two areas were compared to untreated river bank areas. At several points of time we compared the aboveground response (number of shoots, basal shoot diameters, plant heights, number of stems, aboveground biomass). Additionally the aboveground plant parameters of the willows were measured.

In a second approach it was tested if *Fallopia* can be suppressed or even exterminated if they are submerged for longer time periods. For the experiments *Fallopia* rhizomes were planted in plastic containers. After a certain growing period, the plants were cut and documented quantitatively by the measurements of shoot lengths, shoot diameters and aboveground biomass. After the first harvest the containers were flooded with water over a period of 1 to 9 weeks. After flooding the regrowth of *Fallopia* was observed. Our contribution describes the methods used and shows the results of the studies.