



controlling Japanese knotweed

so what's the problem?

Japanese knotweed is one of the most damaging invasive weeds in the UK, Europe and North America. Growing up to a metre a month, it can push through tarmac and concrete. Its effect on native species is often devastating as it out-competes indigenous species covering large tracts of land to the exclusion of the native flora and associated fauna.

Introduced from Japan to Europe in the mid-nineteenth century as a desirable ornamental plant, it soon fell from grace. It is now widespread in numerous habitats, particularly roadsides, riverbanks and derelict land where it causes serious problems by displacing native flora and causing structural damage. It even threatened development of the 2012 Olympics site. Due to its vigorous nature and the damage it causes it is one of only two terrestrial plants listed by the UK Wildlife and Countryside Act as illegal to cause it to grow in the wild.

The cost of control in the UK, if attempted, is estimated at over £1.5 billion. However current control methods, which rely mainly on chemicals, have been deemed unsustainable, so a longer term solution is required.

what is this project doing?

The ultimate aim of this project is to turn the weed from a destructive and expensive environmental burden, into a manageable plant which poses less of a threat to biodiversity. Since 2003, CABI has been working to stop the spread of Japanese knotweed thanks to funding from a consortium of sponsors.

The plant has significant advantages over its new neighbours as it has lost the specialist natural enemies that keep it in check in its native Japan. Having undertaken preliminary studies and literature reviews, our scientists embarked on survey trips to Japan. Along with help from Japanese scientists, we studied the plant in its native range. Potential agents were selected and brought back to our quarantine labs in the UK for further study.

These insects and plant pathogens will then be subjected to internationally-accepted stringent safety testing regime. By testing how the insects and pathogens react to different plants and stimuli, our scientists can identify which potential agents are suitable. Essentially, the agent must be specific to Japanese knotweed and pose no threat to important native species or crops.

results so far

Over 200 species of insects and pathogens were recorded from knotweed in Japan and all but two were rejected as a result of the testing. The two agents identified as potential controls are a *Mycosphaerella* leafspot fungus and the sap-sucking psyllid, *Aphalara itadori*.

The psyllid, *Aphalara itadori*, is a true knotweed specialist that sucks the sap from the plant. It is about 2mm in length and capable of causing significant damage to the target weed.





Dick Shaw, Project Manager

Based on our research, if the psyllid were released, it would pose no threat to anything other than Japanese knotweed and the damaging hybrid variety – bohemian knotweed (*Fallopia x bohemica*). The rate and nature of its reproduction should mean establishment and multiplication would be successful. Furthermore, it should also be possible to integrate the psyllid control programme with current management regimes which would improve control efficacy at sites where traditional control remains necessary.

While research has shown the leaf-spot fungus could be a viable option, further studies are still underway.

what next?

With much of the research now complete we are now in the last stages prior to potential release of an agent. The authorities are currently considering a licence to release the psyllid in Great Britain. However, although common practice in countries such as the US and Australia, no European country has to date ever purposely released an agent to control an alien invasive weed. So, since this is a pioneering project, CABI is working closely with the relevant regulatory authorities in the UK to ensure that the most appropriate precedent is set for this and future releases.

partners/sponsors

Defra
Environment Agency
South West Regional Development Agency
Network Rail
British Waterways
Cornwall Council
Welsh Assembly Government

project team

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dates of project

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The sap-sucking psyllid, *Aphalara itadori*



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