



CONTROLLING FLOATING PENNYWORT IN A SAFE AND SUSTAINABLE WAY

Locations Argentina, Paraguay, United Kingdom

Dates 01/04/2017 - 01/07/2020

Summary Floating pennywort is an invasive aquatic plant capable of covering water bodies in the UK, threatening delicate habitats, native plants, fish and insect communities. Also a problem across much of Northern Europe, this plant has a rapid growth rate and can regenerate from small fragments. Management is mainly limited to mechanical clearance which is expensive, labour intensive and often ineffective. Through comprehensive specificity testing, this project aims to identify the safest and most effective biocontrol agent to keep the plant in check in the invasive range.

The problem

Floating pennywort, *Hydrocotyle ranunculoides*, is a strong contender for the title of worst aquatic weed in the UK. Originating from Central and South America, the plant arrived in the UK in the late 1980's as an oxygenating ornamental plant for the aquatic trade.

It didn't take long however, for it to escape cultivation and spread rapidly in England, as well as other European countries, such as the Netherlands and Belgium. It now impacts slow flowing river systems and water bodies, forming dense vegetative mats, reducing the availability of oxygen in the water, threatening fish and invertebrates, choking drainage systems, crowding our native water plants and posing a risk to livestock, dogs and human health.

Floating pennywort can grow up to 20cm per day and can regenerate from tiny fragments. With restrictions on chemical use near water, management tends to largely rely on sustained and labour intensive mechanical and manual clearance which can exacerbate spread if the plant is fragmented. This aggressive invader already cost millions (Euros/UK Pounds) to control across Europe and Great Britain. Costs linked to the management and the impact on tourism and recreational activities are estimated to exceed £25 million per year. Furthermore, impacts on biodiversity and habitats, through degradation of important wetland ecosystems and competition with native species are equally important, though harder to quantify.

Due to its significant negative impacts on biodiversity and the economy, it is listed on Schedule 9 of the Wildlife and Countryside Act in England and Wales, making it an offence to plant or, otherwise, cause it to grow in the wild and it is banned from sale. As a species designated to be of European Union concern (EU implementing regulation (2016/1141)), strict restrictions apply to the species and it cannot be imported, kept, bred, transported, sold, used or exchanged, allowed to reproduce, grown or cultivated, or released into the environment.

What we are doing

The project sought to identify the safest and most effective biocontrol agent for floating pennywort through comprehensive host range testing in CABI's UK quarantine facilities. To do this, CABI undertook exploratory surveys to the native range and with support from collaborators in Argentina, exports of these promising species were made to the UK to undertake host specificity testing against an approved list of non-target plant species (to ensure they didn't attack related species and important native or commercial species). A damaging weevil (*Listronotus elongatus*) was prioritised, after rejecting a number of other natural enemies in parallel.

The host range testing was completed and a detailed dossier of results (Pest Risk Assessment) has been submitted to the UK government's regulatory authorities for evaluation and further peer review and consultation. In addition to the research work, it is vitally important to continue raising awareness of non-native species and their deleterious impact across Europe so that the public, their elected representatives and government agencies are aware of the risks posed and the potential solutions that are available to tackle these growing problems.

Results so far

CABI scientists and South American collaborators undertook surveys in the native range and identified a number of very promising insects and fungi associated with floating pennywort – the weevil, *Listronotus elongatus*, was prioritised.

In consultation with a Steering Committee, a comprehensive test plant list has been developed and approved for the UK, with pertinence to our European neighbours.

Authorization to export the *Listronotus* weevil from Argentina was successfully obtained in 2014 and specificity testing against the carefully selected list of non-target species was the focus of five years of research. Other agents with potential have also been assessed in parallel but were not deemed suitably specific. A comprehensive scientific dossier (Pest Risk Assessment) has been submitted to the UK regulators who will now carefully consider its suitability for release based on scientific evidence and peer consultations. If the application is approved, the weevil could be released into the environment in the near future.

Donors

Defra

Partners

Paraguayan Research Institute (Fundación Moisés Bertoni), Fundación para el Estudio de Especies Invasivas (FuEDEI), Fundación para el Estudio de Especies Invasivas (FuEDEI)

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