CONTROLLING FLOATING PENNYWORT IN A SAFE AND SUSTAINABLE WAY

Locations
Argentina, Brazil, Netherlands, United Kingdom

Dates
01/04/2011 - 01/04/2017

Summary
Floating pennywort is an invasive aquatic plant that can over-run water bodies in the UK, and is threatening habitats, native plants, fish and insects. Also a problem across much of Europe, this plant has rapid growth and can regenerate from small fragments. Management is mainly limited to mechanical clearance which is expensive and often ineffective. Through comprehensive host range testing, this project aims to identify the safest and most effective biocontrol agent to keep the plant in check.
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 across Southern England, as well as other European countries such as the Netherlands and Belgium in particular. It now over-runs many water bodies and is changing the availability of oxygen in the water, threatening fish and invertebrates, choking drainage systems and crowding our native water plants.

It’s able to grow up to 20cm per day, and can regenerate from tiny fragments. With restrictions on chemical use near water, management has to rely on mechanical and manual clearance which is expensive, labour intensive and often ineffective. Floating pennywort has already cost millions of euros/ pounds to control across Europe and Great Britain. Costs linked to 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.

The EU requirements of the Water Framework Directive (which aims to improve the way water bodies in Europe are managed) means that a sustainable, environmentally friendly and economic solution to the growing invasion of floating pennywort is required. In a bid to protect vulnerable habitats, the UK Government have recently included Floating pennywort in a list of non-native aquatic plants to be banned from sale (as of April 2014).

The EU Invasive Alien Species (IAS) Regulation (1143/2014) came into force on 1 January 2015. The Regulation imposes strict restrictions on a list of species known as ‘species of Union concern’. These are species whose potential adverse impacts across the European Union are such that concerted action across Europe is required. The first list of 37 species – 23 animals and 14 plants – which includes *Hydrocotyle ranunculoides*, was approved at a meeting of EU Member States and The European Commission published the implementing regulation (2016/1141) that brought this list into force on the 3 August 2016. Consequently, strict restrictions now apply to the species and cannot be imported, kept, bred, transported, sold, used or exchanged, allowed to reproduce, grown or cultivated, or released into the environment.

This species is also listed on Schedule 9 of the Wildlife and Countryside Act in England and Wales therefore, it is also an offence to plant or otherwise cause it to grow in the wild.
**What we are doing**

The project aims to identify the safest and most effective biocontrol agent for floating pennywort through comprehensive host range testing in CABI's UK quarantine facilities. The ultimate aim is to have a Pest Risk Analysis completed and be able to apply to Defra for its release in the UK. To do this, the CABI team will collaborate with Argentinian and Brazilian institutes to enable further surveys in the native range and export of insects and pathogens.

Since scoping surveys in 2006 and 2010 identified a suite of potential insects and pathogens associated with the weed in its South American native range, CABI has been undertaking research, funded by the UK Government, as part of its responsibility towards the EU Water Framework Directive.

A damaging weevil (*Listronotus elongatus*) was prioritised for study, as well as a number of fungal species. With support from collaborators at FuEDEI in Argentina, exports of these promising species were made to the UK to initiate host range testing. Other agents under consideration, including a petiole mining fly species, will continue to be evaluated in Argentina in field studies to assess their preliminary suitability.

CABI needs to source, propagate and test an agreed test plant list, to ensure the weevil and other agents don’t attack related species and important native species. CABI is concentrating on completing the host range testing for the UK with the prioritised species in order to present a detailed dossier of results to the government for evaluation and peer review.

In addition to the research work, it is also of vital importance that awareness of non-native species and their deleterious impact continues to be raised across Europe so that the public and their elected representatives and government agencies are aware of the risks posed and the potential solutions available to tackle these growing problems.

**Results so far**

So far, CABI scientists have undertaken surveys with collaborators in Argentina and Brazil and identified a number of very promising insects and fungi.

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 has been the focus of the research since. 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.

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**Donors**

Defra

**Partners**

Fundación para el Estudio de Especies Invasivas (FuEDEI), UNESP-Brazil, EMBRAPA-Brazil

**CABI Project Manager**

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