Removal of invasive floating pennywort *Hydrocotyle ranunculoides* from Gillingham Marshes, Suffolk, England

Kelly A.
Broads Authority, 18 Colegate, Norwich, Norfolk NR3 1BQ, UK

SUMMARY

Non-native floating pennywort *Hydrocotyle ranunculoides* had colonised and grown to dominate parts of Gillingham Marshes, eastern England, where it was outcompeting native plants. Removal was undertaken using a mechanical digger and by monthly picking by hand. This greatly reduced its cover but did not completely eradicate it. The native aquatic vegetation is re-establishing.

BACKGROUND

Floating pennywort *Hydrocotyle ranunculoides* is a North American plant which was introduced to the UK in the 1980s by the aquatic nursery trade. Its existence in the wild, now reported in 35 sites in southern England and south Wales, is likely due to accidental escape from aquaria and garden ponds. Floating pennywort roots in shallow margins of slow-flowing water bodies, particularly in ditches, slow flowing dykes and lakes. Here it forms dense interwoven mats of vegetation on the water's surface and out competes most native aquatic plants. This causes deoxygenation of the water, which in turn affects fish and invertebrate populations and causes a choking of drainage systems and sluices, sometimes causing localised flooding. Floating pennywort has proved to be difficult to control because of rapid growth rate (up to 20 cm a day) combined with the ability to re-grow from a single node.

This case describes the control of floating pennywort at Gillingham Marshes in Suffolk, eastern England.

Photo 1. Infestation of floating pennywort at Gillingham Marshes in 2004.

ACTION

Study site: Gillingham Marshes are traditional grazing marshes within the Broads Environmentally Sensitive Area (ESA). In late September 2004, a surveyor noticed an infestation of floating pennywort in the dykes, approximately 1 km in length, and reported it to the Broads Authority (Photo 1).

Removal of floating pennywort: The Broads Authority visited the site with all relevant partners: Broadland Environmental Services (BESL), Environment Agency (EA), Internal Drainage Board (IDB), and the landowner; and in consultation with English Nature (EN) in mid-October 2004 it was decided to take action to remove the pennywort. Pennywort was removed using a mechanical digger provided by BESL and EA in early February 2005. This was followed by extensive hand-picking by Broads Authority staff and

volunteers. This was an essential step as it was necessary to completely remove floating fragments created by the digger. Hand-picking was undertaken at least once a month (usually every fortnight) throughout the growing season (March – September 2005 and 2006 ongoing). In addition, a mesh grid was added to the upstream end of the IDB water pump at Gillingham Marshes to try and prevent floating fragments entering and infesting the River Waveney, adjacent to the marshes.

Disposal options for the pennywort were considered. Complete removal from the site was too expensive. Burial on the grazing land was discussed with the farmer but concerns were raised about burial damaging the land and sward. Therefore, it was decided to pile the pennywort on the site and monitor for re-growth. Monthly monitoring of the pile was undertaken and if signs of growth were observed, they were sprayed with the herbicide glyphosate (according to manufacturers instructions), under agreement with the EA.

An annual co-ordination meeting and email correspondence has ensured that all partners are kept informed and action can be taken immediately if the pennywort re-colonises.

CONSEQUENCES

Removal of floating pennywort: Using a digger followed by intensive hand-picking and monitoring has prevented pennywort from re-colonised Gillingham Marshes. Observations have indicated that the native aquatic vegetation is re-establishing. In particular, this management highlighted the importance of having experienced staff to identify fragments of pennywort as they are difficult to identify when the leaves are small. It was sometimes necessary to take small fragments and grow them on in order to confirm identification.

Conclusions: The removal of floating pennywort has been a success at Gillingham Marshes but requires ongoing monitoring and intensive hand-picking as it has not been completely eradicated. The key lesson of this management has been that rapid reaction, co-ordination and clear allocation of resources between partners was essential for success.