



# Water pennywort

(*Hydrocotyle ranunculoides*)

## Managing water pennywort in the Bourret basin

### Côte-Sud river board

■ The river board was created in 2001 as the managing entity for the river contract covering the Bourret and Boudigau basins spanning 22 towns in the southern section on the Landes department.

■ The main missions include:

- restoring and working on the rivers to maintain proper functioning and the quality of aquatic ecosystems, notably by creating structures (groynes, weirs, bank protection systems) suited to the sites;
- conserving and restoring flood expansion zones;
- managing invasive alien species;
- monitoring water quality and contributing to improving data dissemination and efforts to locate the source of pollution;
- contributing to achieving good ecological status by coordinating the current uses in the river basins;
- preserving the ecological heritage of side channels and wet lands linked to the river.

■ Contact: Magali Costa - costa-smrbb@wanadoo.fr.

### Intervention site

■ The river board worked on the Cousturet stream, a part of the Bourret basin colonised by water pennywort. The Cousturet is 7 kilometres long and flows through the towns of Tosse, Saubion and Angresse. Water pennywort was also present in 2 ponds near the stream, on the site called Lagrollet in the town of Saubion.

■ The colonised section represented 4 km of river, including:

- 830 metres of which 10% to 20% were colonised;
- 400 metres of which 70% to 90% were colonised.

■ The remaining sections were sparsely colonised.

■ Private properties included parts of the stream along woods and meadows, as well as a pond with a surface area of 5 000 square metres.

■ The area lies in part in a biological reserve created by the law on water and aquatic environments and listed in the 2010-2015 river basin management plan.

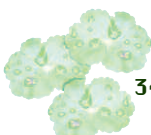


© SMRBourret-Boudigau

1. 2. Intervention sites.

#### Key

- Section colonised 10% to 20%
- Section colonised 70% to 90%
- ★ Origin of the colonisation
- Isolated site (colonised)



## Disturbances and issues involved

■ The presence of water pennywort was confirmed on 15 October 2012 by the National botanical conservatory for South-west France following on-site analysis on the Cousturet stream. On 18 October 2012, inspections revealed the origin of the colonisation in 2 private ponds in the town of Tosse.

### ■ Ecological impacts

- Massive growth of the plant led to slower flows which in turn blocked sediment transport (sedimentation by sand).
- The plants also blocks light which threatened native aquatic species (water-starworts, water mints, etc.).

### ■ Impacts on human activities

- Sedimentation in a recreational water body, possible impacts on fishing.
- Difficult access to the stream for animals, impact on grazing (reduced visibility of the pond and of the hydrographic network as a whole).
- Fishing became impossible, notably due to the lack of fish in the environment.

## Interventions

■ Starting in 2012, the river board initiated manual uprooting of water pennywort in the basin to limit its colonisation.

### ■ Manual uprooting

- The work was done by a team of 4 agents.
- A single passage along the river was carried out in June 2012, the first year of the work.
- In 2013, manual uprooting was pursued with 5 passages from 5 June to 28 October.
- The tools used included:
  - neoprene gloves because direct contact with water pennywort provoked irritations;
  - waders;
  - buckets to collect the plants;
  - a boat to store the collected plants.

### ■ Screens

- Screens were installed on outlets to cut off heavily colonised areas and protect the downstream sections:
  - a screen was installed at the origin of the colonisation, on a tributary to the Cousturet upstream of the confluence to cut off the upstream section;
  - a screen was installed on the overflow outlet of the pond at Lagrollet to isolate the second source of contamination.
- Cleaning of the screens is indispensable and was carried out once or twice per week.

### ■ Waste management

- The harvested plants were deposited in a forest where water primrose had already been stored (town of Soorts Hossegor). No regrowth was noted on the site.



3. Beds of water pennywort.

4. Areas colonised by water pennywort prior to the work.

## Results and costs

### ■ Results

- Along the 4 kilometres of river, 20.55 cubic metres of water pennywort were harvested in 2012 and 6.5 cubic metres in 2013.
- The reduction in the density of beds and surface cover was estimated at 80%.
- In spite of the uprooting and the installation of screens, a new area downstream, the Barthes d'Angresse area, was colonised.
- A cutting of water pennywort was observed at the end of 2012 on the upstream Boudigau, near the floating barrier just downstream of the Orx marshes (this information was transmitted to the Orx nature reserve). No new observations were made in 2013.

### ■ Situation at the end of the work

- A reduction in surface cover and in the sections colonised by water pennywort was observed.
- The quantities harvested dropped significantly from 5.14 cubic metres per kilometre in 2012 to 1.62 cubic metres per kilometre in 2013.
- The beds of water pennywort were not as dense.
- The advantages of rapid intervention include:
  - smaller quantities of plants to be harvested;
  - selective manual uprooting is easier. Native plants are less affected and can compete with the invasive species;
  - immediate uprooting of the first sprouts limits the development of large, single-species beds;
  - manual uprooting is the best technique because, contrary to mechanical uprooting, there is no need to wait for the plants to develop sufficient volumes. Faster intervention limits the development of new colonies.
- In 2012, the difficult conditions made the work much harder for the personnel. The water was cold and deep (one metre), and the plants were rooted in the bottom of the river bed. Access to the work site was difficult for the vehicle.
- In 2013, the harvested quantities were smaller, interventions were launched early in June and the work zone was accessible through to September.
- Regular cleaning of the screens was an important factor, notably after heavy rains carrying cuttings from the Lagrollet Pond.

### ■ Human and financial aspects

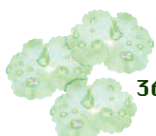
- The number of man-days required was high, but necessary given the quantities harvested and the need to contain the species and avoid its propagation to the entire hydrographic network.

*Cost of management work.*

Year	2012	2013	TOTAL
Number of man-days	36	31.5	67.5
Overall cost (€)	6 840	5 985	12 825



5. Cutting of water pennywort.  
6. Overflow outlet of the Lagrollet Pond invaded by water pennywort prior to the installation of screens.





## Outlook

- Manual uprooting will be pursued along the entire colonised section and in the affected areas. Work will be programmed early in the year, as soon as water levels drop, given that the plant is not affected by cold weather and produces large quantities of biomass very rapidly.
- The screens will remain in place and be regularly cleaned to avoid the spread of cuttings.
- Monitoring of aquatic environments will be pursued to detect new colonies and intervene rapidly in order to limit the development of the plant.
- The storage site for water pennywort will be monitored to detect any new growth.
- Extension of the surface areas colonised by water pennywort will be monitored.
- A study will be conducted on how to manage the species in the private Lagrollet Pond located near the river. The owners will be informed in order to obtain a commitment to manage the plants and a partnership will be proposed.

## Information on the project

- Information is provided to elected officials during board meetings and to local residents.
- Feedback from the project is provided to elected officials and to municipal services.
- An internship report was drafted.

Authors: Sandra Fernandez, Irstea, and Emmanuelle Sarat (IUCN French committee).



7. 8. 9. Screens.

### For more information

- [www.riviere-bourret-boudigau.fr](http://www.riviere-bourret-boudigau.fr)
- SMRBB, 2013. Memo on management work against water pennywort. 3 pp.

