



Water primrose

(*Ludwigia spp.*)

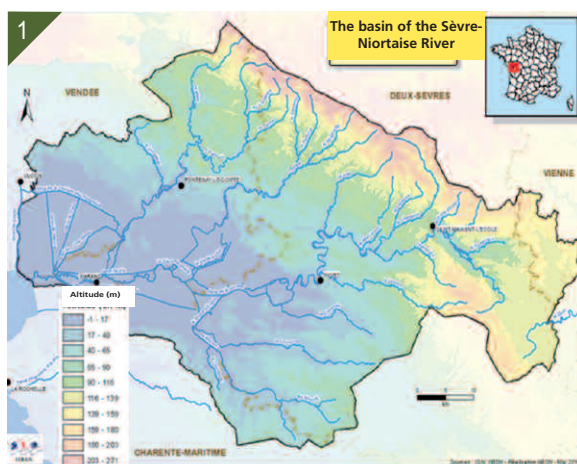
Managing colonisation and proliferation of water primrose in the Marais Poitevin marshes

Sèvre-Niortaise basin interdepartmental institution (IIBSN)

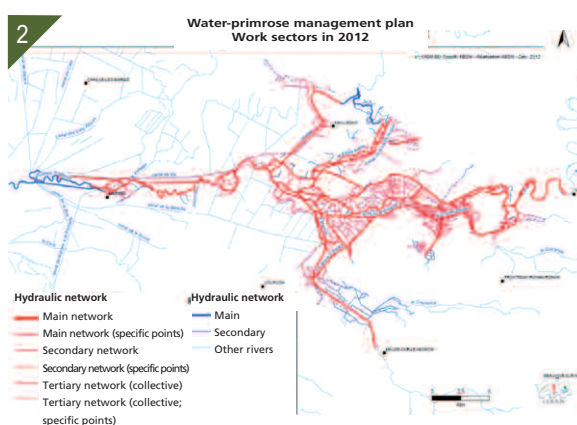
- Public agency set up by the Charente Maritime, Deux-Sèvres and Vendée departmental councils in 1987.
- The main missions include:
 - restoring and maintaining the main channels in the Marais Poitevin marshes in a partnership with the State and the marsh boards;
 - modifying the hydraulic installations in the marshes to enable the passage of fish;
 - conducting studies on water management;
 - managing the Sèvre-Niortaise and Marais Poitevin SBMP and the Vendée SBMP;
 - controlling the proliferation of plants, notably alien plants.
- Contact:
 - Nicolas Pipet - nicolas.pipet@sevre-niortaise.fr:
 - manages the restoration and maintenance work on rivers in the Marais Poitevin marshes;
 - manages the project to “control colonisation and proliferation of water primrose in the Marais Poitevin marshes”;
 - provides information to people in the area (elected officials, the public, etc.), trains managers and technicians from other areas;
 - participates in a number of work groups, committees and observatories on the departmental, regional and national levels, notably IBMA.

Intervention site

- The basin of the Sèvre-Niortaise River lies in four departments (Deux-Sèvres, Charente-Maritime, Vendée and Vienne) and two regions (Poitou-Charentes and Pays-de-la-Loire). The basin is approximately 100 kilometres long from the inland source to the Baie de l’Aiguillon and stretches 50 kilometres from north to south.
- The Sèvre-Niortaise is the main coastal river draining the basin and runs a total of 160 kilometres (not including the network of marshes). Its source lies in the town of Sepvret, at an altitude of 153 metres in the Deux-Sèvres department, and the river flows through the Marais Poitevin marshes before entering the Baie de l’Aiguillon. The main tributaries, from upstream to downstream, on the right bank are the Chambon, Egray, Autize and Vendée, and on the left bank the Lambon and Mignon.



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1. Territory managed by IIBSN.
2. Work sectors in 2012.

- On the basis of discussions with the concerned persons and entities, the hydraulic network of the Marais Poitevin marshes has been defined as follows:
 - the main network forming the structure of the marshes including rivers flowing through at least two departments (flood and low-flow management, boating, tourism, etc.). This network covers 508 hectares and represents a total of 252 kilometres;
 - the secondary network comprising lesser rivers providing collective services locally (draining of land, water storage, tourism, etc.). The total distance covered by this network is 460 kilometres (90 km in the Charente-Maritime department, 200 km in Deux-Sèvres and 170 km in Vendée);
 - the tertiary network consists of upriver networks of which a part serves collective uses (230 km) and the rest private uses.

Disturbances and issues involved

■ Since 1991, the water channels in the wetlands linked to the Sèvre-Niortaise, Mignon and Autizes Rivers have been colonised by two species of water primrose.

■ Impacts on water quality

■ Beds of plants modify the daily oxygen cycle to the detriment of animal species and consequently reduce the ecological richness of the environment.

■ Impacts on the ecosystem

- High level of biomass produced, contributing to sedimentation and filling of channels.
- Problems arise for the movement of water and fish.
- Competition with native species.
- Unpleasant visual effects due to waste trapped by the beds.

■ Impacts on boating

■ The dense beds block the passage of boats and other small craft.

■ Impacts on fishing

■ The development of dense beds makes fishing impossible.

Interventions

■ Experimental work was undertaken by IIBSN and Cemagref (Bordeaux) from 1994 (4 km of banks) to 1998 (140 km) to test the effectiveness of management techniques.

■ Starting in 1999, a management plan was launched, including:

- annual mapping of water primrose in the main network;
- work to remove the plants;
- monitoring of the work (qualitative and quantitative aspects);
- improvements in knowledge (studies on plant biology and ecology, potential uses of the extracted biomass, tests on extraction techniques, etc.);
- information, awareness raising and feedback on projects.

■ The work consisted of two different techniques:

- manual uprooting of beds on controlled sites (two sequences in May and November);
- mechanical uprooting with manual finishing work on heavily colonised sites, where the objective is simple maintenance work (manual uprooting) the following year.

■ Precautions taken during the work:

- use of tarps when transporting the plants;
- nets to prevent dispersal during mechanical uprooting;
- filtering of the water in boats to collect stalk fragments, etc.



3. 4. Rivers colonised by water primrose.

5. Canal colonised by water primrose.

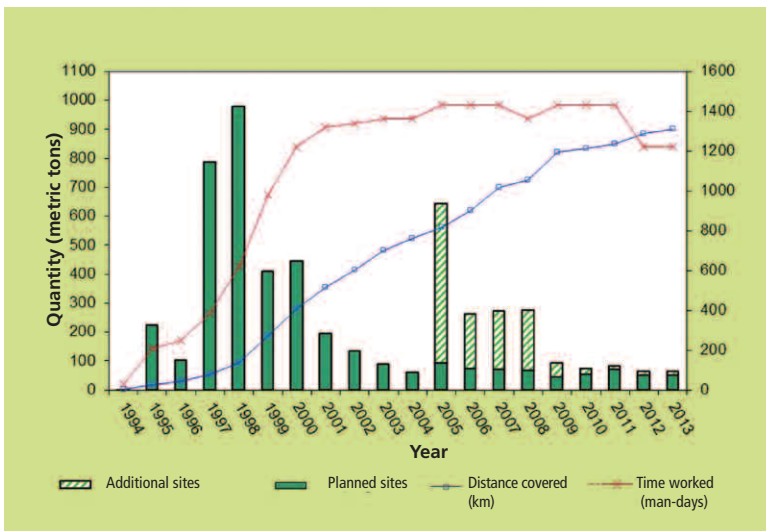
Results and assessment

■ Results in 2013

- The work took place from 27 May to 08 November 2013.
- A total of 1 311 084 metres (1 311 km) of river banks were treated.
- Notable figures concerning the 2013 harvest (all techniques and all networks together):
 - number of beds larger than 10 square metres uprooted = 64 (compared to 20 in 2012 and 114 in 2011);
 - number of beds smaller than 10 square metres uprooted = 9 232 (compared to 9 638 in 2012 and 17 143 in 2011);
 - number of young plants (fragments) collected = 31 733 (compared to 25 092 in 2012 and 43 528 in 2011).
- For this project, IIBSN hired ten technical personnel (term contracts) for the period May to November. The total amount of work carried out by this team represented almost 55 man-months (ten term contracts for 5.5 months). The technical management, monitoring and assessment of the work was provided by the IIBSN technician (Nicolas Pipet).



6. Manual uprooting.
7. Mechanical uprooting.



Water-primrose management work from 1994 to 2013. Distances covered, quantities harvested and time worked.

■ Recycling of the water primrose

- The organic waste was ploughed under for transformation into nutritional elements and humus by biological agents.
- The plants were stored on farm land (waivers had to be requested to transport the water primrose to non-floodable areas, far from aquatic environments).
- They were first sorted to extract any stones, wood, other waste, etc.
- The plants were then spread in fields according to the spreading plans of the farms and local constraints.
- The plants were dried, ground and ploughed under.
- Analysis of the plants and the soil (micropollutants, organic products) was required.
- Monitoring of the land following recycling was also required.

Outlook

- The results since the start of the operation prove the effectiveness of the management techniques with a regular increase in the lengths of river bank treated, a fairly stable number of hours worked and a reduction in the quantities harvested.
- In 2014, the work will be pursued along the banks treated in 2013, comprising manual maintenance (one or more sequences) for most of the banks.
- Work on other sites will depend on the environmental conditions (notably the weather conditions) determining the development of the beds (time of year, proliferation) and access to the sites (water levels). A further aspect is the effectiveness of the uprooting done the previous year.
- In parallel, IIBSN will continue to participate in various committees, groups and observatories, and will respond to requests for information (managers, local governments, etc.).

Information on the project

- The institution participates in work groups dealing with biological invasions:
 - the Biological invasions in aquatic environments work group (IBMA);
 - the Pays-de-la-Loire committee for the management of invasive alien plants;
 - the Poitou-Charentes regional observatory on invasive alien plants in aquatic ecosystems (ORENVA);
 - the Vendée departmental technical group for invasive alien plants;
 - the technical group for invasive alien plants in the Sèvre-Niortaise basin (piloted by IIBSN);
 - the Marais Poitevin observatory for natural heritage (IAS section piloted by IIBSN).
- The institution also participates in a number of events:
 - workshops to inform and raise awareness, conferences;
 - training sessions, meetings with managers;
 - symposia, exhibitions.
- * It reports to funding entities and to elected officials:
 - meetings, written reports, etc.
- Participation à diverses manifestations :
 - journées d'information et de sensibilisation, conférences ;
 - formations, accueil de gestionnaires ;
 - colloques, exposition.
- Restitution aux financeurs et aux élus :
 - réunions, rapports d'activités, etc.

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8. Brochure to raise awareness concerning water primrose.

For more information

- IBSN internet site:
 - <http://www.sevre-niortaise.fr/accueil/des-thematiques-du-bassin-versant/les-plantes-exotiques-envahissantes/>
 - <http://www.sevreniortaise.fr/accueil/les-travaux-dans-lemarais-poitevin/la-vegetation-aquatique/>
- Pipet N. et Dutartre A. 2011. Proposition d'une méthode de recyclage et de valorisation agronomique des jussies extraites des milieux aquatiques. IIBSN et Cemagref. 3 pp. http://www.sevre-niortaise.fr/wpcontent/uploads/61_173_fiche-valorisation-agronomique-des-jussies_059.pdf

