



Himalayan balsam

(*Impatiens glandulifera*)

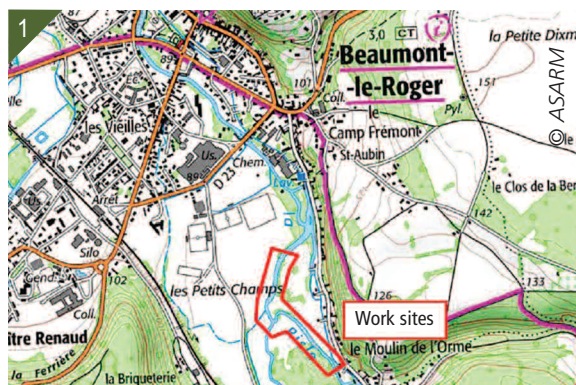
Manual eradication of Himalayan balsam on several sites along the Risle River (Eure department)

Official river board for the mid-Risle River (ASARM)

- ASARM is a public administrative agency that federates the land owners, the 18 towns and the three intermunicipal boards along the mid-section of the Risle River and its tributaries. The river board works to maintain and restore aquatic environments, and in general coordinate river management in the public interest and with a view to reconciling uses.
- In the framework of its mission to preserve, restore and valorise the river and wetlands, the river board is also in charge of managing any invasive alien species present in the board's territory.
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Intervention site

- The Risle originates in the Perche hills and flows to the Seine estuary. The section managed by ASARM comprises 110 km of the Risle and its tributaries.
- The intervention sites were located on the banks of the mid-section of the Risle, primarily in the town of Beaumont-le-Roger.
- A field inspection in September 2015 revealed the presence of several stands of Himalayan balsam. The colonised areas consisted of wet meadows, megaphorbias and a small number of wooded areas. Two main sites (approximately 1 500 and 1 800 square metres) were identified where the balsam is the dominant species, as well as some 20 smaller sites located downstream and consisting of between a few and 30 plants. An additional inspection was run on the upstream section of the territory managed by ASARM.
- The sites were located on the property of several land owners. An agreement authorising the work was signed between ASARM and the land owners.



Change in colonised sites from September 2015 to October 2018.

● 2015 ● 2018

1. Main work sites.
2. Spread of colonised sites.

Disturbances and issues involved

- Due to its rapid growth and high reproductive capabilities, balsam is detrimental to the native vegetation.
- In addition, the weak root system and annual nature of the plant may result in weakening of the river banks and greater erosion.

Interventions

- Following the discovery of the species, an initial work site involving volunteers was set up in September 2015 to limit the propagation of seeds downstream and subsequent new colonies of the plant.

- The inflorescences containing the seed capsules were gathered manually by some ten volunteers and burned.
- The volunteers included local people, anglers and kayakers who responded to a call made to ASARM members. This work took place one week after the discovery of the colonised sites and lasted one and a half days. Costs were covered by ASARM.
- In 2016, a new work agreement was signed between the concerned land owners and ASARM.
- In parallel, ASARM launched a partnership with the Social-Reintegration Centre (CIAS), an organisation run by the Bernay Terre de Normandie intermunicipal board, to set up a work site to uproot the plants and attempt to eradicate the species from the area.
- The uprooting team, comprising ten people equipped with gloves and waders, moved in a line along the banks and in the water to detect a maximum number of plants.
- Manual uprooting was made easier due to the weak root system of the plants. Following uprooting, the stems were broken in pieces and the plants stored in sealed plastic bags. The green waste was then transported to an incineration centre.
- Five days of work (four in July and one in September) were required in 2016 to uproot all the balsam plants that had been detected.
- From July to October, additional inspections were run on the worksites and in the Risle, ranging from the town of Vieille-Lyre (where a stand of balsam was found in a garden) to Nassandres on the Risle to detect any further colonies. The inspections revealed the presence of isolated, individual plants downstream of Beaumont-le-Roger.
- During the summers of 2017 and 2018, the inspections were continued, in part by the participants from the CIAS (2.5 days on the two main sites) and the rest by ASARM personnel.

Results and costs

■ Results

- Between 2015 and 2018, a total of more than 8 000 balsam plants were uprooted and incinerated, primarily in the framework of the first uprooting campaign in 2016. The plants represented an uprooted surface area of over 3 300 square metres and 890 kilogrammes of biomass.
- The inflorescences cut in 2015 weighed 340 kg.
- In 2017, approximately 100 plants on the two main sites were discovered and uprooted. No balsam plants were found on the isolated sites. In 2018, only a dozen isolated plants were found on one of the two main colonised sites and were uprooted.

■ Costs

Funding information.
The expenditures consisted of the daily salaries of the CIAS personnel, various equipment (bags, gloves), rental of a dumpster and incineration of the plants. ASARM assumed all in-house costs incurred for inspections and monitoring.

Funding entity	Percentage of total	Amount (in euros incl. VAT)
Seine-Normandie water agency (AESN)	80	3 198.00
ASARM	20	978.80
Total	100	4 176.80



3, 4. Balsam plants on the banks of the Risle River.
5. One of the two main balsam sites.
6. Cutting the balsam inflorescences.

Man-days spent on the project.

	2015	2016	2017	2017
ASARM personnel	3 people 10 days	3 people 10 days	3 people 10 days	3 people 10 days
Volunteers	10 people 1.5 days			
Work by a social-reintegration group		10 people 5 days	8 people 2.5 days	8 people 2.5 days

Information on the project

- A video on the work was made by the Normandie Regional Environmental Agency (AREN).
(https://www.youtube.com/watch?time_continue=21&v=KolrYzp-dpA)
- The operation was also presented to elected officials and local-government personnel during a technical workshop organised by AREN in Rouen on 19 October 2017.
- ASARM produced a poster on Himalayan balsam.
(<http://www.asa-risle.fr/wp-content/uploads/2016/03/POSTER-INVASIVES-BALSAMINE-ASARM.compressed.pdf>)
- The annual meetings of local residents were also an occasion to raise awareness of the problems caused by Himalayan balsam and by invasive alien species in general.

Outlook

- Following the four years of work, Himalayan balsam has virtually disappeared from the mid-section of the Risle.
- Monitoring of the intervention sites and any necessary uprooting will be pursued by ASARM during the flowering period (July and August). The small number of plants observed in 2018 confirmed the effectiveness of the work and lent weight to the prospect of totally eradicating the species from the area.

Authors: Régis Royer, ASARM, and Doriane Blottière, IUCN French committee, for the Resource Centre on invasive alien species. July 2019. Published by the French Biodiversity Agency.



7, 8, 9. Manual uprooting of Himalayan balsam.
10. Inspections along the Risle River.

For more information...

- ASARM. 2018. Control programme for Himalayan balsam (2015-2018). Management report. 2 pp. (In French)

This management report fills out the collection already published in the second and third volumes of the book titled "Invasive alien species in aquatic environments, Practical knowledge and management insights", in the *Knowledge for action* series published by the French Biodiversity Agency.
(<https://professionnels.ofb.fr/index.php/en/node/416>)

