



# New Zealand pigmyweed

(*Crassula helmsii*)

## Managing colonisation of a pond by New Zealand pigmyweed

### 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 hydraulic networks and installations in the Marais Poitevin marshes in a partnership with the State and the marsh board;
  - managing the Sèvre-Niortaise and Marais Poitevin SBMP and the Vendée SBMP;
  - coordinating the technical group for invasive alien plants in the Sèvre-Niortaise basin.
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### Autize and Egray intermunicipal board for hydraulics (SIAH)

- The board is active in the Autize basin (the part located in the Deux-Sèvres department) and the Egray basin, two tributaries to the Sèvre-Niortaise River.
- The objective is to establish a sustainable management and maintenance policy for the aquatic environments along the two rivers and their tributaries.
- The board is the managing entity for the Aquatic-environment territorial contract (CTMA) Autize-Egray 2013-2017:
  - an initial study prior to any work was conducted in 2010;
  - the objectives of the CTMA are to restore ecological continuity, particularly along the Autize, to limit clogging of the river beds and to reduce disturbances produced by farms.
- Board headquarters are located in the town of Beugnon (Deux-Sèvres department).
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### Intervention site

- The pond infested with New Zealand pigmyweed (NZZ) is located in the town of Chappelle-Bâton (Deux-Sèvres department), in the upstream section of the Sèvre-Niortaise basin, in the Autize basin managed by the SIAH. IIBSN participated in this project in the framework of the technical group for invasive alien plants by providing technicians from the Sèvre-Niortaise basin.



1. Intervention site

- Approximately 250 square metres (10 x 25 m) of the pond surface were covered by NZZ. The water depth varied from 20 to 60 centimetres with between 20 and 40 cm of sediment.
- The pond belonged to a farmer and was located along a road.
- The pond received water from a fountain, but was not connected to the aboveground hydrographic network. The nearest stream was the Raganier Stream, located 500 metres away.

### Disturbances and issues involved

- NZZ was observed for the first time on the site on 3 October 2011. This was also the first observation in the Poitou-Charentes region. The species has high dispersal capabilities, hence the need for rapid action once it has been detected. It is necessary to avoid colonisation of new sites by plant cuttings.

#### ■ Impact on water flow

- The plant can block canals and ditches.

#### ■ Impacts on the ecosystem

- The plant can limit the development of native aquatic plant species.
- NZZ beds modify the daily oxygen cycle to the detriment of animal species and thus to the ecological richness of the environment.

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## ■ Impacts on pond use

■ The development of a thick mat of plants along the edge of a pond or lake reduces the recreational value and can result in children and animals (pets, livestock) slipping and falling.

## Interventions

■ The work was carried out starting in the spring of 2012, from April to August. It was organised jointly by IIBSN and SIAH with the participation of the farmer who owned the site.

The work consisted of two different operations.

### ■ Mechanical uprooting

■ On 12 April 2012, the farmer uprooted all the beds using a tractor with a front-end loader equipped with a claw.

### ■ Manual uprooting

■ Following the mechanical uprooting, IIBSN and SIAH worked twice on the site:  
- on 4 May 2012, work on 5 beds, including 3 beds observed in 2011 and 2 new beds that appeared after the mechanical uprooting. Plus collection of cuttings.

Two people for 1 hour;

- on 16 August 2012, work on 5 beds plus collection of cuttings. Three people for 1 hour.

■ The workers started manual uprooting from the middle of the pond and worked to the edges in order not to trample the colonised zones and avoid any risk of fragmenting the plants and driving them into the sediment.

■ The plants were collected in 10-litre buckets and then transferred to basins.

### ■ Transport of the uprooted plants

■ The mechanically uprooted plants were stored on a hill approximately 100 metres from the pond. On the dry, relatively inaccessible hill, it was possible to monitor the changes in the plants following their transfer. The site also served for the plants uprooted manually.

### ■ Precautions taken during the work

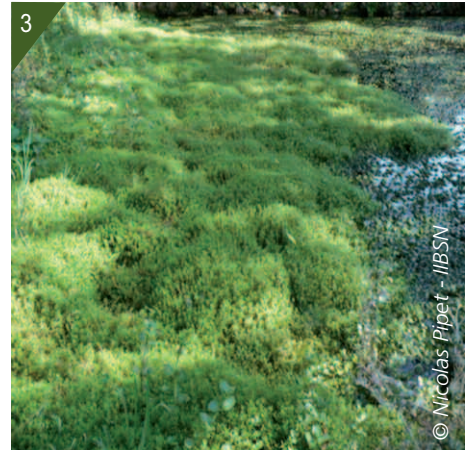
■ Manual work was preferred for very small beds and to collect stalk fragments.

■ Repeated manual interventions were organised for the entire pond.

■ A dry field located far from the wet areas was selected for plant storage to avoid any risk of regrowth and to monitor plant resistance to drying.

■ The people doing the work were trained to identify the species to improve detection of small beds.

■ Prior to the work, the wildlife on the site was observed in order to limit the negative impacts of the work.



2. Intervention site.

3. Beds of NZP.

4. Manual uprooting of NZP.

5. Plants ready for transportation.

6. A pile of harvested plants.



## Results and assessment

### ■ Results of the work done from 2011 to 2013

Surface area colonised (square metres)					Biomass harvested (kilograms)					Time spent (hours)				
Oct.	April	May	Aug.	July	April	May	Aug.	July	Sept.	April	May	Aug.	July	Sept.
2011	2012	2012	2012	2013	2012	2012	2012	2013	2013	2012	2012	2012	2013	2013
44.4	49.5	16.75	16.75	0.8	2 000*	95	50	> 10	> 10	NC	2	3	1	1

\*The 4 cubic metres harvested (stored) were a mix of NZP, other plants and sediment.

### ■ Assessment

- Approximately 95% of the initial biomass was harvested.
- Between 3 October 2011 and 3 May 2012, the mechanised work reduced the surface areas colonised, but produced cuttings.
- The manual work was effective and fairly simple for the beds located in the pond.
- The manual work required a large amount of time.
- Starting in 2013, the work and monitoring was organised by the SIAH technician.
- The storage area was monitored to learn more about the harvested plants.
- Plant regrowth in the pond was monitored and manual uprooting was repeated 3 times per year (May, July and September).
- A precise assessment of the management work was undertaken to check the effectiveness of the work over several years.
- Contact was maintained with the farmer.
- Checks were run to ensure that NZP did not spread to nearby aquatic environments.

### Information on the project

- At the end of 2011, an initial observation report for the species in the Poitou-Charentes region was drafted by Irstea and IIBSN, subsequently the National botanical conservatory for South-west France issued an alert concerning the species.
- At the end of 2012, a document summarising the work and monitoring carried out in 2011 and 2012 was drafted.
- The results of the work were presented annually to the farmer and to the town of Chapelle-Bâton.
- Annual reports on the work were published.

### Remarks

- NZP has been designated an emergent invasive species in France given its limited presence in continental France.
- Experiments on the management techniques for NZP were conducted in another pond in the town of Donges (Loire-Atlantique department) in March and November 2012. A report on the work done was drafted by the Pays-de-la-Loire regional environmental directorate and the National botanical conservatory in Brest.

The report is available on the IBMA site.

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7. The pond after the work on 3 May 2012.

### For more information

- IIBSN internet site:  
<http://www.sevre-niortaise.fr/accueil/des-thematiques-du-bassin-versant/les-plantes-exotiques-envahissantes/>
- For more information on the Sèvre-Niortaise basin, see the report on *Managing colonisation and proliferation of water primrose in the Marais Poitevin marshes* on page 70 in this document.
- Documents presenting the Autize and Egray intermunicipal board for hydraulics (SIAH).
- Fact sheet on New Zealand pigmyweed, National botanical conservatory in Brest:  
<http://www.cbnbrest.fr/site/pdf/Crassule.pdf>
- Pipet N., Dutartre A. 2012. Synthèse des actions menées en 2011 et 2012 sur *Crassula helmsii* présente dans une mare des Deux-Sèvres. IIBSN, Irstea, note, 19 pp.
- Sauvé A., Rasclé O. 2012. Intervention d'éradication de la Crassule de Helms (*Crassula helmsii*) - mare de Donges Est (44).

