



# New Zealand pigmyweed (*Crassula helmsii*)

## Managing New Zealand pigmyweed in the pools of Cap Gris-Nez (Pas-de-Calais department)

### EDEN 62

- Eden 62 (Public natural areas in the Pas-de-Calais department) was originally founded as a non-profit in 1993, but then became a management board in 1996.
- Its mission is to manage the sensitive natural areas owned by the Seaside and Lake Conservation Trust, the department and a number of towns.
- Eden 62 is financed primarily by the Pas-de-Calais department and serves as the technical arm for the management of the sensitive natural areas, i.e. approximately 5 500 hectares in the department, with a workforce of 130 employees.
- The main objectives of the board are to:
  - conserve and improve the heritage value of sites;
  - welcome the public while respecting the fragility of sites;
  - raise public awareness concerning the ecological value of the sensitive natural areas and the need to preserve them.
- Contact: Xavier Douard, policy officer for the *Site des Caps* park - xavier.douard@eden62.fr

### Intervention site

- The Cap Gris-Nez site is exceptional on both the national and European levels in terms of the landscapes and its ecology.
- The Cap Gris-Nez sensitive natural area spans a surface of 106 hectares and is located in the town of Audinghen. It comprises plots of land owned by the Seaside and Lake Conservation Trust.
- It is also located within the borders of the Natura 2000 site FR3100478 (NPC005).
- The point of Cap Gris-Nez was named a *Grand Site de France* in 2011, with Cap Blanc-Nez. Work was done in the framework of a national *Grand Site* project to enable the passage of approximately one million visitors each year.
- Jutting out into the English Channel, the cape is renown throughout Europe as a site for observing migrating birds.



Source: Eden 62



Source: Seaside and Lake Conservation Trust

- Borders of Trust work sites as of 31 December 2012
- Town limits
- Land acquired by the Trust as of 31 December 2012, but not assigned for management
- Land acquired by the Trust as of 31 December 2012 and assigned to Eden 62 for management
- Land acquired by the Trust as of 31 December 2012, but leased to farmers and assigned to Eden 62 for monitoring

1. Map showing the position of the site.  
2. Land cover on the cape with the pools colonised by New Zealand pigmyweed circled in red.



■ The cliffs, made of sandstone and marls, date from the Jurassic period and tower 50 metres over the sea. Swards of short, salt-tolerant grass may be observed on the top of the cliffs.

■ During WWII, the site was subjected to periodic bombing and the result is a very particular landscape. The “bomb-hole meadows” are flooded in the winter and the water often remains until the summer.

■ Today, the bomb holes are pools conducive to amphibians, such as the northern crested newt, listed in Annex 2 of the Habitats directive.

■ Approximately 30 pools created by bombs exist in the Cap Gris-Nez sensitive natural area.

■ The pools are not filled with water year round, their status depends on rainfall.

■ The New Zealand pigmyweed was discovered on the Cap Gris-Nez site in 2013, during an inventory by the National botanical conservatory in Bailleul.

■ The plant was observed in five pools, located near each other and toward the northern edge of the bomb-hole meadows.

■ Plant diversity is very high in the northern section of the meadows, which benefits from up-flowing water. The slopes of the bomb holes are fairly steep and are populated by dwarf thistle (*Cirsium acaule*) and yellow oatgrass (*Trisetum flavescens*), both EU-listed.

■ The pools themselves contain a small number of aquatic grass beds (aquatic *Ranunculus* spp.) and floating plants, e.g. floating sweet-grass (*Glyceria fluitans*) and common spike-rush (*Eleocharis palustris*), and, on the level just above, hygrophilic sections with wire rush (*Juncus inflexus*).

## Disturbances and issues involved

■ Colonisation of the pools (old bomb holes) by New Zealand pigmyweed totally stifled the existing aquatic plants and provokes the filling in of the pools.

■ No free water surfaces remained visible, which impacted the reproduction of amphibians, notably the northern crested newt.

■ Grazing by sheep risked accelerating the spread of the N.Z. pigmyweed to the pools not already colonised.

## Interventions

### ■ Objective of the interventions

■ Given the relatively strong presence of the N.Z. pigmyweed on the site and the risks of dissemination by birds and sheep, it was decided to limit the expansion of the species on the site and avoid its dissemination to the Côte d'Opale coast.

■ A number of management recommendations were made by the Bailleul National botanical conservatory following a visit to the site in September 2014 by Eden 62 and the conservatory. The recommendations included manual uprooting and the laying of tarps.

■ These techniques were not implemented due to a number of technical difficulties. The strong wind on the site made it impossible to lay tarps and the accumulation of rain water in the centre of the tarps was also a problem. Manual uprooting was not deemed possible given the large quantities of N.Z. pigmyweed to be removed.



3. Meadows with bomb holes on Cap Gris-Nez.  
4. Pool colonised by New Zealand pigmyweed.

## ■ Dredging the pools

- To avoid impacting the local amphibian populations, the work was done during the winter.
- The five pools colonised by N.Z. pigmyweed were dredged in December 2014.
- The project lasted five days and was done by the Colas company in the framework of the work for the National *Grand Site* of the two capes.
- The project owner was the Pas-de-Calais department and the project manager was Eden 62.
- The work was done with a tracked excavator, a tractor with a trailer and a second tractor with a tank trailer.
- The water in the bomb holes had to be pumped in part prior to dredging, using the tank trailer.
- The pumping system was equipped with a filter to avoid picking up fragments of N.Z. pigmyweed.
- Following dredging, the few fragments of N.Z. pigmyweed still present on the water surface were collected using a dip net.
- To drain the water from the dredged material, it was stored for one week along a rural road, in a former municipal dump.
- Waterproof tarps were first laid on the storage site to avoid the dispersal of the N.Z. pigmyweed.
- The material was subsequently transported to a special storage centre.

## Results and assessment

### ■ Résultats

- A total of 600 cubic metres of soil and plants were removed.
- The surface area freed by the work represented approximately 1 000 square metres.
- In 2015, N.Z. pigmyweed was again observed in the five pools that had been dredged, i.e. 20 to 30% of the surface areas dredged in December 2014 were again colonised in July 2015 along the edges of the pools, essentially in the water.
- But no other pools were colonised in the meantime.
- The amphibians continue to use the pools during the reproductive periods.
- Following the dredging, the pools regained their original appearance, i.e. that of craters caused by bombs.

### ■ Financial aspects

- The work was funded in the framework of the *Grand Site* project by the Pas-de-Calais department.
- The total cost amounted to 30 000 euros (before VAT) for the 1 000 square metres (600 cubic metres) dredged.
- The project involved five people for five days.



5. Filling in of a pool caused by New Zealand pigmyweed.  
6. Dredging one of the bomb holes.  
7. Temporary storage of the dredged material on a tarp.  
8. A pool after the work on 3 May 2012.



## Outlook

- Manual uprooting of N.Z. pigmyweed will be undertaken in 2016 in the five pools dredged in 2014. This work will be possible thanks to the previous dredging and the return of the pools to their initial appearance.
- The uprooted plants will be placed in garbage bags for subsequent incineration.
- Manual uprooting will be repeated as necessary.

Authors: Xavier Douard, Eden 62, and Emmanuelle Sarat, IUCN France



9. 10. Pools again colonised by New Zealand pigmyweed in January 2016.

### For more information

- Eden 62 internet site:  
<http://www.eden62.org/>
- \* Eden 62. Bilan d'activité 2014. Espaces naturels sensibles du site des deux Caps. 82 pp.
- \* Conservatoire botanique national de Bailleul. 2014. Étude de la Flore et des végétations, cartographie des éléments d'intérêt patrimonial et propositions de gestion conservatoire des prairies pâturées entre le Cran des Sillers et le Cran Barbier, Cap Gris-Nez (Pas de Calais). Département du Pas de Calais et Eden 62. 76 pp.
- \* Douard X., Mougey T., Pilon V., Derout D., Geneau D. et Deruelle E. 2011. Document d'objectifs site Natura 2000 NPC 005, Falaises du cran aux oeufs et du Cap Gris-nez, dune du châtelet, marais de Tardinghen, dunes de Wissant, juillet 2001 – septembre 2005. Parties A et B. 225 pp.



*This management report was drafted in February 2016 by the work group for biological invasions in aquatic environments, set up by Onema and IUCN France, in addition to those already presented in the second volume of the book titled "Invasive alien species in aquatic environments, Practical knowledge and management insights", in the Knowledge for action series published by Onema.*

<http://www.onema.fr/sites/default/files/EN/EV/cat7a-thematic-issues.html>

