



Groundsel bush

(*Baccharis halimifolia*)

Controlling groundsel bushes on the Ria d'Étel Natura 2000 site (Morbihan department)

Ria d'Étel management board

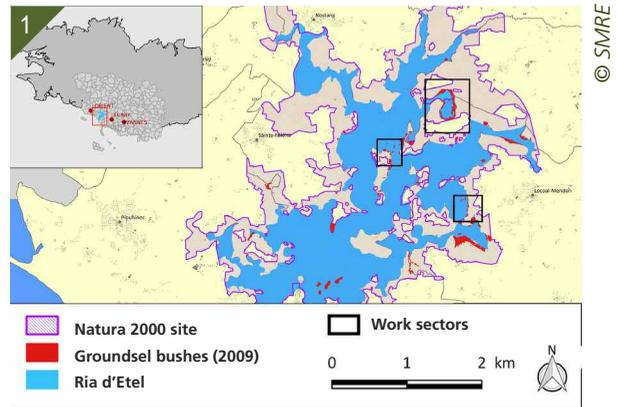
- The Ria d'Étel management board (SMRE), founded in 2007, addresses problems dealing with water quality and natural environments in the 18 towns located in the basin of the Ria d'Étel (Etel River).
- The objectives of SMRE are to:
 - preserve water quality in the river basin;
 - manage and protect aquatic environments (Aquatic-environment territorial contract);
 - develop the potential for commercial fishing;
 - promote activities in the littoral zones via a plan for the integrated management of coastal areas (GIZC);
 - manage the natural environments, including the Ria d'Étel Natura 2000 site, two sensitive natural areas (SNA) in the department and a site owned by the Seaside and Lake Conservation Trust.
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Intervention site

- SMRE is the local operator for the Ria d'Étel Natura 2000 site (FR5300028, Morbihan department). The site covers a total of 4 259 hectares in ten towns along the Ria d'Étel.
- The Ria d'Étel is an inlet that penetrates 15 kilometres inland.
- The area is a true patchwork of natural environments created by the diversity and nesting of marine, littoral and terrestrial habitats.
- The site was designated by the Habitats directive as an important area in terms of restoration and management issues for the main EU-listed habitats identified, namely heathlands, salt meadows, wet meadows and marine environments. It is also home to an array of remarkable animal species whose habitats must be preserved, including the European otter, bats (Barbastelle, greater mouse-eared bat, Bechstein's bat), butterflies (marsh fritillary), etc.

Disturbances and issues involved

- The document listing objectives for the Ria d'Étel Natura 2000 site, approved in 2012, mentions management of invasive alien species, including groundsel bushes, as one



1. Study site and main work sectors

of the priority conservation issues for the EU-listed habitats. Groundsel bushes are present in all of the towns comprising the site with highly variable colonised surface areas ranging from a few plants to large and dense thickets.

- *Baccharis halimifolia* colonises the EU-listed salt meadows, disturbing their ecosystem functions and contributing to the closing in and the uniform appearance of landscapes.
- The salt meadows are home to a very special fauna and flora. They play important roles for birds and fish (rest, feeding and spawning areas, etc.) and are a vital link in the production of organic matter. They are biotopes with an exceptionally high level of primary production (20 to 40 tonnes of organic matter per hectare per year, compared to 10 to 13 tonnes for a maize field). Most of the produced matter is decomposed on site by bacteria and small invertebrates, on which a number of species depend.
- These environments are also used directly or indirectly for a wide range of activities, including hunting, hiking, mariculture (primary production), picking shellfish, angling (the site is a growth area for juveniles), etc.

Interventions

■ Objective of the interventions

- Major sections of the Atlantic and Mediterranean coasts in continental France are already colonised by groundsel bushes. The point here was not to eradicate the species along the Ria d'Étel, but rather to limit its development and avoid colonisation of any new sections of salt meadows.

■ One of the most heavily infested towns is Locoal-Mendon. Since 2010, in a partnership with the town, SMRE has tested various management methods, including work by volunteer groups.

■ Discussions with other stakeholders and partners

■ A large number of stakeholders were involved, including elected officials, hunters, hiking groups, schools (agricultural high school), environmental-protection groups, Agenda21 group, etc.

■ Description of the techniques tested

Grazing by sheep	
Method	<ul style="list-style-type: none"> ■ Extensive grazing of salt meadows (that may be fenced). ■ Two grazing periods, spring and end-of-summer/fall, over three years. ■ Passage of a rotary cutter each year by the land owner prior to the spring grazing period. ■ Use of rustic sheep.
Prerequisites	<ul style="list-style-type: none"> ■ A contract was signed for a period of three years with the Association for the management of natural areas by grazing (GEPEN), that provided the sheep to graze the groundsel bushes. ■ A three-year contract was also signed with the owner of the private property to be grazed. According to the contract, SMRE was obliged to provide the necessary material for the sheep (the fence). The owner of the land undertook to pass the rotary cutter once each year, to provide free access to the land and not to destroy the natural environments.
Equipment	<ul style="list-style-type: none"> ■ Fences for the sheep (Ursus® wire fencing and chestnut-wood stakes).
Animals	<ul style="list-style-type: none"> ■ Two to four sheep (the area to be grazed is approximately 6 000 square metres).
Grazing periods and duration	<ul style="list-style-type: none"> ■ 2010 to 2012: <ul style="list-style-type: none"> - 30 days of grazing in the spring of 2010, - 36 days in the fall of 2010, - 56 days of grazing in the spring of 2011, - 35 days in the fall of 2011. ■ In 2012, it was decided to increase the grazing pressure with a single grazing period from April to the end of the fall. At the end of that time, the owner kept the sheep and the area has been continuously grazed since.
Monitoring	<ul style="list-style-type: none"> ■ The area was photographed before and after each grazing period. <p>N.B. Monitoring prior to grazing did not always take place prior to the passage of the rotary cutter.</p>
Work by volunteer groups	
Method	<ul style="list-style-type: none"> ■ Thickets of adult groundsel bushes (approximately two metres tall) were uprooted by a specialised company using a mini-excavator. ■ The bushes were burned on site, in a predetermined area, following a special authorisation by the prefecture of the Morbihan department. Currently, no use for the bushes has been found (a study on grinding the bushes has not produced any solutions).
Prerequisites	<ul style="list-style-type: none"> ■ Metal plates must be placed on the ground to protect the salt meadow from the tracks of the excavator. ■ In that the salt meadows are listed in the land register, the prior consent of the land owner is required (signed contracts).
Equipment	<ul style="list-style-type: none"> ■ A mini-excavator on rubber tracks and equipped with a bucket. ■ The smallest bushes around the thickets were uprooted by hand.
Work periods and duration	<ul style="list-style-type: none"> ■ The excavator was used over two periods (one person on the excavator and two others for manual uprooting), the first spanned three days in June 2010 and the second five days in June 2011.
Monitoring	<ul style="list-style-type: none"> ■ Photographic monitoring before and after the work.



2. Salt meadows colonised by groundsel bushes.
 3. Volunteers during uprooting work.
 4. 5. Grazing by sheep.
 6. Mechanical uprooting.

Work by volunteer groups

Method	<ul style="list-style-type: none"> ■ Manual uprooting of groundsel bushes ranging from a few centimetres to over two metres tall. ■ Since 2010, in the town of Locoal-Mendon: <ul style="list-style-type: none"> - there have been, on average, two half-day work sessions each year between December and April involving local volunteers, - at least one work session lasting a full day, each year, with students in a "Nature management and protection" course, - a work session with personnel from the technical department. ■ A number of one-off projects involving volunteers have been organised in other towns in the Natura 2000 zone (Belz, Plouhinec, Nostang, Sainte-Hélène), notably in a partnership with groups that manage hiking trails. ■ In 2015, it became necessary to relaunch the programme given the growing lack of interest on the part of the group of volunteers. A partnership now exists with the AI Terre Breizh association, a regional group specialised in organising projects for ecovolunteers lasting several days. <p style="text-align: center;">The intent is to ensure the future of the project in a long-term sustainable-development programme .</p> <ul style="list-style-type: none"> ■ To make the work more agreeable, the town offers volunteers a welcome party.
Prerequisites	<ul style="list-style-type: none"> ■ For the half-day sessions, the town is in charge of organising the work and participants must sign in at the start of the work in order to be covered in the event of an accident.
Equipment	<ul style="list-style-type: none"> ■ During the initial work sessions in 2010, no special equipment was used. The participants brought their own equipment, including gloves, pickaxes and spades. ■ Subsequently, the town and the technical personnel provided tools (pickaxes, branch cutters, etc.) and a dump truck to transport the waste to an incineration unit. ■ Starting in 2012, the town of Locmariaquer lent a tripod with telescopic legs and a chain hoist (one tonne lifting capacity). ■ Then in 2013, the Ria d'Étel intermunicipal association purchased the same equipment (tripod and hoist) and made it available to the management board. ■ In 2015, a special tool was invented by Daniel Lasne (town of Séné), the "baccharache" (groundsel ripper), a heavy-duty garden fork with a special leverage function. Six "baccharaches" were made available to volunteers during an ecovolunteer work session. ■ During the same session, an "animal power" firm (Tout en traction: http://toutentraction.jimdo.com/) demonstrated an uprooting technique using horses.
Work periods and duration	<ul style="list-style-type: none"> ■ In the town of Locoal-Mendon: <ul style="list-style-type: none"> - one to two half-day sessions each year since 2010, - two days with students in 2014, - two consecutive days in 2015. ■ Other towns: <ul style="list-style-type: none"> - a project in the town of Belz lasting two and a half days with 20 participants, - a project in the town of Plouhinec with the members of a group that manages hiking trails (a day and a half with 20 participants), - monitoring in the field by the group managing hiking trails in the town of Nostang. Members detect and work (uproot or cut) on groundsel bushes during their weekly sessions, - a session on recognising groundsel bushes and operating the tripod and chain hoist was organised with the group managing hiking trails in the town of Sainte-Hélène (a day and a half with five participants).
Monitoring	<ul style="list-style-type: none"> ■ Photographic monitoring. ■ Since 2014, the number of uprooted bushes has been counted during each session. This technique was proposed by the students in the "Nature management and protection" course at the Kerplouz high school (Morbihan department) in the framework of a study project. In a specific area, divided into 10 m x 10 m squares, each bush was counted. During a later session, the number of bushes counted in each square prior to uprooting was compared with the number after uprooting in order to validate the counting method. <p style="text-align: center;">Consequently, only the uprooted plants need to be counted.</p> <p style="text-align: center;">This method requires that a person be designated as the "counter" (who can operate over the entire work site) and that all the participants be informed of the need to carry the uprooted bushes to a collection point where they are counted.</p>



7. Metal plates used to protect the salt meadow when machines are used to mechanically uproot the bushes.
 8. 9. Uprooting by volunteers.
 10. A tripod with telescopic legs, equipped with a chain hoist.

Results and assessment

■ Results and assessment of grazing by sheep

■ The results were not satisfactory due to the insufficient grazing pressure exerted over periods that were too short. Permanent grazing produced better results. At the end of the project, the land owner purchased the two sheep from the association and kept them on the land (a donkey joined them in 2012). There are no longer any groundsel bushes on that land.

■ The mechanical cutting (mulching machine) by the land owner was very important. It held the colonisation at a low level and provided the sheep with new shoots (greater palatability) instead of the branches from the previous year.

■ Cost (before VAT):

- supply and installation of the fence using chestnut stakes every 2.5 metres and Ursus® wire fencing, 1.2 metres tall, 9.8 euros per linear metre, for a total cost of 4 454 euros including VAT;
- participation in managing the sheep, 450 euros (250 euros the first year and 100 euros the following two years);
- use of a rotary cutter by a farmer (approximately two hours), covered by the land owner;
- total 4 904 euros (the fence was by far the greatest expense).

■ Human resources:

- one policy officer to set up the project (find a favourable site, discuss with the land owner, set up the contracts, etc.), five days;
- project monitoring (photographic monitoring, arrival and departure of the sheep, communication, discussions with the land owner, etc.), two days per year;
- keeping an eye on the sheep and providing water was handled by the land owner.

■ Funding was made available through compensatory measures (preservation of biodiversity) by the Ria d'Étel intermunicipal association.

■ On the whole, grazing would not appear to be a particularly suitable technique for managing groundsel bushes along the Ria d'Étel:

- the proportion of fenced salt meadows is too low compared to the total surface area of salt meadows along the Ria d'Étel;
- it is difficult to find a large enough number of sheep (no sheep farms are located near by and not all types of sheep are suitable);
- grazing on salt meadows is not compatible with shellfish production in the near vicinity due to health considerations (risks of bacteriological contamination);
- the salt meadows are damaged if the grazing pressure is too high (excessive stocking rate or excessive durations). For example, salt bushes (*Atriplex* spp.) are sensitive to trampling;
- however, the technique may be useful in impounded marsh zones (see the Séné nature reserve).

■ Results and assessment of mechanical uprooting

■ The uprooted bushes were not counted following the work. The company was asked to remove all the bushes in three thickets (approximately 250 bushes).

■ Cost (before VAT):

- mechanical uprooting, 500 euros per day (this included the mini-excavator and the driver);
- manual uprooting, 200 euros per day for two people;
- a lump sum for burning of 600 euros;
- total 8 492 euros.

■ The human resources were provided by the company and included mechanical uprooting over eight days (three in 2010 and five in 2011) by one person and manual uprooting over six days (one day in 2010 and five in 2011) by two people.



11. Manual uprooting using the "baccharache" tool.

12. Demonstration of uprooting of groundsel bushes using a horse.

13. Regrowth of a groundsel bush that was grazed by sheep.

14. Manual removal of small groundsel bushes.

■ Funding was made available through compensatory measures (preservation of biodiversity) by the Ria d'Étel intermunicipal association.

■ Mechanical uprooting is effective and fast, but:

- this technique creates an area of bare ground that is very favourable for sprouting of new groundsel bushes, which means that work to remove the young plants must be conducted within the following two years. The removal of the sprouts is very fastidious work;
- the roots of the bushes are easily broken by the machine, leading to a high risk of new sprouts at a later time.

■ Results and assessment of uprooting by volunteers

■ Breakdown of the participation:

- 101 participations (four half days) by 53 volunteers (some participated in two or three sessions);
- 60% of the participants were from the town of Locoal-Mendon and approximately 15% from nearby towns;
- 118 students (three work projects with one day in 2012, two in 2014 and one in 2016);
- eight employees from the technical department;
- 15 ecovolunteers from the surrounding area, but also from the Finistère department, the town of Angers, the Paris region, etc.;
- 20 participants for one day via a partnership with a social reintegration association.

■ Results of uprooting:

- two priority sectors were determined on the basis of three criteria, namely 1) the colonisation by groundsel bushes was deemed controllable, 2) the presence of a plant species on the regional red list of vascular plants in Brittany, the *Troscart de Barrelier* (*Triglochin barrelieri*), and 3) landscapes characteristic of the Ria d'Étel;
- prior to 2014, the bushes were not counted. The quantity of uprooted bushes in cubic metres (based on the number of times the dump truck was filled) was very roughly estimated at 50 cubic metres over six half-days;
- starting in 2014, the number of uprooted bushes was counted. This turned out to be highly motivating for the volunteers and a source of valuable information for elected officials and citizens;
- 12 February 2014, 65 students and 2 688 bushes uprooted;
- 26 March 2014, 40 students and 2 655 bushes uprooted;
- 12 and 13 September 2015, 15 ecovolunteers and 3 organisers, 3 101 bushes uprooted.

■ Cost (before VAT):

- the costs of the small volunteer sessions were limited to those of the policy officer for one day in preparing the work (communication, coordination, etc.) and a half-day of presence on the site;
- the ecovolunteer project cost 6 000 euros, including food, logistics, fund raising and locating the volunteers.

■ Human resources included a policy officer (manager) and two session organisers (from the *AI terre Breizh* association).

■ Funding:

- organisational tasks were provided in the framework of the Natura 2000 programme (quantities depended on the year, 3-5 days in 2015 including the two days for the ecovolunteer project);
- for the ecovolunteer project, the town contributed 1 000 euros, the volunteers 40 euros each (including 10 euros of membership fees), and the *Nature et Découverte* foundation and the *Nicolas-Hulot* foundation contributed 3 000 euros.



15. Groundsel bushes sprouting after uprooting.
16. 17. Uprooting of groundsel bushes using the telescopic tripod and chain hoist.
18. Removal of the waste to an incineration unit using a dump truck.

- The partnership with the Al Terre Breizh association was positive in that it:
 - provided greater security in terms of liabilities (the association took out special insurance for the participants in the work sessions);
 - facilitated the recruiting of volunteers through its connections in numerous non-profit networks;
 - made the project a true event with a public meeting a few days before the start of the work, intense communication before and during the work with a press conference, etc.

Information on the project

- Articles were published in the press.
- Articles were published in municipal bulletins.
- A public meeting was held (with articles in the press).
- Videos were produced (one amateur and one for the local television station Tébésud):
 - <http://ria-etel.n2000.fr/actualites/video-retour-sur-le-chantier-de-benevoles>
 - <http://www.tebesud.bzh/?mode=numEmission&idFicheMere=74824&id=88928>

Outlook

- The ecovolunteer project stimulated the local stakeholders:
 - groups that manage hiking trails proposed to devote one or two half-days each year to managing groundsel bushes;
 - new partners have shown interest in setting up work sessions. A project is now under way with an association that assists welfare recipients.
- In 2016, the partnership between the associations, town and board will be renewed and expanded to include other towns in order to organise a session lasting several days.

Author: Charlotte Izard, Ria d'Etel management board. July 2016.



19. Manual uprooting by volunteers.

For more information

- Internet site of the Ria d'Etel Natura 2000 site: <http://ria-etel.n2000.fr/>