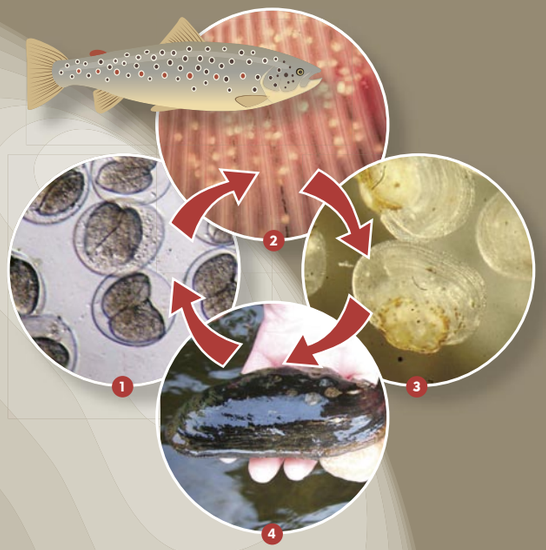
The life cycle of the Freshwater Pearl Mussel.



1. *In early summer, the males shed sperm into the water which is inhaled by the females. The eggs are fertilized and the female mussels then release larvae called glochidia in late summer.*

2. *The glochidia attach themselves to the gills of Brown Trout and remain encysted as a parasite until the following spring.*

3. *In spring, the young and fully developed mussels drop off the host fish.*

4. *During the first years, the young mussels live buried in coarse sand and fine gravel. At the age of 5, they appear on the river bottom. The next reproduction cycle starts when the mussels become mature, at the age of 12-15 years.*

In the river Our, only old mussels (age 40-50 years) are found. Declining numbers of mussels were observed during the last years due to low population density and, as a consequence, low reproductive success. The population is close to extinction.

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LIFE NATURE IS A FUND THAT SUPPORTS THE IMPLEMENTATION OF THE EU'S HABITAT DIRECTIVE. THE HABITAT DIRECTIVE INCLUDES A LIST OF HABITATS AND SPECIES THAT SHOULD BE PROTECTED. LIFE PROJECTS HELP TO ESTABLISH THE NATURA 2000 ECOLOGICAL NETWORK. THE AIM OF THE NETWORK IS TO ASSURE THE LONG-TERM SURVIVAL OF EUROPE'S MOST VALUABLE AND THREATENED SPECIES AND HABITATS.

Illustration 2ième page: Noël Gouilloux / Catiche Production - extrait du livre de Gilbert Cochet: "La moule perlière et les nayades de France" - Imprimé sur papier recyclé. Ne pas jeter sur la voie publique.

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The conservation of

FRESHWATER PEARL MUSSEL POPULATIONS

in the Ardennes

Phylum: Mollusca
Family: Margaritiferidae
Age: 80-140 years
Size: up to 14 cm
Habitat: clean, oxygen rich and nutrient poor running waters in low mountainous areas
Food: fine organic material (detritus)
Distribution: the northern hemisphere
Status: close to extinction in Europe

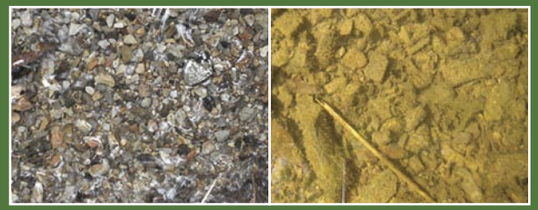
The project area.

The project area is located in the Natura 2000 zone "Upper Valley of Our and tributaries between Lieler and Dasbourg" (1,741 ha), along the river Our and its tributaries.

The **source of the Our** is located in Belgium (Losheimergraben) at an altitude of 650 m. After 78 km, at an altitude of 175 m, the Our flows into the river Sauer close to Wallendorf in Luxembourg.

Why is the Freshwater Pearl Mussel endangered?

Freshwater Pearl Mussels are very demanding regarding their habitat.



The mussels prefer clean gravel free from silt.

Threat: The gravel is clogged by silt and algae. The young mussel living buried in the fine gravel die due to oxygen deficiency.

Appropriate vegetation stabilizes the river bank and protects from erosion.

Wrong bank vegetation leads to massive erosion, clogging the interstitial downstream.

Furthermore, the Freshwater Pearl Mussel needs a healthy population of Brown Trout to be able to complete its live cycle. Because many spawning grounds were destroyed during the last decades, the number of host fish has decreased, however. Additionally, many Brown Trout cannot reach their spawning grounds due to obstacles obstructing their migration routes. Predators, like the North American musk rat, are another threat to the Freshwater Pearl Mussel. Furthermore the musk rats cause damage (erosion) by digging holes into the river banks.

The LIFE Project.

The aim of the project is to improve the habitat conditions for the Freshwater Pearl Mussel. To enhance the local population and prevent it from becoming extinct, young mussels are reared under semi-natural conditions.

To protect the mussel habitat, the riverbanks are stabilized by planting appropriate trees (e.g. ash, alder and willow). This natural bank vegetation does not only reduce erosion, but also protects the river from direct nutrient and pollutant input. In addition, the trees provide shade and keep the water temperature low during the summer. The improvement of the environmental conditions for the Freshwater Pearl Mussel will be beneficial for many other species as well.

Direct access of cattle to the river can be prevented by the installation of watering places.

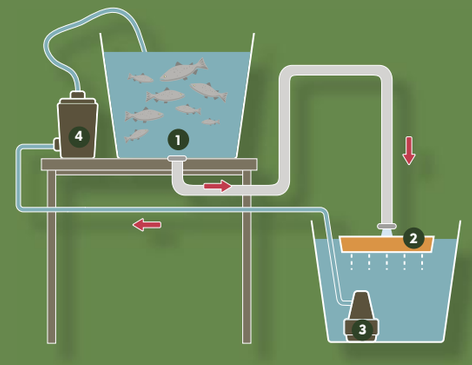
Unsuitable bank vegetation (e.g. spruce) is removed. Conifers are unable to stabilize the bank, cause acidification and do not provide food for the mussels.

To enhance the local Brown Trout population, obstacles on their migration route are removed. This will help the host fish to once again reach their spawning grounds.

Rearing station at the mill of Kalborn.

To increase the local mussel population in the river Our, a rearing station has been installed at the mill of Kalborn.

The larvae (Glochidia) produced by the female mussels in late summer are collected in order to infect young Brown Trout. The infected trout are kept under controlled conditions in ponds during the winter.



▲ Mussel seed harvesting station

1. *Young mussels fall from the infected fish*
2. *Sieve to collect the mussels*
3. *Water pump*
4. *Water filter*

In spring, a small number of the infected fish is transferred to the laboratory and kept in a "mussel seed harvesting station" in order to collect fully developed mussel seed. The young mussels are grown in the laboratory for the first months and then transferred to the rearing channel where they are kept under semi-natural conditions. After about 5 years, the young mussels, having reached approximately 1-2 cm in size, are released back into their natural habitat.