

Restoration of *Unio crassus* rivers in the Luxemburgish Ardennes LIFE11 NAT/LU/857



September 1st 2012 –
February 28th 2013

Inception Report



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère du Développement durable
et des Infrastructures
Département de l'environnement



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Agriculture, de la Viticulture
et du Développement rural



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Intérieur
et à la Grande Région



Inception Report

1st september 2012 to 28th february 2013

Reporting Date

February 2013

« Restoration of Unio crassus rivers in the Luxemburgish Ardennes »

Resto-unio

Project location:	Vallée de l'Our de Ouren à Dasburg Pont LU0001002 Vallée Supérieure de la Sûre / Lac du barrage LU0001007
Project start date:	01.09.2012
Project end date:	28.02.2018
Total budget	2.057.068 €
EC contribution:	1.028.534 €
(%) of eligible costs	50 %

Data Beneficiary

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2 LIST OF ABBREVIATIONS

MA:	Ministère de l'Agriculture, de la Viticulture et du Développement rural
MDDI:	Ministère du Développement durable et des infrastructures
MIGR:	Ministère de l'Intérieur et à la Grande Région
FMCS:	Freshwater mollusk conservation society
U.c.:	<i>Unio crassus</i>
WFD:	Water framework Directive
ANF:	Administration de la Nature et des Forêts

3 SUMMARY

Action A1: Localisation des zone à risques d'érosion	
Progress: Mapping of Erosion hotspots started and is ongoing.	To realise till next report: Finish mapping at all tributaries, farmland and rural- and forestry roads. +/- 40% to do.
Action A2: Planification des mesures de restauration	
Progress: Planning starts after most of the mapping has been done.	To realise till next report: Set up of an erosion reduction plan.
Action A3: Planification de la surveillance de la qualité de l'eau et du substrat interstitiel	
Progress: Sampling points were chosen, offers for measuring equipment are collected.	To realise till next report: Buy equipment for water quality monitoring.
Action A4: Mise en place de la technique d'élevage pour <i>Unio crassus</i>	
Progress: Visit of rearing facilities in Virginia / USA planned and organized.	To realise till next report: Visit of rearing facility in Virginia. Development of the culture protocol for <i>Unio crassus</i>
Action A5: Contribution à l'élaboration des plans de gestion Natura 2000 "Our" et "Haute Sûre"	
Progress: A first meeting will take place in march with the MDDI in order to develop a working methodology.	To realise till next report: Details of the defined strategy.
Action B1: Acquisition de terrains le long de l'Our, de la Sûre et de leurs affluents	
Progress: Land purchase of 73,80 ar.	To realise till next report: Further acquisitions.
Action C1: Interventions pour réduire l'apport en sédiments fins dans le réseau hydrographique	
Progress: This action is in its preparation phase under A1.	To realise till next report: Carrying out of restoration measures.
Action C2: Transformation d'obstacles à la migration des poissons sur les cours d'eau tributaires	
Progress: Field mapping to find the obstacles to be removed ongoing.	To realise till next report: Localize first obstacles to be removed in the river Our and Sauer catchment.
Action C3: Amélioration du substrat par dépôt de gravier	
Progress: Dump sites selected. Permission letter for the river Our and Sauer send to the	To realise till next report: Add twice gravel to

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authorities in Luxembourg, Belgium and Germany. Reply from Germany.	the river Our and Sauer at all 10 sites.
Action C4: Elevage de <i>Unio crassus</i> pour la Grande Région	
Progress: Organize and buy necessary material for first infestation of host fish and mussel collection in spring/summer 2013.	To realise till next report: Report about first infestation, collection cycle and first culture activities. Prepare cycle for 2014.
Action C5: Régulation de la prédation du rat musqué	
Progress: Muskrats have been trapped in autumn on both rivers.	To realise till next report: Repetition of the same action in spring an autumn 2013.
Action D1: Surveillance de la qualité de l'eau et du substrat interstitial	
Progress: Measuring of water quality started at both catchments and in their tributaries.	To realise till next report: Continue the monitoring of the water quality.
Action D2: Monitoring des poissons hôte	
Progress: Prepare first electric fishing activities at the river Our and Sauer in May 2013. Prepare first electric fishing activities at 10 tributary brooks in November 2013.	To realise till next report: Report about results of electric fishing activities at the river Our and Sauer and at the 10 tributaries.
Action D3: Suivi de <i>Unio crassus</i> dans son milieu naturel	
Progress: First mapping will start in spring 2013 as soon as water levels in the river Our and Sauer allow searching of Mussels.	To realise till next report: Continue mapping at the river Our and Sauer.
Action D4: Monitoring et évaluation de l'impact des mesures concrètes	
Progress: Evaluation sites are selected as soon as most of the mapping has been done, and first restoration sites have been selected.	To realise till next report: Select first sites to do the pre-restoration monitoring.
Action D5: Analyse de l'impact socio-économique du projet et de l'effet sur les écosystèmes	
Progress: Collect necessary data and informations for final report.	To realise till next report: Collect necessary data and informations for final report.
Action E1: Information et sensibilisation des acteurs concernés	
Progress: <ul style="list-style-type: none"> • 20.12.2012: Meeting with the staff of the Chamber of Agriculture. • 14.01.2013: Meeting with the staff of the Head of "Administration de la 	To realise till next report: Organize a meeting with the stakeholders of river catchments in order to prepare the water forum. Continue the preparing of the information meetings with the local farmers together with the Chamber of Agriculture.

Nature et des Forêts"	
Action E2: Sensibilisation du grand-public	
<p>Progress:</p> <ul style="list-style-type: none"> • 2 public information sessions, one at each river catchment. • press release: 4 articles • first part of exhibition with 5 boards 	To realise till next report: produce flyer of the project
Action E3: Création d'un site Web	
Progress: Content for the website is selected and written in German.	To realise till next report: Get offers from media companies and bring site online.
Action E4: Organisation de séminaires	
Progress: First seminar planned for 2014. Search of seminar date for 2014 in order that there is no overlapping with other mussel seminars in the larger area during the same period.	To realise till next report: Key data about first seminar (Venue, Date, invited speaker etc...) should be available.
Action F1: Gestion et encadrement du projet	
Progress: Set up of the project management staff. First piloting committee. Signature of the 3 partnership agreements. Inception report.	To realise till next report: Second piloting committee. Progress report.
Action F2: Echange du savoir avec d'autres projets: LIFE et autres	
Progress: Constant exchange with colleagues working in LIFE-Mussel-Projects by email and phone. Presentation of the project at international meetings.	To realise till next report: Continue exchange with Life projects and others. Take part in scientific seminars.
Action F3: Plan de conservation After-LIFE	
Progress: Not scheduled for the moment.	To realise till next report: Not scheduled for the moment.

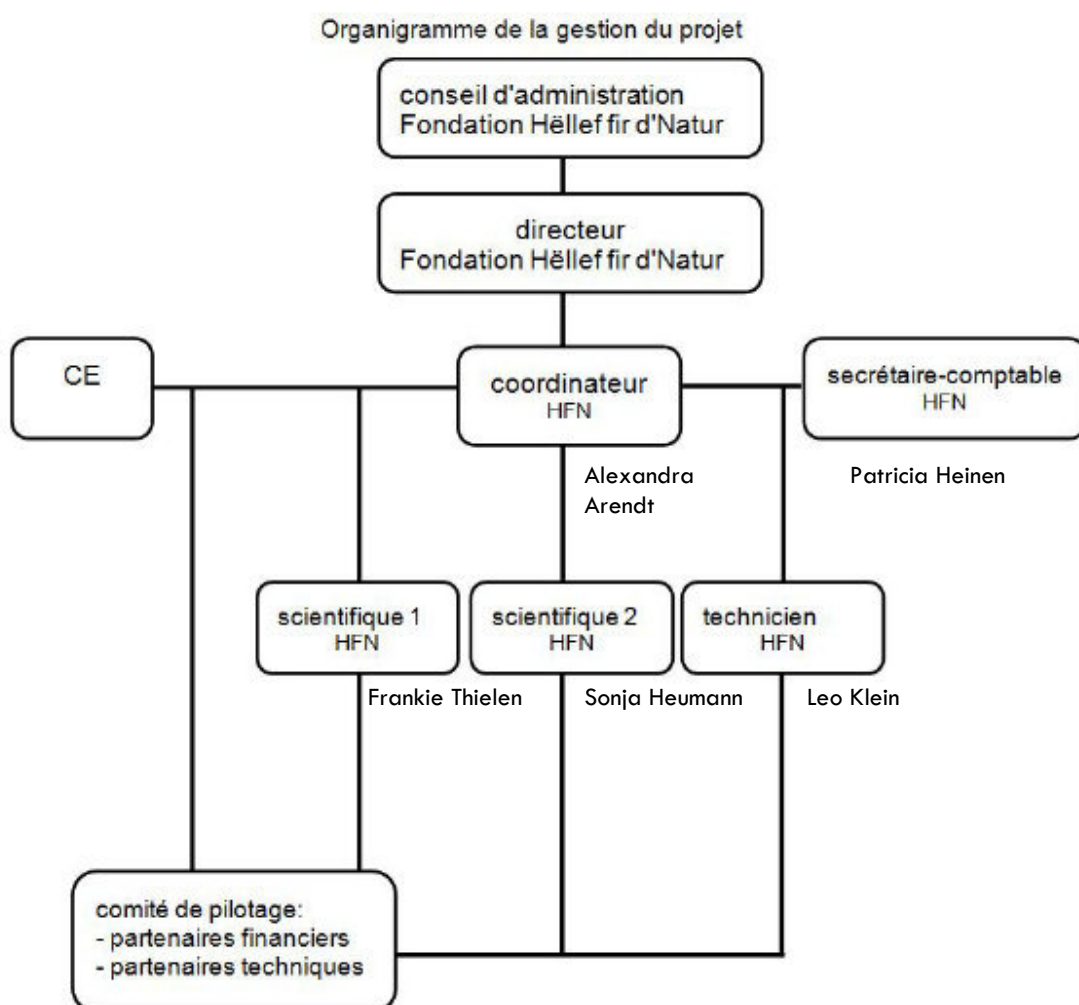
4 ADMINISTRATIVE PART

4.1 Project management.

The setup of the project management and composition of the project team is described under Action F1. Meetings with stakeholder or other groups and persons relevant for the project management are always mentioned in the respective description of the action (see chapter 5).

4.2 Organigramme

The project Organigramme is the following:



4.3 Partnership agreements

The partnership agreements with the co-financiers, the Ministère de l'Agriculture, de la Viticulture et du Développement rural (MA) and Ministère du Développement durable et des infrastructures (MDDI) can be found under Annex 10. The partnership agreement from the Ministère de l'Intérieur et à la Grande Région (MIGR) is for signing at the government department but has so far not been send back.

4.4 Comments

This section contains comments on the questions posed in the letter from January 8th, 2013.

Threats for *Unio crassus*:

The thick shelled river mussel *Unio crassus* a formally abundant species of semi-lentic river habitats in Luxemburg has dramatically declined within the last fifty years. Small populations remain in the two rivers Our in the three country region of Belgium, Germany and Luxemburg and river Sauer on the Luxemburgish Belgian border with about 9.000 respectively 30.000 individuals.

The two crucial problems of these catchments, as for many other river systems in Europe, are the heavy load of fine sediments causing a clogging of the interstitial pore system, the key habitat used by juvenile mussels during the first years and the eutrophication. Their origin must be searched in the change of the land exploitation leading to an unnatural high erosion due to human activities, such as intensification of agriculture, drainage, bar agriculture surfaces during the winter period, plantation of spruces along the riverside's and sealing of landscape by urbanization. A lot of these activities are even contributing to the reduction of the water retention capacity. Furthermore threatening factors for oligotrophic aquatic ecosystems such as phosphates and nitrates as well pesticides are directly washed out to the rivers from to intensive used farmland.

This poor water and substrate quality results in a high mortality amongst the young mussels and a loss of adult mussels that leads to a steady decrease of the populations. Additional negative factors such as the muskrat predation are accelerating this trend.

Policy-related bottlenecks:

The target of this project is improving the habitat for *Unio crassus* by reducing the input of fine sediments and nutrients into the river. This will be done by concrete technical restoration measures (water evacuation gutters, installation of fences as well by agro-environmental measures (buffers, etc..) and extensification of agriculture (see action C1). In general these measures are done on a voluntary basis by the farmers. The government is actually not imposing specific water improving measures on the Our catchment. Whereas on the upper Sauer catchment, farmers have to respect a program in order to preserve water quality of the lake, Luxemburgs' largest drinking water reservoir. What needs to be done is expanding this management also to the part of the Sauer between Martelange and pont Misère. These aspects will be treated for both river basins during the water forums (action E1) where the neighbour countries are involved and will further be subject in the discussions about the Natura 2000 management plans (action A5).

Policy-related bottlenecks may occur on different levels, such as:

- - the insufficient or slow transposition of the European Water Framework Directive (WFD): the "good" state may not be reached for the upper part of the Sauer and for many tributaries of the Sauer and the Our till 2015. Also are catchments' of less than 10km² not part of the WFD although many tributaries in the Our respective Sauer catchment have smaller hydrographic basins. For example, even if many sewage stations are planned, the implementation takes too much time (from the planning phase till the construction and functioning on average >10 years are needed).

Furthermore, for the long-term conservation of *Unio crassus* it would be more helpful to bring the upper parts of the catchments to the very good status rather than only to the good status as demanded by the WFD. This would also help to protect the Freshwater Pearl Mussel present in the upper part of these catchments. With the development of the Natura 2000 management plans a more strict legal basis will be provided for the land use and water management for both project areas.

- Agriculture - PAC (Politique agricole commune): the trend of the production of "green energy" concerns also agriculture exploitation. By the running of biogas plants agriculture methods will change, which will not necessarily mean sustainable soil management. The same remark can also be made regarding the subsidization policy, where in general intensification of agriculture is promoted. In most cases these exploitations are situated outside of the Natura 2000 sites, but their activity have an negative impact on the habitats and the species within the Natura 2000 sites.

- Urbanization: As housing prices are very high in the vicinity of Luxembourg City more and more people are moving to the northern part of the country. The land loss by declaration and conversion of agricultural land to building sites leads additionally to a higher pressure on the remaining agricultural area. In most cases these changes are situated outside of the Natura 2000 sites and rather within or beside the villages in the area. But these activities can have an negative impact on the habitats and the species within the Natura 2000 sites (e.g. changed water flow in tributaries, more waste water to treat in the area).

Procedures when inquiring market:

We ask for three offers to companies of our choice. Normally the offer with the economically best prize will be retained, if not for any other reason another selection is necessary. A protocol on how our ONG is inquiring the market will be worked out till the next report.

VAT eligibility

The document that our NGO cannot recover VAT is found in Annex 12

Reorganization of Beneficiary

The change of the name from Fondation Hëllef fir d'Natur to Fondation natur&ëmwelt brings no substantial change of the organization. The missions are still the same and the legal status of our organisation will not change. We will send the new association articles as soon as they are published in the "Memorial". Following this step, a demand for a new agreement will be made.

5 TECHNICAL PART

5.1 General progress of the actions

5.1.1 Action A1: Localisation des zone à risques d'érosion

The load of fine sediments and nutriments in the river system is one of the main factors responsible for the decline of *Unio crassus*. Therefore, the project focuses on the reduction of the entrance of fine sediments and nutrients in the water courses, especially in the tributaries of the rivers Our and Sauer. The main intent of this action is to localize the hot spots of erosion.

➤ Progress/results

There are different possibilities of entrance of fine sediments in the water courses:

- * Erosion of and on farmland
- * Erosion on or beside forestry and rural roads
- * Spruce trees next to the river
- * Cattle trampling

These different aspects in the project area are mapped with the objective to elaborate a detailed map with "hot spots" of erosions.

Mapping started in October 2012 with the tributaries of the river Our, followed by forestry roads around the river Sauer and farmland in the river Our catchment. Hotspots will be evaluated, rated and a priority list will be done and the section concerning farmland will be discussed with the Chamber of agriculture.

➤ Realised

During the winter time following tributaries were mapped:

Tributary	Date
Ettebaach (Our)	31.10.2012
Ketschbaach (Our)	29.10.2012
Traesbaach (Our)	29.10.2012
Fallbaach (Our)	12.11.2012
Holzbaach (Our)	12.11.2012
Klangbaach (Our)	30.11.2012

In December and January 2013 forest- and farm-roads were mapped in the river Sauer catchment.

Forestry- farm-roads in sub catchment	Date
Schwaerzerbaach	19.12.2012
Froumicht	18.01.2013

In January 2013 farmland was mapped in river Our catchment.

Annex 1 gives an overview of the mapped problems (pictures) with remarks. This document is for internal use and is written in German. Until now approximately 60% of all areas have been mapped.

➤ Problems encountered/delays

The time window for this action reaches until June 2013 which should make the mapping of the missing areas possible within this time period.

No other problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
A1								

	planned
	realized

5.1.2 Action A2: Planification des mesures de restauration

The initial mapping phase of “hot spots” of erosion, as foreseen under the action A1, will allow deciding where negative points have to be resolved and will lead to the concrete planning phase of the following restoration measures:

1. The installation of 2km of fences, 5 cattle watering installations, 3 bridges for cattle.
2. Construction of 60 water evacuation systems on agricultural and forestry roads.
3. 40 agro-environmental measures
4. Restoration of a river bed

➤ Progress/results

For the moment the progress is limited on the collection of literature of similar projects. Furthermore the Life Unio team is in contact with many other projects, working in a similar field. For details about the exchange with other projects see Action F2. The mapping phase as foreseen under A1 needs to be finished before concrete restoration measures take place.

➤ Realised

No deliverables are foreseen for the moment.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
A2								

	planned
	realized

5.1.3 Action A3: Planification de la surveillance de la qualité de l'eau et du substrat interstitial

The planning of the water measurement stations and other equipment needed for water quality survey are part of this action.

➤ Progress/results

A redox-electrode (Geist & Auerswald, 2007) was ordered in October 2012 and delivered in January 2013. In March a meeting (Strategien im Muschelschutz – Aktuelle Entwicklungen in Bayern und Europa) will be held by the Technical University of Munich including a special workshop for us to learn the handling and use of equipment as foreseen under A3.

Meanwhile there were contacts with three companies (WTW, Hach-Lange, Ott) to get offers for online water-monitoring systems. Two companies submitted their offers in the last days.

A monitoring plan was established in order to monitor the water quality of the tributaries. Therefore, several locations were selected as sampling points and the time interval is recommended for at least once a quarter.

Geist J, Auerswald K (2007) "Physicochemical stream bed characteristics and recruitment of the freshwater pearl mussel (*Margaritifera margaritifera*); Freshwater Biology 52; 2299-2316

➤ Realised

The redox-electrode is already delivered.

04.03.2013 meeting at TU München arranged (contact person Marco Denic)

A map with the water sampling points in both catchments can be found in Annex 2

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
A3			planned	planned	planned	planned	planned	planned
			realized	realized	realized			

5.1.4 Action A4: Mise en place de la technique d'élevage pour *Unio crassus*

The intent of this action is to plan and organize all the necessary steps to install a culture procedure for *Unio crassus* at the rearing facility at the mill of Kalborn.

➤ **Progress/results**

Authorisation

A permission from the MDDI to handle *Unio crassus* in the river Our already exists and is valuable until 31.12.2013.

The letter to obtain the necessary authorisation for the river Sauer and Our until the end of the project runtime (28.02.2018) was send out to the national authorities (MDDI) in January 2013.

Exchange with experts from USA

Registration for the FMCS Symposium at Lake Guntersville state park, Alabama, USA (10-14.03.2013) took place. To learn the handling of the cell counter, appointments at the mussel facilities in:

- Marion, Virginia Department of Game and Inland fisheries - Aquatic Wildlife Conservation Center, Virginia (Contact person, Megan Bradley).
- White Sulphur Springs, National Fish Hatchery and aquatic Resource recovery center, Virginia (Contact person, Rachel Mair).

were organized for the week after the meeting (18-22.03.2013).

➤ **Realised**

Permission Letter for the river Our until 31.12.2013(see Annex 3)

Copy of the authorisation request letter (see Annexe3)

Copy of the registration acknowledgement for the FMCS Symposium (see Annex 3)

Technical document about rearing method: to be delivered until the 31.08.2014

➤ **Problems encountered/delays**

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
A4			planned	planned	planned	planned	planned	planned
			realized	realized	realized			

planned
realized

5.1.5 Action A5: Contribution à l'élaboration des plans de gestion Natura 2000 "Our" et "Haute Sûre"

Elaboration of a management plan for the 2 Natura 2000 project areas on the river Our and the river Sauer.

➤ Progress/results

MDDI made an official submission for the management plans and is analysing the offers. A first meeting together with MDDI and a chosen consultant office will take place in March.

➤ Realised

No deliverables are foreseen for the moment.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
A5								

	planned
	realized

5.1.6 Action B1: Acquisition de terrains le long de l'Our, de la Sûre et de leurs affluents

It is foreseen to acquire 8 ha of land on the catchment area of the river Our and the river Sauer.

➤ Progress/results

First land purchasing has been signed by a notary. Further negotiations concerning a surface of approximately 70 ar in the river Our catchment are ongoing.

commune	section	lieu-dit	N° cadastral	Affectation actuelle	Surface totale (ar)	Surface eligible sous Life	Surface encore à acquérir
Clervaux	HA de Lieler	In der Kemicht	1022/4853	pré	73,80	73,80	7ha 26,20 ar

➤ Realised

Notarial act, aerial photo with the localisation of the acquisition (see Annex 4)

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2005				2006			
	I	II	III	IV	I	II	III	IV
B1				planned	planned			planned
				realized	realized			

5.1.7 Action C1: Interventions pour réduire l'apport en sédiments fins dans le réseau hydrographique

This action will lead to:

1. The installation of 2km of fences, 5 cattle watering installations, 3 bridges for cattle.
2. Construction of 60 water evacuation systems on agricultural and forestry roads.
3. 40 agro-environmental measures
4. Restoration of a river bed

➤ Progress/results

The formulation of the measures will take place as soon as the initial mapping phase of the erosion "hot spots" (action A1) and the concrete planning phase (action A3) have finished.

➤ Realised

No deliverables are foreseen for the moment.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
C1								

	planned
	realized

5.1.8 Action C2: Transformation d'obstacles à la migration des poissons sur les cours d'eau tributaires

The intention of this action is to remove or transform migration obstacles for fish in order to make them passable again.

➤ Progress/results

Within action A2 the sites to remove the migration obstacles are searched.

The field mapping is not completed and still ongoing (see 5.1.2).

The removal or transformation of the first obstacles at the rivers Our and Sauer is planned for 2014.

➤ Realised

No deliverables so far.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013				2014				planned	
	I	II	III	IV	I	II	III	IV	I	II	III	IV		realized
C2														

5.1.9 Action C3: Amélioration du substrat par dépôt de gravier

The intention of this action is to improve the quantity and quality of the river substratum in both rivers by the creation of clean gravel depots at five sites in each river.

➤ **Progress/results**

Within action A2 the sites to dump the gravel were searched (see 5.1.2).

All 5 sites at the river Our were known from a former Life project and the letter to obtain the permission were sent to the authorities in Luxembourg and Germany in September 2012.

Authorisation from Germany is available (30.10.2012)

Only confirmation of receipt from Luxembourg authorities (24.01.2013)

The five sites at the river Sauer were determined in January 2013 and the permission letter for the authorities in Luxembourg and Belgium was sent in January and February 2013.

No reply from Luxembourg or Belgium authorities so far.

➤ **Realised**

Authorisation Our Germany (Annex 5)

➤ **Problems encountered/delays**

Until now no authorisation from the Luxembourg authorities is available for the river Our. As the sites for the river Sauer were only determined in January, also no authorisation for the river Sauer is available. As a result the first dumping at both rivers was not possible in winter 2012.

However we are sure that the necessary documents will be available until the next foreseen dumping in winter 2013. Therefore in winter 2013 the double amount of gravel will be added at all 10 sites.

C3	2012				2013				
	I	II	III	IV	I	II	III	IV	
			planned	planned			planned	planned	
							new plan	new plan	realized

5.1.10 Action C4: Elevage de *Unio crassus* pour la Grande Région

The action deals with all the necessary steps to culture juvenile *Unio crassus* at the rearing facility at the mill of Kalborn. The Life *Unio crassus* team at the Mill as already a lot of experience in the culture of freshwater mussels.

➤ Progress/results

All the necessary material to do the host fish infestation, collect juvenile mussels and keep juvenile mussels in the lab were organized or were already available at the rearing facility.

The authorization to handle mussels from the river Our is available for 2013. The authorization for the river Sauer has been sent to the national authorities and will be available until April 2013.

Locations, where to find gravid females in the river Our and Sauer are known.

To optimize the feeding of the juvenile mussels, an exchange with experts from Virginia will take place as planned and described under Action A4 (see 5.1.4).

➤ Realised

No deliverables so far.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
C4								

	planned
	realized

5.1.11 Action C5: Régulation de la prédation du rat musqué

The muskrat are captured twice the year to reduce and/or to maintain the populations at a low level in the mussel rivers.

➤ Progress/results

The muskrats are caught once in spring and once in autumn. A first capturing phase has been done in autumn 2012. Eight muskrat were caught in the autumn season in the river Our catchment. This is a similar number compared to the years before. The hunters are familiar with the river Our system and know the best places to catch the muskrats.

So far we have no previous details about the size of the muskrat populations in the river Sauer catchment. 3 muskrats for the river Sauer catchment seems to be rather few, but the population could be lower at this river and also the best places for trapping are not yet known.

in thi The following number of muskrats were caught at the respective rivers.

Autumn 2012	River Our	River Sauer
Nb. of muskrats	8	3

➤ Realised

Detail of capturing periods/ Number of trapped muskrats.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
C5								

	planned
	realized

5.1.12 Action D1: Surveillance de la qualité de l'eau et du substrat interstitiel

The water quality is a key issue for the protection of the thick shelled river mussel and is monitored within this action.

➤ Progress/results

The monitoring of the water quality of the river Our started in September 2012, followed by the river Sauer some weeks later in October 2012.

Once a week a sample from each river is taken and analyzed. The parameters temperature, pH value, conductivity, turbidity, oxygen concentration, ortho-phosphate, nitrite, ammonium and nitrate were determined.

It is necessary to know the water quality of most of the tributaries from both rivers, Our and Sauer. These results will help to evaluate further restoration measures (C1 and D4). Once per season, or if necessary more often for investigative monitoring, the tributaries are sampled.

➤ Deliverables

Annex 6 shows graphs first measurements for both rivers.

➤ Problems encountered/delays

The redox-electrode was delivered in January 2013. However, no measurements will be done until the workshop in Munich in March 2013 takes place.

Measurements in the intestinal substrate will start in April 2013.

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
D1				planned	planned	planned	planned	planned
				realized	realized			

5.1.13 Action D2: Monitoring des poissons hôte

This action should give an overview about the host fish population in both rivers (Our and Sauer) and their tributaries.

➤ Progress/results

First electric fishing activities in the main streams of Our and Sauer will take place in spring summer 2013. The date will be chosen to be shortly after the release of *Unio crassus* glochidia. During this time period (May –June) a natural infestation of host fish with U.c. larvae can be detected.

The sites for electric fishing (2 sites at each river) will be chosen in proximity of mussel beds as they are known from the last mussel survey in 2003.

At ten selected tributaries (7 at the river Our and 3 at the river Sauer) the fish population will be analyzed. The 3 tributaries in the river Sauer catchment are the only three main tributaries in the catchment. The 7 tributaries in the river Our catchment will be chosen with respect to the vicinity of *Unio crassus* populations. In addition tributaries where migration obstacles are removed will be analyzed pre- and post-transformation.

All the necessary equipment for electric fishing and the necessary experience is available.

➤ Realised

No deliverables so far.

➤ Problems encountered/delays

The date of this electric fishing at the tributaries will not take place, as foreseen in the timetable, in the 2nd quarter of the year, but rather in the 4th quarter (October –November). During this period the water level in the tributaries is higher which allows electric fishing and is safer for the fish population.

No other problems encountered so far.

The time plan for this action is on schedule for the river Our and Sauer and changed slightly for the tributaries.

	2012				2013			
	I	II	III	IV	I	II	III	IV
D2								

	planned
	realized
	new plan for tributaries

5.1.14 Action D3: Suivi de *Unio crassus* dans son milieu naturel

The status of the *Unio crassus* populations in both rivers (Our and Sauer) was last investigated in 2003. To gain new information about the population size, age structure and habitat use, the intent of this action is to monitor the mussel population in both rivers.

➤ Progress/results

As soon as the water level in the rivers and the weather conditions allow access, the mussel search will begin in spring 2013. Aquascopes and waders are available. The equipment to sieve the sediment and also the mussel tags are ready to use at the rearing facility.

➤ Realised

No deliverables so far.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
D3								

	planned
	realized

5.1.15 Action D4: Monitoring et évaluation de l'impact des mesures concrètes

The aim of this action is to develop and apply a pre- post-monitoring protocol in order to evaluate the effectiveness of the used restoration methods.

➤ Progress/results

The initial status quo of water quality and population of *Unio crassus* will be used as reference for the evaluation of prospective measures.

The success of the restoration measures will be evaluated by the monitoring of concrete parameters (water quality, turbidity, quality of substrate and the host fish population).

The monitoring of the water quality of the rivers Our, Sure and their tributaries already started (see D1).

Sediment traps have not been installed in the river Our and Sure and their tributaries as the sites can only be chosen after most parts of the initial mapping have been done.

The composition of the host fish population has not been monitored up to now (see D2).

Monitoring of *Unio crassus* population in natural environment will start in spring/ summer time 2013 (see D3). The use of the redox electrode to measure the redox potential in the intestinal substrate will start after the workshop at the Technical University Munich in April 2013 (see A3 and D1).

The mussel breeding will start in spring 2013 (see C4).

➤ Realised

Preliminary field research on the water quality has been finished for the winter season 2012/2013 (D1). See also Annex 6.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
D4				planned	planned	planned	planned	planned
				realized	realized			

	planned
	realized

5.1.16 Action D5: Analyse de l'impact socio-économique du projet et de l'effet sur les écosystèmes

The objective is to assess the impact of the Life Nature project on the welfare of the region and its populations.

➤ Progress/results

This action is not scheduled for the moment.

➤ Realised

No deliverables are foreseen for the moment.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
D5								

	planned
	realized

5.1.17 Action E1: Information et sensibilisation des acteurs concernés

The reduction of the input of fine sediments in the aquatic ecosystem is of great importance in the present Life project. This action intends to inform all actors responsible for water quality in the river catchment and tries to motivate them to help to enhance the water quality.

➤ Progress/results

20.12.2012: Meeting with the staff of the Chamber of Agriculture in order to discuss and prepare the five thematic information meetings with the local farmers. A new meeting is planned for June 2013, where the topic and date for the first information meeting with the farmers will be fixed. This first meeting was also meant to present the work of natur & umwelt and the work of the Chamber of Agriculture to each other.

14.01.2013: Meeting with the staff of the Head of “Administration de la Nature et des Forêts”, Luxembourg in order to exchange our opinions about the problem of sediments in the rivers. ANF is willing to support us in the field of spring protection in the project area. Furthermore the ANF is interested in analyzing which are the main sources of input of fine sediments into our streams (e.g. meadows with trampling or rather arable farm land).

➤ Realised

PowerPoint presentation shown during the meeting of the 14.01.2013 (see Annex 7).

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
E1								

	planned
	realized

5.1.18 Action E2: Sensibilisation du grand-public

This action tries to inform people about the sense of the Natura 2000 network by the following means:

1. Information of the population: 1 session/river
2. Press release : 100-150 articles
3. Project Flyer: 1
4. Notice board: 2
5. Film: 1
6. Exhibition: 1
7. Natura 2000 visiting room: 1

➤ Progress/results

1. Information of the population:
 - Presentation of the Life Nature project at the Centre culturel in Munshausen (river Our) on the 12.12.2012. Audience of about 100 persons (see Annex 8)
 - Presentation of the Life Nature project at the centre culturel of Boulaide (river Sauer) on the 20.02.2013 Audience of about 55 persons (see Annex 8)
2. Press release : 4 articles (Annex 8)
3. Exhibition: conception of 5 more general boards about mussels and their importance for men, the mussel species in Luxembourg, their life cycle, the dangers they have to face and what can be done to preserve them and an introduction to the Life nature project. These boards were integrated in an exhibition stand specially developed for the Oekofoire, the only yearly trade fair in Luxembourg that deals with environment. Between the 14th and 16th September 2012, 14.300 persons were visiting the fair.
The more specific part, dealing with the measures of the Life Unio project, will be developed at a later moment (see Annex 8).



➤ **Realised**

2 information sessions, 5 exhibition boards, different press articles in printed and online media.

➤ **Problems encountered/delays**

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
E2								

	planned
	realized

5.1.19 Action E3: Création d'un site Web

Creation of a website. The project homepage will give the opportunity to inform all interested persons about the progress of project. Furthermore technical documents, provided as download, should help other projects working in a similar field.

➤ Progress/results

The homepage should include information about the mussels, reasons for the decrease of *Unio crassus* population, restorations measures, water quality and success. The homepage will be available in English, German and French.

The German version is ready and will be used to receive offers from media companies, responsible for the creation of websites. Contact with these companies will take place until mid March.

➤ Realised

The Internet domain : www.unio.lu has already been reserved by natur & umwelt. At the moment unio.lu links to the internet site of natur & umwelt. As soon as a start side for the life Project is available (end of march) this will be changed.

The German text version can be found in Annex 9.

➤ Problems encountered/delays

It is mentioned that a website should be active within 6 months after the project start. Under milestones of the project in our application document the date for the functioning of the Website was set to 30-04-2013. As this was accepted we intent to have the site functional within this period.

No other problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
E3								

	planned
	realized

5.1.21 Action F1: Gestion et encadrement du projet

➤ Progress/results

Project management staff:

The definitive composition of the project staff is the following:

Coordinator 60%: Alexandra Arendt biologist

Scientific 1 50%: Frankie Thielen Dr.rer.nat.

Scientific 2 50%: Sonja Heumann Dr. tech.

Technician 100%: Léo Klein environmental technician

Secretary/accountancy 40%: (LIFE 11 NAT/LU/857) 20% (LIFE 11 NAT/LU/858)
Patricia Heinen secretary

Piloting committee

Each financial partner nominated its members in the piloting committee of the Life Nature project. Additionally representatives from the Parc naturel de l'Our and the Parc naturel de la Haute-Sûre were invited to participate. After the nomination of the members the first meeting took place on 14.11.2012. A list with the members of the piloting committee can be found under Annex 10.

Grant agreement

The Fondation Hëllef fir d'Natur is formulating and preparing an agreement with each financial partner of the project.

➤ Realised

- Report and presentation from the first piloting committee (Annex 10)
- Grant agreements with the financial partners MA and MDDI (Annex 10)

➤ **Problems encountered/delays**

Due to an internal reorganization of the staff at the MIGR the grant agreement with the MIGR is not yet signed. This should however been done in March 2013.

No other problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
F1			planned	planned	planned	planned	planned	planned
			realized	realized	realized			

	planned
	realized

5.1.22 Action F2: Echange du savoir avec d'autres projets: LIFE et autres

The intent of this action is the regular exchange with all other project (Life, but also others) working in the field of freshwater mussel conservation. This is achieved by attending scientific meetings and regular email exchange with other experts.

➤ Progress/results

So far we attended or made a registration for the following scientific seminars:

- International Meeting on Biology and Conservation of Freshwater Bivalve. 4-7 September 2012, Braganca Portugal (Poster about new Life project).
- Interreg IVa 003705, Practical Implementation of Freshwater Pearl Mussel Measures, Friday 15th February 2013, Letterkenny Ireland (presentation of the planned restoration measures in the LIFE Unio project).
- Invitation to mussel meeting in Bavaria: 05. März 2013, Fachtagung: Strategien im Muschelschutz – Aktuelle Entwicklung in Bayern und Europa (poster and presentation).
- March 10-14, 2013 Guntersville State Park Alabama USA, FMCS 2013 Symposium, Species recovery and restoration – from concept to implementation (presentation and poster).
- July 1-5, Münster, Germany, Symposium for European Freshwater Sciences, with special session on Life projects (presentation).

Regular email exchange occurs with the following projects and experts:

- UC for Life Sweden (<http://www.ucforlife.se/en/>).
- LIFE+ Project Margal-Ulla Galicia Spain (<http://margalulla.xunta.es/en>).
- LIFE+ France « Rivières vivantes de Bretagne et de Normandie : Mobilisation pour le retour de la moule perlière d'eau douce » (<http://www.life-moule-perliere.org/accueilmoule.php>).
- Austrian Freshwater Pearl Mussel Project (<http://www.flussperlmuschel.at>)
- Rachel Mair White Sulphur Springs National Fish hatchery (<http://www.fws.gov/northeast/wssnfh/>).
- Prof. Dr. Chris Barnhart, Missouri State University (<http://courses.missouristate.edu/ChrisBarnhart/home/Default.htm>).
- Megan Bradley Aquatic Wildlife Conservation Center, Marion, Virginia, (<http://www.dgif.virginia.gov/awcc/>)
- Jürgen Geist group TU München (<http://fisch.wzw.tum.de>).
- Heidi Sehlheim, Charlotte Bontinck and Grégory Motte, Projekt Habitat Euregio + Biologische Station Aachen, Parc naturel hautes fagnes (<http://www.euregio-mr.com/de/service/archiv/2010/das-projekt-201ehabitat-euregio201c>).
- Arno Schwarzer ECOLOGIS(<http://www.ecolo-gis.de>)

➤ **Realised**

Poster from Braganca Meeting (Annex 11)

➤ **Problems encountered/delays**

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013				
	I	II	III	IV	I	II	III	IV	
F2			planned	planned	planned	planned	planned	planned	planned
			realized	realized	realized				



Participants of the Braganca Meeting

5.1.23 Action F3: Plan de conservation After-LIFE

Action to install a afterlife program

➤ Progress/results

This action is not scheduled for the moment.

➤ Deliverables

No deliverables are foreseen for the moment.

➤ Problems encountered/delays

No problems encountered so far.

The time plan for this action is on schedule.

	2012				2013			
	I	II	III	IV	I	II	III	IV
D5								

	planned
	realized

5.1.24 Overall Timetable

	2012				2013				2014			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
A1			■	■	■	■						
			■	■	■							
A2					■	■	■	■	■	■		
					■							
A3			■	■	■	■	■	■				
			■	■	■							
A4			■	■	■	■	■	■	■	■	■	■
			■	■	■							
A5											■	■
	2012				2013				2014			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
B1				■	■			■	■			■
				■	■							
	2012				2013				2014			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
C1							■	■	■	■	■	■
C2									■	■		
C3			■	■			■	■			■	■
							■	■				
C4						■	■	■	■	■	■	■
C5				■		■		■		■		■
				■								
	2012				2013				2014			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
D1				■	■	■	■	■	■	■	■	■
				■	■							
D2						■				■		
D3						■	■			■	■	
D4				■	■	■	■	■	■	■	■	■
				■	■							

D5												
	2012				2013				2014			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
E1						planned				planned	planned	
E2				planned	planned	planned	planned	planned	planned	planned	planned	planned
E3				realized		planned		planned		planned		planned
E4									planned			
F1	2012				2013				2014			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
F1			planned	planned	planned	planned	planned	planned	planned	planned	planned	planned
F2			planned	planned	planned	planned	planned	planned	planned	planned	planned	planned
F3												

planned	planned
realized	realized
intent	intent

6 FINANCIAL PART

6.1 Costs incurred

Budget breakdown categories	Total cost in €	Costs incurred from the start date to 20.02.2013	% of total costs
Personnel	€ 1.089.312,00	€ 52.101,24	4,78
Travel	€ 38.049,00	€ 883,67	2,32
External assistance	€ 272.100,00	€ 6.978,60	2,56
Durable goods - Equipment	€ 222.100,00	€ 3.758,59	1,69
Land/rightspurchase/lease	€ 81.600,00	€ 5.983,78	7,33
Consumable material	€ 31.939,00	€ 2.822,17	8,84
Other direct costs	€ 238.413,00	€ 4.184,23	1,76
Overheads	€ 83.555,00	€ 6.915,84	8,28
TOTAL	€ 2.057.068,00	€ 83.628,11	4,07

All expenses in all budget categories are, having a mind a runtime of 66 months, within a reasonable range.

For 2013 big expenses are expected in the category Durable Goods-Equipment. This will be the cell counter, equipment for water measuring stations and the project car.

Action number and name	Foreseen costs	Spent so far	Remaining	Projected final cost
Action A: Preparatory actions, elaboration of management plans and/or of action plans				
A1	21.065,00 €	5.151,08 €	15.913,92 €	
A2	41.679,00 €	1.157,09 €	40.521,91 €	
A3	53.745,00 €	445,39 €	53.299,61 €	
A4	27.302,00 €	835,68 €	26.466,32 €	
A5	19.999,00 €	918,33 €	19.080,67 €	
Action B: Purchase/lease of land and/or compensation payments for use rights				
B1	99.679,00 €	6.810,27 €	92.868,73 €	
Action C: Concrete conservation actions				
C1	124.578,00 €	1.744,82 €	122.833,18 €	
C2	131.152,00 €	514,26 €	130.637,74 €	
C3	58.562,00 €	348,96 €	58.213,04 €	
C4	527.770,00 €	19.631,64 €	508.138,36 €	
C5	7.917,00 €	348,96 €	7.568,04 €	
Action D: Monitoring of the impact of the project actions (obligatory only if there are concrete conservation actions)				
D1	125.884,00 €	2.695,19 €	123.188,81 €	
D2	28.802,00 €	1.251,22 €	27.550,78 €	
D3	34.583,00 €	1.253,52 €	33.329,48 €	
D4	27.856,00 €	835,68 €	27.020,32 €	
D5	14.107,00 €	642,83 €	13.464,17 €	
Action E: Public awareness and dissemination of results (obligatory)				
E1	36.292,00 €	1.395,86 €	34.896,14 €	
E2	115.422,00 €	9.827,80 €	105.594,20 €	
E3	20.821,00 €	587,73 €	20.233,27 €	
E4	28.774,00 €	806,84 €	27.967,16 €	
Action F: Overall project operation and monitoring of the project progress (obligatory)				

Restoration of Unio crassus rivers in the Luxemburgish Ardennes LIFE 11 NAT/LU/857

F1	348.039,00 €	15.494,97 €	332.544,03 €	
F2	79.485,00 €	4.012,89 €	75.472,11 €	
F3	- €	- €	- €	
Overheads	83.555,00 €	6.915,84 €	76.639,16 €	
TOTAL:	2.057.068,00 €	83.626,82 €	1.973.441,18 €	

7 ANNEXES

All annexes as listed in the text above can be found in the extra Annex document.

Annex 1: Action A1: Localisation des zone à risques d'érosion

- erosion mapping

Annex 2: Action A3: Planification de la surveillance de la qualité de l'eau et du substrat interstitial

- water sampling points

Annex 3: Action A4: Mise en place de la technique d'élevage pour *Unio crassus*

- Permission Letter for the river Our
- authorisation request letter
- registration acknowledgement for the FMCS Symposium

Annex 4 : Action B1: Acquisition de terrains le long de l'Our, de la Sûre et de leurs affluents

- Notarial act
- aerial photo with the localisation of the acquisition

Annex 5 : Action C3: Amélioration du substrat par dépôt de gravier

- Authorisation Our Germany

Annex 6 : Action D1: Surveillance de la qualité de l'eau et du substrat interstitial

- graphs with first measurements

Annex 7 : Action E1: Information et sensibilisation des acteurs concernés

- Power Point presentation

Annex 8: Action E2: Sensibilisation du grand-public

- Exhibition
- Presentation of the Life Nature project at the Centre culturel in Munshausen (river Our)
- Presentation of the Life Nature project at the centre culturel of Boulaide (river Sauer)
- Press release

Annex 9: Action E3: Création d'un site Web

- German text version

Inception Report

Annex 10: Action F1: Gestion et encadrement du projet

- Report and presentation from the first piloting committee
- Grant agreements with the financial partners MA and MDDI

Annex 11: Action F2: Echange du savoir avec d'autres projets: LIFE et autres

- Poster from Braganca Meeting

Annex 12:

- Official document VAT

Annex 13:

- output monitor indicators