



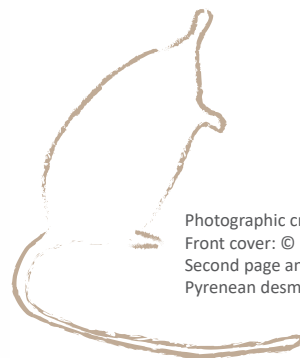
Layman's report

LIFE+ DESMAN

LIFE13NAT/FR/000092 « Conservation of Pyrenean desman populations and their habitats in the French Pyrenees »

2014 - 2020





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Second page and back cover:
Pyrenean desman © Lucas Santucci



PROJECT PRESENTATION

Pyrenean Desman, who am I ?

Latin name: *Galemys pyrenaicus* (E. Geoffroy Saint-Hilaire, 1811)

Taxon: Mammals, Talpid

Length: 23 to 27 centimeters

Weight: 50 to 80 grams

Diet: insect larvae

Lifetime: 2 to 4 years

Morphology:

A mobile and prehensile horn to get its bearings and feed

①

③

Dense and waterproof fur to protect itself against cold and water

Clawed and webbed back paw to swim

②

④

A long tail as a rudder

Distribution: France, Spain, Andorra and Portugal. Over 50% of its global range has declined over the past 30 years.

Habitats: lakes and mountain streams, good quality rivers of low, medium and high altitude.

Threats: degradation and fragmentation of its habitat, chemico-physical pollution, climate change, predation by domestic or invasive alien species animals.

Protection status: protected in France by the Environmental Code. Registered in several international conventions and directives. Classified «Vulnerable» in the IUCN Red List of Mammals in metropolitan France (2018).

LIFE+ Desman, what is it ?

In the past recent years, a dynamic has been put in place for the preservation of this small mammal. It was first the subject of a National Action Plan (PNA Desman 2009 - 2014) which enabled the improvement of knowledge and the rallying of a network of collaborators.

To enhance and carry on with this approach, this network has opted for a European tool - the LIFE program. LIFE means Financial Instrument for the Environment, and is established by the European Commission to fund projects for species and habitats conservation in Europe.

This was the beginning of the LIFE+ Desman project !

What about the goals ?

The project aims to improve the conservation status of the Desman in 11 Natura 2000 sites, then across the French Pyrenees through the replication of the methods and tools which have been developed.

From 2014 to 2020, four main objectives have been set through 29 operational actions of **knowledge**, **conservation** and **communication**:

- reconciling Desman preservation and human activities;
- improving the species consideration;
- suggesting management measures in favor of its habitats;
- raising awareness among local populations.

KNOWLEDGE SECTION

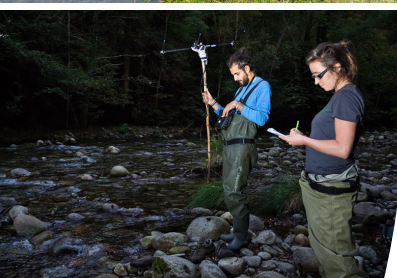
Protocol adjustment



- Faeces surveys - The search for faeces is the most frequent method for the detection of the Pyrenean desman. The LIFE project has enabled the development of a standardized protocol based on the PNAD experience which can be supplemented by other methods (faeces tunnels, genetic analyzes, etc.).



- Trapping - Trapping a Desman with fish traps is the oldest known method for its study. Necessary in many cases, it has been tested and improved over the past five years. It remains used as an exception as it is very disturbing for the species.

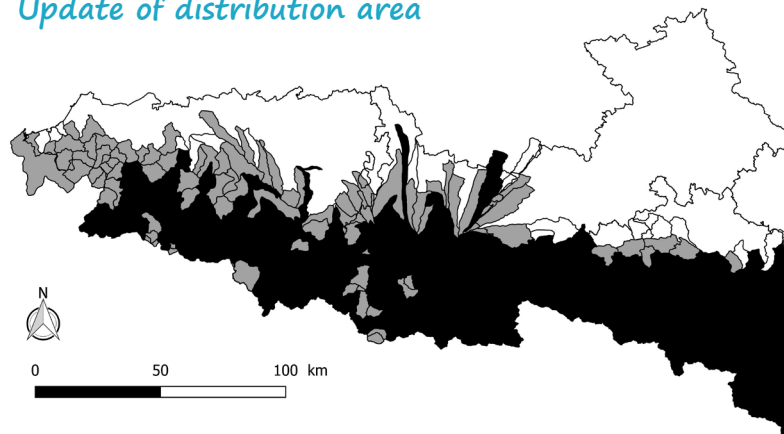


- Radio tracking - Radio transmitter can be put on trapped desmans to allow their monitoring. This enables the acquisition of behavioral and biological data.

- Track rafts - This protocol, newly tested for the Desman, has not been very conclusive.



Update of distribution area



Faeces surveys, initiated within the framework of the PNAD and carried on during the LIFE project, have enabled the updating of the distribution map of Pyrenean desman in France and the determination of watershed areas of proven (black) or historic (gray) presence of the species.

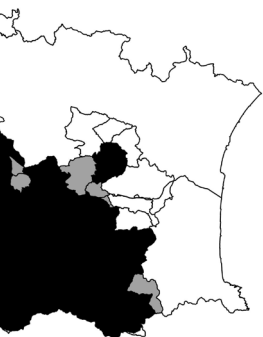
From top to bottom - Desman faeces on the Salat River © Frédéric Blanc. Traps on the Bious plateau © Christine Fournier-Chambrillon. Radio tracking session on the Vicdessos River © Lucas Santucci. Track rafts on Ayous Lake © Frédéric Blanc.

Key figures

- **91** sections of 500 meters prospected with the faeces survey
- **996** faeces collected, **569** genetically analyzed, **397** belonging to the Desman
 - **35** trapping nights, **2243** traps set, **25** desmans captured
- **3** radio tracking sessions, **7** monitored desmans, **108** days of monitoring for more than **4000** locations
 - **80** track rafts deployed, **2** doubtful tracks

Species' ecology

Radio tracking monitoring and faeces genetic analyses have confirmed or provided new information on the species ecology.



- Activity pattern - The activity of desmans is both diurnal and nocturnal with a higher activity at night which results in longer traveled distances. All monitored desmans have similar activity patterns. During their rest phases, they stay in 1 to 3 nests to which they are very loyal.

- Home ranges and space use - Home ranges of monitored desmans vary from 250 to 500 meters depending on the river studied over 6 to 27 days of monitoring. However, faeces genetic analyses show that desmans can cover longer distances, up to 18

km in one year or more than 6 km in three days.

- Social interactions and population densities - Some of the monitored desmans shared all or a part of their home range as well as one of their nests with another Desman, regardless of gender. Genetic analysis confirms these observations and also provides information on population densities. For example, four desmans were detected on a 250 meters section in only two months. All these elements, in addition to other studies, confirm the non-territorial nature of the species, contrary to what was generally accepted.

Desman's biological minimum flow

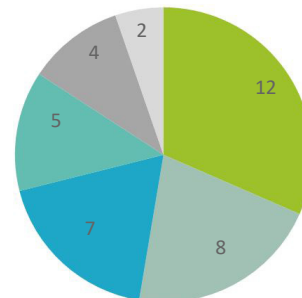
Given that the Pyrenean rivers are highly engineered rivers, especially concerning hydroelectricity, the study of a biological minimum flow for the Desman has emerged as a priority. The use of the microhabitat method, paired with the radio tracking monitoring data, has enabled to study the modification of Desman's habitats linked to flow variations.

The first results indicate the need to maintain a biological minimum flow close to the natural minimum flow to maintain and allow the conservation of the Desman populations.

Identification of causes of mortality

The main causes of Desman's mortality have been identified through autopsies of 38 carcasses found fortuitously. This This enabled the establishment of recommendations regarding the reduction of risks of mortality linked to these main causes.

- Predations (domestic cat, European otter, dogs...)
- Uncertain predations
- Hydraulic facilities (pipes, dams, grids...)
- Accidental destruction
- Undetermined traumatic causes
- Undetermined cases



CONSERVATION SECTION

Improving the consideration of the species

The Pyrenean desman is a little known, difficult species to detect. In fact, it was rarely taken into account, or in a non-homogeneous way, in the environmental assessment process (water legislation records, environmental assessments, etc.). This resulted in the execution of work that neither respected the presence of the species, nor its habitats. The LIFE+ Desman project helped to develop a series of tools and mobilize all stakeholders in order to address this issue.

Collectively created and with a strong support from the DREAL Occitanie, these different tools are declined in four free access booklets and a framework document. They went along with a considerable effort of training courses for the stakeholders, mainly environmental engineering consultants and instructor departments.

- Booklet 1: **species presentation** including the main elements of its biology and its ecology.

- Booklet 2: **cartographic tool** based on the Desman distribution map systematizing its consideration and / or that of its habitats + **faeces search standardized protocol** in cases where an additional exploration is necessary.

- Booklet 3: **catalog of monitoring protocols** in cases where the development justifies this type of study to assess its impact on the Desman and / or its habitats.

- Booklet 4: **technical management recommendations guide** in favor of the Desman and its habitats. Listing avoidance and reduction measures recommended according to the possible impacts and types of work.

So far it has become systematic to take into account the species during work in the river. The number of projects proposing adjustments to reduce their impact on the Desman or its habitats is constantly rising.

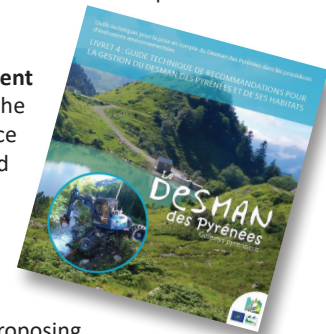
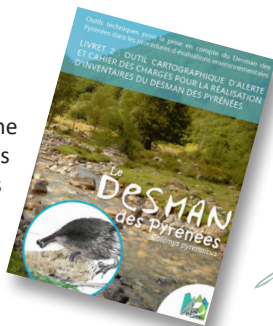
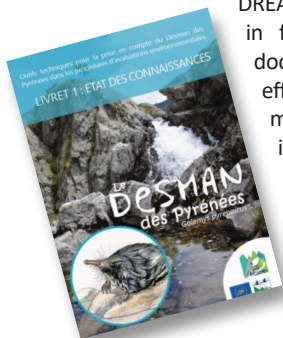
Site protection

As part of the LIFE + Desman project, two measures were used to protect some interesting sites:

- **land protection** through the acquisition of plots on the banks of the river;
- **conventional protection** through the “Haven of peace” convention. Signed with an owner, he agrees to respect a code of good behavior in favor of the Desman and its habitats.

Key figures

- 4 technical booklets
- 1 cartographic tool
- 15 projects investigated in 2019 including 2 abandoned
 - 0.90 ha acquired for 300 m of banks
- 18 “Haven of peace” signed for 500 ha and 3.5 km of banks



Neutralization of dangerous items

The rivers are full of added facilities or waste that constitute as many deadly traps for the Desman (water cranes, weirs, pipes, various waste ...) or are harmful to its habitat. A method of evaluation of these dangerous items has been established in order to rank the risks and to identify key priorities for action.

Several actions have been taken to reduce the identified risks:

- the installation of a whey filtering device on a cheese hut in the Ossau valley;
- the design and the installation of several devices restricting the presence of the Desman in dangerous irrigation canals (5 escape ramps, 2 grids and 1 «receptacle»);
- the installation of a crossing ramp on a dam;
- the installation of 3 strainers on influent pipes;
- bank cleaning operations (6.5 m3 of various waste and 5.5 tons of scrap metal);
- the remodeling of a sheep farming operation to limit the trampling of the banks (renovation of a walkway and installation of a hydraulic pump);
- the participation in the struggle against the American Mink.

Bank cleaning: before/after
© Melody Lim



Restoration of stream areas

The different radio tracking monitoring have shown the importance of refuge areas for the Desman (tributaries, secondary branches, etc.), especially when the main rivers are disturbed. However, these areas are not always functional due to engineering works. In the same way, certain sections of rivers are sometimes very uniform (artificial banks, channelized rivers, etc.) and do not offer favorable conditions to the presence of the species.

The LIFE+ Desman project has enabled to take action in six refuge areas with the reopening of three secondary branches on the Aude River and the functional restoration of three small tributaries on the Aston River. In addition, more than 900 m of river spread over three sites have been redesigned to bring back flow diversity. The Desman has since been found on some of these sites and the results for fish and invertebrates are positive!



From top to bottom
Creation of a small threshold © Pauline Levenard.
Creation of a green box © Pauline Levenard.
Setting up an Desman artificial nest © Léa De Sauverzac.
Reopening a natural space to improve the water flow © Melody Lim.

COMMUNICATION SECTION

Awareness-raising of the general public



- To reach flowing water sports practitioners, **the Desman semi-aquatic kayaking discovery trail** was created by three stakeholders: CEN Midi-Pyrénées, Réseau Éducation Pyrénées Vivantes and Conseil Départemental de Canoë-Kayak 65. This playful tool adapts to all audiences. Brochures have also been distributed to canyoning practitioners.

- **Stickers, posters, small waste bags, fishing line collectors**, first designed for fishermen, allowed the distribution of goodies during thematic events but also during events for the general public.

- The “Desman des Pyrénées” exhibition and book made it possible to raise awareness about the Desman through the adventures of a photojournalist in order to discover the mysterious animal. They were presented through several events and festivals.

- In order to inform the public, thirteen information panels have been installed on six Natura 2000 sites of the project and on the three sections chosen for habitat restoration work.

From top to bottom - Elements of the semi-aquatic discovery trail © Melody Lim.
Fishermen goodies © Frédéric Blanc. Photo exhibition in Montier-en-Der © Émile Poncet. Information panel in the nature reserve of Nohèdes © FRNC.



Desman's caravan in 2017 in the Gaves valley © Frédéric Blanc

Key figures

- **9 000** project brochures distributed
 - **51** conferences, **2 200** people
- **38** “rendez-vous des cîmes”, **1 210** people
 - **24** “apéros du bestiaire”, **1 314** people
- Photo exhibition at the 2018 Montier-en-Der festival, **35 000** visitors
 - **75** school projects, **1 500** students
- **13** scientific articles and **12** naturalist symposia
- Numerous publications in the press and various other publications
- **1** website, **166** news, **9 500** visitors, **15 600** sessions, **332** subscribers to the newsletter and **31** observations of Desman validated
 - **585** subscribers, **230** posts and **540** “likes” on Facebook
 - **117** followers on Twitter

The Desman's Caravan is a trailer pulled by a mule inviting the residents of the localities it crosses to participate for free in various entertainments about the Pyrenean desman. Visitors are also invited to discover its environment and species with which it shares it.

The programs of events were built in collaboration with local actors to offer a wide variety of activities that are part of the territory. Waterside field trips, shows, movie evenings, exhibitions, friendly aperitifs, creative workshops ... there is something for everyone!

The event took place four times: Haut-Couserans (09), Vallée des Gaves (65), Capcir, Cerdagne and Conflent (66) and finally Haut-Béarn and Soule (64). A total of **9 000** people gathered around this event, the effects of which are much broader.



- 3 training courses for environmental engineering consultants, 64 participants
 - 6 training courses for instructor departments, 76 participants
 - Desman's Caravan: 3 specific events, 83 participants
- 2 training courses for outdoor sports practitioners, 48 participants
 - 2 training courses for refuge keepers, 24 participants
 - 10 training courses for EDF officers, 132 participants
 - 2 training courses for nature reserves officers
 - 1 training course for road service officers of the Aude department

Key figures

Professional training courses

The primary objective of these training courses was the appropriation of the tools developed in order to improve the taking into account of the Desman. Thus, the environmental engineering consultants were trained in their implementation and the instructor departments were trained in their application.

In addition, the training courses of actors involved in the management and use of aquatic environments across the Pyrenees has enabled a better consideration of the species in their respective businesses. These include hydroelectricians, flowing water sports practitioners, river syndicates...

LIFE+ Desman project restitution symposium

The project restitution symposium was held on 4-5 December 2019 in the ENSAT premises (Auzesville-Tolosane, 31). It gathered 150 people around the Desman theme to draw a general overview of the five years of the program and more generally of the ten years of action in favor of this species.

Technical partners, funders and the general public were able to discuss all of these results.



*Desman's caravan events (left and center)
© Mélanie Némot
Project restitution symposium (right)
© Melody Lim*



LIFE+ DESMAN: RESULTS AND PROSPECTS

What assessment ?

These five years of work on the Pyrenean desman have enabled to make several major steps in the conservation of this iconic species.

Knowledge development

Because there is no conservation without knowledge, all the conducted studies have made it possible to discover or refine necessary elements for the protection of the species:

- search for the species → distribution map update and modification of the IUCN status in France (NT to VU);
- nests use and location → importance of the natural banks;
- monitoring of movements → importance of the entire hydrographic network connectivity at the watershed scale;
- study of the impact of flow variations → first encrypted elements to guide flow management;
- study of dead specimens → identification and struggle against causes of mortality.

Improving species consideration

Reconciling omnipresent human activities in Pyrenean rivers and the presence of the Desman is essential for its preservation and that of its habitats. The design and diffusion of tools created for this purpose and the mobilization of stakeholders, with the support of the instructor departments, have improved the consideration of the species in environmental assessment procedures.

Appropriation of issues by the stakeholders

Awareness actions have reached a wide range of Pyrenean aquatic environment stakeholders. They were also involved in the design and implementation of some actions of the project to better understand the issues.

At the same time, a significant communication work with the general public was led to bring the Desman into the Pyrenean culture.

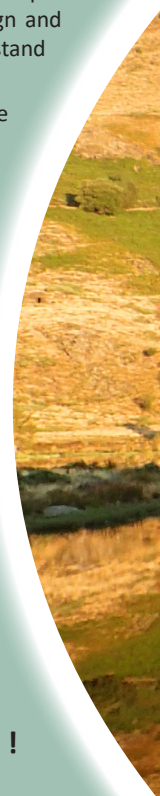
Now what ?

The work initiated with the PNAD (National Action Plan for the conservation of the Desman) and carried on through the LIFE+ Desman project has provided many new elements and helped the Desman to emerge from the shadow. However, even if the consideration of the species has clearly improved, the condition of its populations remains very fragile and the situation of the species is more than ever worrying.

Thanks to the LIFE program, foundations have been laid on which we must continue to build for the long term improvement of this situation.

With this in mind, a second PNAD is currently being drafted and will take over from 2021. Among its main objectives, it includes the concrete conservation of certain population cores or furthermore the support for the implementation of the tools permitting the taking into account of the species.

The Desman will continue to make a lot of noise !



All information, technical tools and awareness documents are
available on the project website
www.life-desman.fr



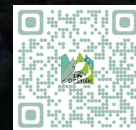
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«Conservation of the Pyrenean desman populations and its habitats in the French Pyrenees»

The LIFE+ Desman project is coordinated by the Conservatory of Midi-Pyrénées Natural Spaces and six associated beneficiaries

It received technical support from six other partners



It is financially supported by the European Commission and ten co-financers



Quote from the booklet: LIM Melody & PONCET Emile (2020). Layman's report - LIFE+ Desman 2014-2020. Toulouse, CEN Midi-Pyrénées, 12 p.

