

**LIFE12 NAT/ES/001091**

"Conservation of river fauna of Community interest in the Natura 2000 network sites of Ter, Fluvià and Muga river basins"



# **NARROW-MOUTHED WNORL SNAIL** **(*Vertigo moulinsiana* and** ***Vertigo angustior*)**

December 2016



# FEATURES

It features a brown and almost smooth right-handed (right-facing) toe-to-toe

Its size is about 2.5 mm in height and 1.4 mm in diameter

It has a left-handed oval-shaped shell (mouth to the left), oval, brown or yellowish-brown, shiny and rough



*Vertigo moulinsiana*

The opening of the mouth is somewhat triangular. It shows four well-defined teeth, sometimes accompanied by a fifth small tooth

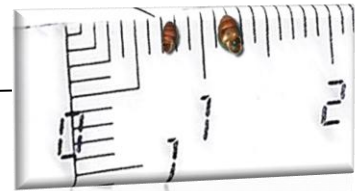
This is the smallest *Vertigo* species, with a size that is around 1.8 mm in height and 0.9 mm in diameter



*Vertigo angustior*

The opening of the mouth is narrow and oval, where you can see four well defined teeth, sometimes up to five

Size of those tiny snails compared to a millimeter rule



## Feeding and reproduction

*Vertigo* tiny snails are hermaphrodite animals, which favors reproduction, especially when the population density is low. Most of them live for a year, although some individuals can overcome it, reaching up to 18 months. Therefore, they are essentially annual species, needing to be reproduced every year.

They feed on the thin organic film that grows on the leaves of the marsh vegetation. They bite fungi, microalgae and possibly growing bacteria, both on living plants and on decaying litter. They also feed on decomposing plant materials from higher plants.



*Vertigo moulinsiana*



*Vertigo angustior*

# HABITAT

## **VERTIGO MOULINSIANA (Dupuy, 1849)**

It inhabits mainly in wetlands with calcareous substrate, located at low altitude. It develops in the vegetation of the margins of permanent lagoons, with high humidity, which is favored by evaporation during the warm months. You can also live on the banks of backwaters of rivers and canals, as long as there are no major avenues.

In Banyoles Lake, the best populations are associated with the presence of the places dominated by the species *Cladium mariscus*.

Other locations where *V. moulinsiana* presents high densities correspond to areas dominated by smaller cyperaceae, where the dominant species belong to the genus *Carex*. Most of these are areas adjacent to *Cladium mariscus* spots, which are partially flooded in times of rainfall, or when wetlands adjacent to the lake have their highest flood level and raise the water table in these areas.



## **VERTIGO ANGUSTIOR (Jeffreys, 1830)**

It lives in hygrophilous environments at the edge of fountains and lake areas with marsh vegetation, under litter, stones and moist woods, or between bryophytes. It lives associated with the deciduous vegetation, remaining in permanently wet litter, or with wet mosses in open (not shady) habitats, among the high herbaceous vegetation but not excessively dense.

In the Lake of Banyoles it is mainly in zones dominated by *Cladium mariscus* or by the reed *Phragmites australis*. The main feature shared by these points is the presence of a layer of litter and / or fallen stems of dead vegetation, forming a stable microhabitat at ground level that serves as a refuge for this species.



Habitats suitable for the presence of *V. moulinsiana* and *V. angustior*

## Did you know...

*Vertigo moulinsiana* and *Vertigo angustior* are two species of the genus *Vertigo* present in the Iberian Peninsula and are listed in Annex II to Council Directive 92/43 / EEC of 21 May 1992 on the conservation of natural habitats and wild fauna and flora, better known as the Habitats Directive. Both species are also included in the List of Wild Species in the Special Protection Regime (LESPRE) of Spain (RD 139/2011). Therefore, it is necessary to proceed to the protection of the habitat where both species live.

## DISTRIBUTION IN CATALONIA

According to the studies carried out in recent years, the Protected Natural Area of the Lake of Banyoles is home to the best known population groups of the species *Vertigo angustior* and *Vertigo moulisiana* of the Iberian Peninsula.



Lake of Banyoles

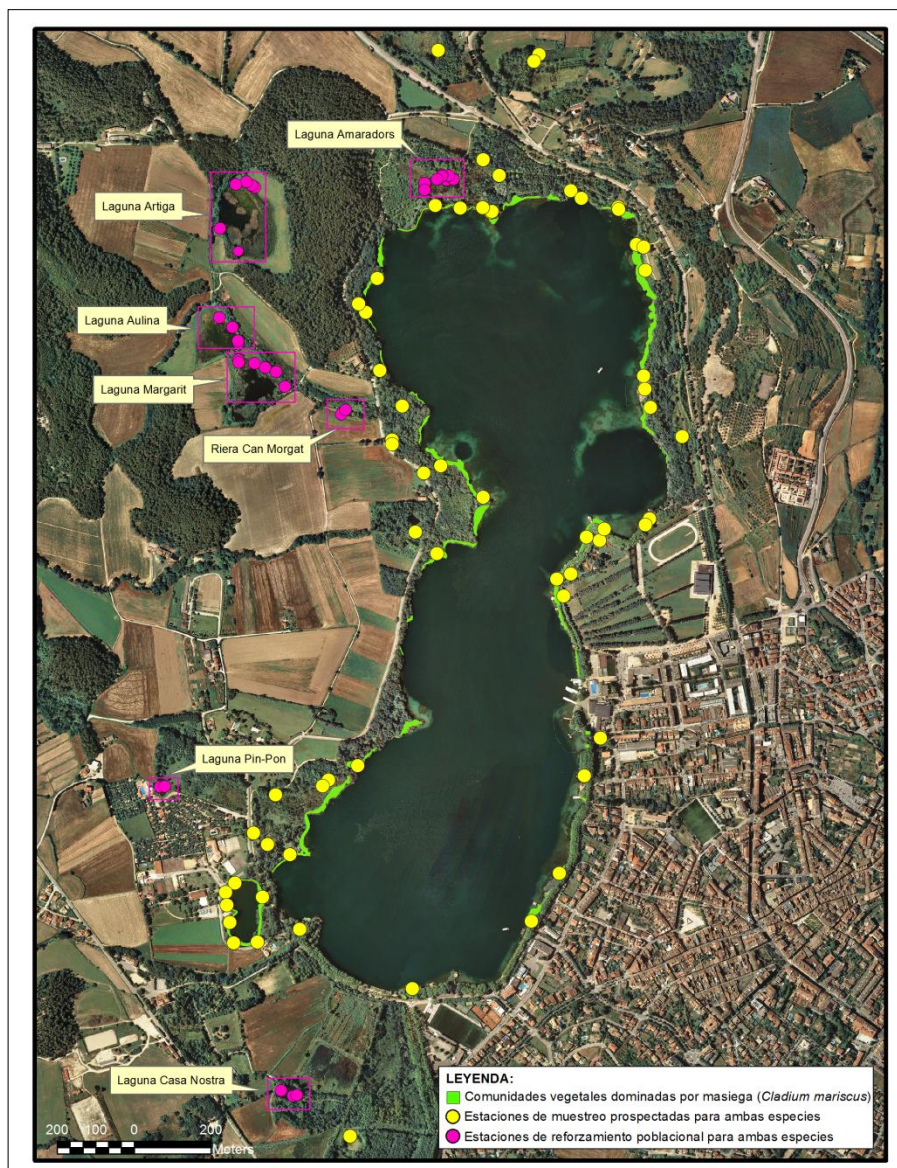


Lake of Amaradors

### LAKE OF BANYOLES

***Vertigo moulinsiana***, since the late nineteenth century and during the twentieth century has been cited in about twenty locations in the Iberian Peninsula. Almost all of them correspond to Catalonia, except a few in La Rioja, Huesca and Zaragoza. Sampling carried out in the last decade of the 20th century only confirmed its presence in Lake Banyoles and in the Garrotxa region.

***Vertigo angustior*** has only been found in a dozen localities during the last 120 years, with most of the observations located in the Northeast of Iberian Peninsula. Sampling in Catalonia has confirmed its presence in the Lake of Banyoles. Nevertheless, a study of the extension of its presence in the Garrotxa, as well as in Ponts (Lleida) is needed. In recent years, a few populations have also been found in the Valencian Community and Aragon.



***Vertigo moulisiana*** is a kind of Atlantic-Mediterranean distribution where the largest populations are found in central and western Europe.

***Vertigo angustior*** is a species distributed mainly by Europe.

## THE THREATS

For a snail that barely measures 2 mm in length, any topographic change to a micro-habitat scale or any small change in subsurface layers as well as interaction with substrate water may be essential for its survival. Changes in the hydrodynamics of the place can easily lead to the extinction of species. Both species are particularly sensitive to any human actions that alter local hydrology or vegetation.

The populations of Banyoles Lake may be negatively affected by the uncontrolled traffic of people along the banks of the lake, far from the paths enabled for it. But the greatest threat could be the elimination of the original marsh vegetation and its replacement by a landscaped environment for recreational and bathing purposes, such as the creation of beaches, picnic areas, walks or excessive sports for other uses.



Activities that threaten populations of both species

### ***VERTIGO MOULINSIANA***

This species is highly dependent on the conservation of its habitat and the preservation of high water levels. Wetland drainage has been the main cause of its decline in Europe, although there are additional factors that have negatively affected the populations of this species on a more local scale: groundwater withdrawal, riverbeds, cleaning and landscaping of riparian banks, changes in agricultural practices, invasion of exotic plants, excessive browsing, excessive mowing or burning, and the use of pesticides or herbicides.

### ***VERTIGO ANGUSTIOR***

The greatest threat is the loss and degradation of their habitat, mainly caused by the desiccation of natural freshwater lagoons, for agricultural or urban use, as well as overexploitation of aquifers. The requirement of wet soils in the forest area, but not subject to prolonged flooding, is a limiting factor for the existence of the species. The works of adaptation of the banks and river beds, suppose the temporary or permanent elimination of the vegetation, activities that already have suppose the recent extinction of some populations in the Iberian Peninsula. Areas of occupation of the species are reduced, which increases the risk of local extinction. Likewise, overgrazing can lead to habitat degradation.

# THE PROJECT LIFE POTAMO FAUNA

Within the framework of the European project LIFE Potamo Fauna "Conservation of river fauna of Community interest in the Natura 2000 network sites of the Ter, Fluvià and Muga river basins" two of the species that are directly targeted correspond to the genus *Vertigo*: *Vertigo angustior* and *Vertigo moulinsiana*. The conservation objective is the expansion and consolidation of their populations in the Natura 2000 Banyoles Lake area (ES5120008), through translocations of living individuals within the same area.

## STATE OF CONSERVATION



The state of conservation of the populations of both species in the surroundings of the lake is established. A total of 90 sampling stations are evaluated, which allow defining the area of occupation of both species and characterize the habitat they occupy. This work allows the development of protocols and standardized methodologies that will facilitate the monitoring of the natural populations in other zones of similar characteristics of the Iberian Peninsula or Europe. These are documents of great interest to define the guidelines to be followed in future work of control and management.

## TRANSLOCATION OF INDIVIDUALS

Another task is the selection of 30 plots in different sectors around the lake to carry out the translocation of specimens during spring and autumn, and thus encourage the expansion and consolidation of both species. The areas chosen to carry out this action are the lagoons of Amaradors, Margarit, Artiga, Aulina, Pin-Pon and Casa Nostra, some of them restored in the framework of two LIFE projects in Lake Banyoles: LIFE03 NAT/E/000067 (2003-2007) and LIFE08 NAT/E/000078 (2010-2013).



## EVALUATION

During the project (2014-2017) the settlement and expansion of the animals transferred in the new receiving areas are evaluated. Samplings are carried out during the different seasons of the year.



## More information about *Vertigo*:

- ❑ [www.soesma.es](http://www.soesma.es)
- ❑ [Mapama Vertigo moulinsiana, espacios protegidos](#)
- ❑ [Mapama Vertigo moulinsiana, inventarios nacionales](#)
- ❑ [Mapama Vertigo angustior, espacios protegidos](#)
- ❑ [Mapama Moluscos vulnerables](#)
- ❑ [Facebook SEM](#)

LIFE Potamo Fauna (LIFE12 NAT/ES/001091)

Project duration:

1 January 2014 – 31 December 2017

Total cost and EU contribution:

TOTAL – 1.900.262,00 euros / UE – 949.981,00 euros



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