

*Poduschka*

# The Pyrenean desman— an endangered insectivore

Walter Poduschka and Bernard Richard

The decline of the Pyrenean desman reflects the pollution, degradation and fragmentation of its mountain torrent habitat, but there are other threats too. In some areas of Spain that were once densely populated by desmans, escaped mink from fur farms have established and the desmans have disappeared. In October 1984 Walter Poduschka, Chairman of IUCN/SSC's Insectivore Specialist Group, and Bernard Richard, desman specialist, visited the Sierras north-west of Madrid to investigate the plight of the desman there. Their findings made them raise the matter at the SSC meeting in Madrid in 1984, and they urge that Spanish scientists study the animal and its problems before it is too late.

The Pyrenean desman *Galemys pyrenaicus*, which occurs on the northern half of the Iberian Peninsula and also on the French side of the Pyrenees (Richard, 1976), is a highly endangered mammal. Desmans are highly specialized and therefore extremely vulnerable to disturbance of their habitat. There are several reasons for their decline. One of the main factors is water pollution, another the splitting up of its habitat into several disjunct areas. A third factor is the lack of sympathy of fishermen, who claim that the desman eats small or young fish.

The Desmaninae, a subfamily of the family Talpidae (Order Insectivora) are semi-aquatic. The Pyrenean desman is adapted to a specialized habitat, and survives nowadays only in fast-flowing streams where there is abundant and easily obtained food. Its main food sources are aquatic larvae of Trichoptera, Ephemeroptera and Plecoptera, as well as Crustacea like

Gammaridae (Richard and Vallette Viillard, 1969). Desmans are well adapted to life in water, and are able to swim very rapidly, propelled by their webbed hind feet. They are secretive and mainly nocturnal. Their most sensitive sensory organs are located in the long prehensile snout, which is pink, moist at the tip, and moves constantly in all directions, lightly brushing and sniffing at interesting objects in its vicinity. The snout is also a very efficient organ for helping to immobilize and shovel small prey, like earthworms, into the mouth. The astonishing efficiency of the sensory equipment in the desman's snout was described by Richard (1973), and by Bauchot *et al.* (1973).

In comparison with the former range of the Pyrenean desman, which covered the northern half of the Iberian peninsula, including the French Pyrenees, the present desman range in Spain is fragmented. This reduces the gene flow between the now disjunct populations and minimizes the chances of the species's survival in the long run. According to fossil finds all over Europe (Schreuder, 1971), the distribution of the vulnerable Desmaninae was once much more extensive, but because of predator pressure and human activities the Pyrenean desman is now confined to small, fast-flowing water courses and even to tiny streams in the mountains, bordered by deciduous vegetation, which casts only limited shade and allows enough light for the desman and its prey to flourish. These conditions are no longer found in many of the Sierras, which have been reforested with fast-growing pine woods, which cast dense shade and acidify the soil.

There is little point in presenting a map of the

fossil desman finds, since up to recent decades the palaeontologists neglected or overlooked their tiny remains. This leaves us with only a few random finds, widely apart from each other and therefore giving little information about the distribution in the past. Figure 1 shows the desman's alleged present range, albeit very optimistic and only good for giving us a rough impression. That the real situation is much worse is shown by the results of our investigation north-west of Madrid.

In late October 1984 we were able to study an especially alarming threat in the Sierras da Guadarrama, Sierra de Gredos, Sierra de Avila, and Sierra de la Piña de Francia, which together cover about 9000 sq miles (23,000 sq km) from west to north-east of Madrid. About 25 years ago a fur farm for breeding American mink *Mustela vison* was founded in El Espinar, about 80 miles (130 km) from the fast-expanding capital. Although escaped mink are officially considered to be pests in Spain, carelessness and lack of prosecutions have resulted in the escape of countless mink. These have established well in the wild and have spread to cover vast areas that were formerly densely populated by the desmans. Only in 1983 was some scientific research started on the ecology of this introduced species, but nothing has been done to study the exact extent of its present range, nor the speed of its spread. At the moment it can only be stated that the desman disappears from areas of former abundance where the mink seem to be well established, very possibly claiming the greater part of the desman's food and disturbing the smaller, rather stress-susceptible mammal.

Worse still, two more mink farms are planned and are probably now under construction in Galicia, north-western Spain, hitherto considered as one of the desman's most undisturbed habitats. Through the Species Survival Commission of the IUCN, a request was made not only to the Council of Europe in Strasbourg, but also to four Spanish Comunidades Autónomas, urging that the building of these new mink farms be prevented unless they were made absolutely escape-proof. It was also recommended that regular legal supervision by conservation institutions, and not by a board of mink farm directors or beneficiaries,



The Pyrenean desman *Galemys pyrenaicus* (by courtesy of Niethammer).

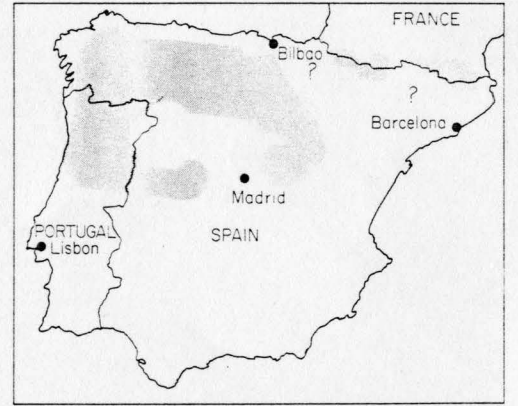


Figure 1. An approximate and optimistic distribution map of the Pyrenean desman, compiled from the opinions of various informants.

should be imposed. It is difficult to take seriously statements about the necessity of nature conservation and the importance of the national heritage when, at the same time, the devastation caused by escaped mink from El Espinar is likely to be repeated in the newly planned farm sites.

There is another source of trouble for any conservationist: it is agreed by now that the old-fashioned museum-type collecting—to kill and to preserve as many specimens as possible with a view to providing material for future studies—is unjustified and wasteful and should be banned in our age of rapid destruction of natural habitat, and of the alarming extinction rate of so many animals. Piling stacks of dried skins or skulls in private collections or accumulating such material in university laboratories in the hope that some day somebody will work on this cemetery or will pay for it is not sensible, but harmful in the desperate fight for the preservation of natural food chains and the checking of pest insects.

We saw more than 70 dried skins in the laboratory of a Madrid University professor, who does not work on this animal. Officially, the desman is a legally protected species. However, these 70 desmans were caught in recent years, mostly in the Sierra de Guadarrama, but we were told that there are not many left. In this sierra, mink are now abundant and certainly took their toll too, at least by prey competition, but very probably by real persecution.

### Priorities for desman research

The most immediate priorities for research to help conserve this endangered animal are as follows:

- (1) to produce reliable distribution maps of the desman in Spain to form a basis for conservation proposals: in our search for information on the distribution of the animal we received reports that were vague and often contradictory;
- (2) to investigate the diet of the mink: contrary to earlier opinions (Faliü *et al.*, 1981), desman hair can now be identified in carnivore

stomachs and droppings (Poduschka and Richard, 1985).

Summarizing, we are forced to state that the Pyrenean desman is threatened by habitat degradation and mink, as well as by the neglect of local scientists on the Iberian peninsula. The distribution range of this rare, fragile and specialized species is rapidly dwindling and its populations are declining as the natural conditions of the mountain torrents degrade. Desmans might be considered indicators of water quality as well as of soil and even air quality. For these claims alone the desman merits our greatest attention, and there may also be other aspects of its biology that deserve attention, which up to now have not even aroused the concern of the Iberian experts. Let us hope that very soon some young and dedicated colleagues will be allowed to show more concern.

### Acknowledgment

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- W. Poduschka, *Insectivore Research Center, Rettichgasse 12, 1140 Wien, Austria.*
- B. Richard, *Laboratoire Souterrain, Moulis 09200, Saint Giron, France.*

# A survey for otters in Israel

S.M. Macdonald, C.F. Mason and B. Shaimon

**The results of a field survey for otters in Israel suggest that the species is close to extinction in the coastal plain, where many rivers are grossly polluted. Signs of the animal were found throughout the Jordan catchment, but, because the total area occupied is very small, even this population seems vulnerable.**

Since otter *Lutra lutra* populations have declined sharply over much of western Europe, recent attempts have been made to detect remaining viable populations within the rest of the species's range. Conservation efforts could be more usefully employed in regions where healthy numbers of animals remain than in those countries where the otter is close to extinction. It is now known, for example, that the otter still thrives in Portugal, Greece and north Tunisia (see review in Mason and Macdonald, 1986), but until now very little information was available on its distribution in the Middle East.

In Israel, a survey based on reports of dead otters or sightings up to 1976 (Ilani, 1976) and a brief field survey in 1985 (Shaimon, 1986) indicated that the species was still present, but within a limited area. It seemed important, therefore, to delimit more precisely the distribution of the otter in the country and to try to determine any threats to its future survival.

### The survey

The area surveyed covered most of the permanent waterways in Israel, comprising the coastal plain and the River Jordan catchment including the Hula Valley in the north and the streams running into Lake Kinneret (Sea of Galilee). The lower Jordan could not be surveyed

for security reasons as it forms the border between Israel and Jordan. The study was carried out between 20 and 31 March, 1986.

Survey sites included rivers, irrigation channels, fish ponds and reservoirs, and at each site a search was made for otter faeces (spraints) and footprints. A site was considered negative for otters if no signs were found after a minimum search of 600 m. At each site note was made of the habitat in terms of cover for otters, of the surrounding agriculture, visible water pollution and human disturbance. These methods have been used frequently on previous field surveys for otters (e.g. Macdonald and Mason, 1982, 1983, 1984).

### Results of the survey

During the survey 95 sites were visited (see Figure 1). Of these, 19 were in the coastal plain or on rivers flowing towards the Mediterranean. Only one site, near Akko (Acre), was found to be positive. The remaining 76 sites were located within the Jordan catchment and at 60 of these (79 per cent) signs of otters were found. Throughout the survey 15 sites were at fish ponds, and evidence of otters was found at 11 of these.

Many of the rivers flowing into the Mediterranean are grossly polluted and without fish. There was visible pollution at nine of the 19 sites. At the one positive site spraints were found on the black and grossly polluted River Na'aman, but this site is close to two natural springs, one comprising the small nature reserve at Aféq.

Within the coastal region, nine of the sites visited