

SMALL CARNIVORE CONSERVATION



The Newsletter and Journal of the IUCN/SSC
Mustelid, Viverrid & Procyonid Specialist Group

IUCN
The World Conservation Union

Number 28

April 2003



SPECIES SURVIVAL COMMISSION



Stripe-necked Mongoose *Herpestes vitticollis* - Photo: M. N. Jayakumar, IFS, ARPS, AFIAP



The production and distribution of this issue has been sponsored by
"Marwell Preservation Trust Ltd", Colden Common, UK
"Royal Zoological Society of Antwerp", Antwerp, Belgium
"Carnivore Conservation & Research Trust", Knoxville, TN, USA
"Columbus Zoo", Powell, Ohio, USA and
"Wildlife Conservation Society/Central Park Wildlife Center",
New York, NY, USA



CARNIVORE CONSERVATION & RESEARCH TRUST

...helping preserve nature from the top down

Current and historical distribution of European Mink *Mustela lutreola* in Biscay. Evolution and comments on the results

Jabi ZABALA¹ and Iñigo ZUBEROGOITIA²

Abstract

First records of European Mink in Biscay date back to 1963, since then its distribution had no important changes. Recently, a European Mink survey has been carried out in the Basque Country using line-triggered camera systems. Results suggest a reduction of the distribution in Biscay; however, this seems to be an artefact due to different performances of European Mink detection techniques. We give a more accurate distribution for the species and we stress the need for a systematised methodology for European mink surveys.

Introduction

The European Mink *Mustela lutreola* is a riparian mustelid native to the continent. Its distribution experienced a severe regression during the second half of the 20th century and disappeared from most countries (Youngman, 1982; Maran & Henttonen, 1985; Maran *et al.*, 1998a). As a result of this decline, nowadays there are two major populational nuclei: one in the East, (Maran & Henttonen, 1985; Tumanov, 1992), and another in the West. The eastern population is still in regression (Maran & Henttonen, 1985; Maran *et al.*, 1998b); mink has disappeared from some countries in recent decades, and it continues declining in areas where it is still present (Maran & Henttonen, 1985; Maran *et al.* 1998b; Romanowski, 1990).

With the western population, the situation is different. In the north, the French population has disappeared from Brittany and Pays de Loire in 20 years, between 1977 and 1997 (Lodé *et al.*, 2001). On the other hand, in the Iberian Peninsula the situation is intriguing since the species seems to be expanding southwards (Maran & Henttonen, 1985; Palazón & Ruiz-Olmo, 1992; Torres & Zuberogoitia, 1997). Recently, a survey was carried out in the whole Iberian area occupied by the European Mink, including

Biscay. In this paper we discuss the results of this survey for Biscay, we add some other locations, present past data on the distribution of European Mink in the area and we discuss the current distribution and its historical evolution.

Study area

Biscay, in the north of the Iberian Peninsula (Fig.1), has an area of 2,236 km² and a population of near 1,200,000 people. Altitudes range from 0 (by the sea shore) to 1,475 m (Gorbea peak). The climate is oceanic, annual rainfall ranges between 1,200 and 2,200 mm, and annual average temperatures range from 13.8°C to 22°C. (Flores, 1989). Winters are mild and there is no summer drought. Streams are short, small and fast flowing, running into the Bay of Biscay. All the major rivers, with the sole exception of the Butroe River (Fig 1), are polluted, specially the Nerbioi and Ibaizabal Rivers (Department of Environment and Land Ordination, 2001). Springs, tributaries and small coastal streams show in general acceptable water conditions, however some of them are also polluted, especially those of Nerbioi and Ibaizabal Rivers near the main population nuclei (Department of Environment and Land Ordination, 2001). Best water conditions are in small Rivers in the Artibai-Oka area and westwards of the Kadagua river (Department of Environment and Land Ordination, 2001).

Results

European Mink was first reported in Biscay in 1963 (Rodriguez de Ondarra, 1963), a few years after the first record of the species in the Iberian Peninsula (Rodriguez de Ondarra, 1955). Afterwards, persistence of mink in the Biscay area has been confirmed in several works (Castién & Mendiola, 1985; Palazón & Ruiz-Olmo, 1997; Aihartza *et al.*, 1999; Zuberogoitia *et al.*, 2001) including the last survey carried out from February 1999 to December 2000 (Gonzalez-Esteban *et al.*, 2001; Palazón *et al.*, 2002). The species reached Biscay from Gipuzkoa in the East, and by the time of its first report it had arrived in the northwest of the region, east of the Nerbioi river (Rodriguez de Ondarra, 1963). Castién & Mendiola (1985) reported European Mink to be present in five 10 x 10 km UTM squares, including the two already reported by Rodriguez de Ondarra (1963). In 1997 after an extensive study, Palazón & Ruiz-Olmo (1997) cited European Mink in 13 10 x 10 km UTM squares, two of them based on bibliographic data before 1980 and another one reported before 1980 and confirmed afterwards (Palazón & Ruiz-Olmo, 1997). Locations recorded spread over

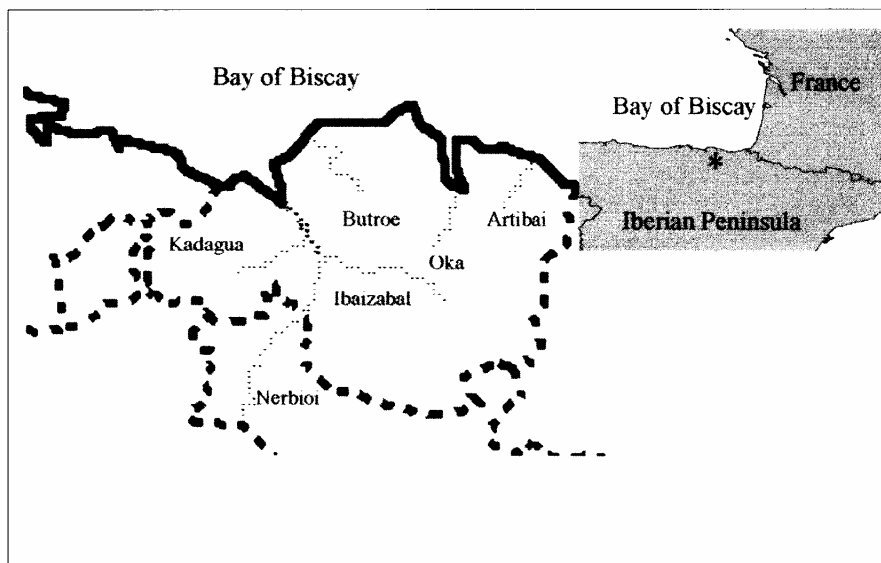


Fig. 1. Map of the study area. Biscay and major rivers in the region.

catchments of the Rivers Ibaizabal, Oka, Artibai and Butroe, as well as some other minor rivers (Palazón & Ruiz-Olmo, 1997). In addition, they reported two bibliographical (before 1980) locations in the tributary of the Nerbioi and another one in the Nerbioi (after 1980), but none westwards of this river. Aihartza *et al.* (1999), as a result of field surveys carried out between 1990 and 1996, reported European Mink in ten 10 x 10 km squares, including two squares and the first location westwards of the Nerbioi River. Zuberogoitia *et al.* (2001) cited the species as present in most of the region, but more common in the oriental area. They also include track data westwards of the Nerbioi near the western edge of the region. Finally in the last survey carried out from February 1999 to December 2000, Gonzalez-Esteban *et al.* (2001) located a total of eight European Mink in five different 10 x 10 km UTM squares. Four of these locations are in the Artibai catchment, one in the Lea (smaller river between Artibai and Oka), two in the Oka catchment and the last one in the Ibaizabal catchment (Gonzalez-Esteban *et al.*, 2001; Palazón *et al.*, 2002). The authors concluded that the European Mink maintains populations in the area of the Artibai and Oka rivers, and they also remarked the fact that European Mink is absent from western Biscay, where the rivers are best preserved (Gonzalez-Esteban *et al.*, 2001).

Discussion

At first sight, it seems that the European Mink spread rapidly over eastern and central Biscay after its arrival and maintained this distribution for a long period of time, without colonising the area westwards of the Nerbioi River. By the late 1990s there are two records of European Mink westwards of the Nerbioi (Aihartza *et al.*, 1999; Zuberogoitia *et al.*, 2001), but permanent colonisation of the area has not been confirmed. The last survey, carried out by Gonzalez-Esteban *et al.* (2001), suggests a reduction of the distribution of European Mink, with the species confined to the north-east area. However, as stated by Gonzalez-Esteban *et al.* (2001), there are some methodological differences that prevent unconditional comparison among works.

Firstly, works of Castián & Mendiola (1985) and Palazón & Ruiz-Olmo (1997) are partially based on bibliographic data, dating back as far as 1963 (22 and 34 years respectively). By including information from many years, they risk artificially enlarging the actual distribution of the species.

Secondly, data for Biscay given by Palazón & Ruiz-Olmo (1997) and Aihartza *et al.* (1999) are not the result of a survey for European Mink with a specific methodology, but based on different sources such as: live-trapping data, track searches, torching, enquiries and road casualties and casual observations. Thus, they are liable to fail to detect mink in remote areas and areas of low human density.

Thirdly, the last survey carried out by Gonzalez-Esteban *et al.* (2001), was conducted using photographic bait stations, more concretely the Line-Triggered Camera System described by Zielinski & Kucera (1995). There are some remarks that one should bear in mind about this method: Firstly, that some studies found that this method has a lower performance than other methods when detecting carnivores (Zielinski & Kucera, 1995). Indeed, Gonzalez-Esteban *et al.* (2001) failed to detect European Mink in areas where there were data of road kills, the species had been sighted and in a stream where European Mink was being studied at that time (Zuberogoitia *et al.*, 2001; Garin *et al.*, 2002a,b). Moreover, Gonzalez-Esteban *et al.*, (2001) used the same method in order to

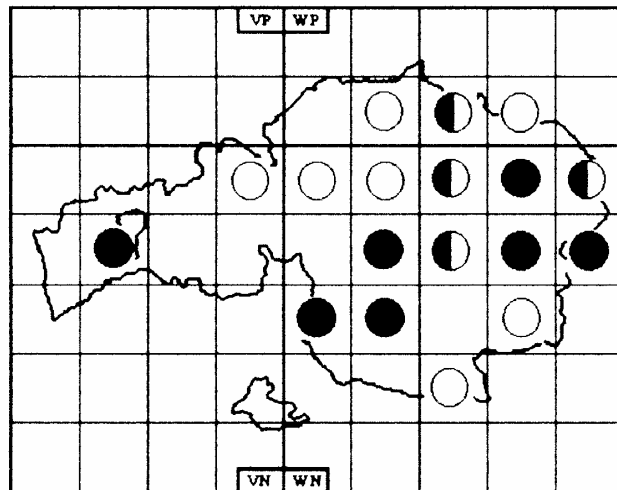


Fig. 2. Distribution of European Mink in Biscay. Empty circles indicate bibliographic data, full circles indicate presence detected in the last three years, and divided circles indicate both bibliographic data and presence detected in the last three years.

detect European Mink in Araba, a region adjacent to Biscay where simultaneously a live-trapping study was being carried out. They failed to detect the species in 14 squares where the live trapping method did (Gonzalez-Esteban *et al.*, 2001; Palazón *et al.*, 2002). On the other hand, they detected mink in a square where live trapping did not (Gonzalez-Esteban *et al.*, 2001; Palazón *et al.*, 2002). However, despite its lower performance, the method used by Gonzalez-Esteban *et al.* (2001) has several advantages like being cheaper and non-intrusive with the species. Moreover, it lacks some deleterious effects that live-trapping may have (Zabala *et al.*, 2001)

Finally, most studies have been conducted over long periods of time (a whole year or more), whilst small carnivores, including mink, have different degrees of activity and displacements throughout the year. They are likely to be more attracted to bait in some seasons and their trappability also changes markedly throughout the year (Brzezinski *et al.*, 1992; Zielinski & Kucera, 1995; Zabala *et al.*, 2001). Moreover, overall trapping success is related to trapping effort (McDonald & Harris, 1999); therefore, some distributional studies, specially those based on trapping that do not include data from other sources, and/or have low trapping efforts are not reliable and probably only will reliably detect target species in areas with high densities.

In our opinion, the results of the last European Mink survey in Biscay underrepresented the distribution of the species. Based on the results of the recent surveys, scientific research publications, road kills and sightings of the species, we give a more accurate distribution for the species in Biscay (Fig. 2).

As observed in Fig. 2, European Mink in Biscay occupies almost the entire province, including several areas where it was not detected in the surveys. The current distribution is quite close to that reported in older works (Castián & Mendiola, 1985; Palazón & Ruiz-Olmo, 1997; Aihartza *et al.*, 1999). A possible difference might be the colonisation of the area westwards of the Nerbioi River, where mink has been absent for many years. Indeed, besides data on two road kills (Zuberogoitia *et al.*, 2001), there are data on mink in streams south of the area (Palazón *et al.*, 2002). Small distributional changes observed in previous works are more likely to be due to different sampling efforts than to a changing distribution pattern with continuous colonisation and extinctions in some areas.

The main conclusion is the need of a reliable and common (for all the regions) methodology to detect European Mink. Indeed, using different methods results in incomparable data and inefficient effort. In our opinion, a deep study is needed in order to develop a standardized technique, which should fulfil some basic requirements. An easy, cheap and, most important, harmless and reliable technique is needed.

Acknowledgements

We are thankful to A. Secilla for helping us with the maps.

References

- Aihartza, J. R., Zuberogoitia, I., Camacho-Verdejo, E. & Torres, J. 1999. Status of carnivores in Biscay (N Iberian Peninsula). *Misc. Zool.*, 22:41-52.
- Brzezinski, M., Jedrzejewski, W. & Jedrzejewska, B. 1992. Winter home ranges and movements of Polecats *Mustela putorius* in Bialowieza Primaveral Forest, Poland. *Acta Theriol.*, 37:181-191.
- Castián, E. & Mendiola, I. 1985. Mamíferos. In *Euskal Autonomi Elkarteko ornodunak*. Eusko Jaurlaritza, Vitoria-Gasteiz.
- Department of Environment and Land Ordination. 2001. Medio Ambiente en la Comunidad Autónoma del País Vasco. Basque Government. Vitoria-Gasteiz.
- Flores, A. M. 1989. Kartografía. In *Euskal Autonomi Elkarteko ornodunak*. Eusko Jaurlaritza, Vitoria-Gasteiz.
- Garin, I., Zuberogoitia, I., Zabala, J., Aihartza, J., Clevenger, A. & Rallo, A. 2002a. Home range of European Mink (*Mustela lutreola* L.) in Southwestern Europe. *Acta Theriol.*, 47:55-62.
- Garin, I., Aihartza, J., Zuberogoitia, I. & Zabala, J. 2002b. Activity pattern of European Mink (*Mustela lutreola*) in Southwestern Europe. *Z. Jagdwiss.*, 48:102-106.
- González-Esteban, J., Villate, I. & Irizar, I. 2001. Área de distribución y valoración del estado de las poblaciones del Visón Europeo en la Comunidad Autónoma del País Vasco. Unpublished report.
- Lodé, T., Cornier, J. P. & Le Jacques, D. 2001. Decline in endangered species as an indication of anthropic pressures: the case of European Mink *Mustela lutreola* western populations. *Environm. Manage.*, 28:221-227.
- Maran, T. & Henttonen, H. 1985. Why is the European Mink (*Mustela lutreola*) disappearing? - A review of the process and hypotheses. *Ann. Zool. Fenn.*, 34:47-54.
- Maran, T., Kruuk, H., Macdonald, D. W. & Polma, M. 1998a. Diet of two species of mink in Estonia: displacement of *Mustela lutreola* by *M. vison*. *J. Zool., Lond.*, 245:218-222.
- Maran, T., Macdonald, D. W., Kruuk, H., Sidorovich, V. & Rozhnov, V. V. 1998b. The continuing decline of the European Mink *Mustela lutreola*: evidence for the intraguild aggression hypothesis. In *Behaviour and Ecology of Riparian Mammals*, eds. N. Dunstone & M. L. Gorman, 297-324. Cambridge: Cambridge University Press.
- McDonald, R. A. & Harris, S. 1999. The use of trapping records to monitor populations of Stoats *Mustela erminea* and Weasels *Mustela nivalis*: the importance of trapping effort. *J. Appl. Ecol.*, 36:679-688.
- Palazón, S. & Ruiz-Olmo, J. 1992. Status of European Mink (*Mustela lutreola*) in Spain. *Semiaquatische Säugetiere* 1992:337-340.
- Palazón, S. & Ruiz-Olmo, J. 1997, eds. El Visón Europeo (*Mustela lutreola*) y el Visón Americano (*Mustela vison*) en España. Ministerio de Medio Ambiente. Madrid.
- Palazón, S., Ceña, J. C., Mañas, S., Ceña, A. & Ruiz-Olmo, J. 2002. Current distribution and status of the European Mink (*Mustela lutreola* L., 1761) in Spain. *Small Carnivore Conserv.*, 26:9-11.
- Rodríguez de Ondarra, P. 1955. Hallazgo en Guipúzcoa de un mamífero no citado en la "Fauna Ibérica" de Cabrera. *Munibe* 4:201-207.
- Rodríguez de Ondarra, P. 1963. Nuevos datos sobre el visón en España. *Munibe* 15:103-110.
- Romanowski, J. 1990. Minks in Poland. *Small Carnivore Conserv.*, 2:13.
- Torres, J. J. & Zuberogoitia, I. 1997. Distribución de lo mesocarnívoros en el río Ebro a su paso por la Comunidad Autónoma de La Rioja. *Aegyptus* 14:31-34.
- Tumanov, I. L. 1992. The number of European Mink (*Mustela lutreola* L.) in the eastern area and its relation to American Mink. *Semiaquatische Säugetiere* 1992:329-335.
- Youngman, P. M. 1982. Distribution and systematics of the European Mink *Mustela lutreola* Linnaeus 1761. *Acta Zool. Fenn.*, 166:1-48.
- Zabala, J., Zuberogoitia, I., Garin, I. & Aihartza, J. R. 2001. Small carnivore trappability: seasonal changes and mortality. A case study on European Mink *Mustela lutreola* and Spotted Genet *Genetta genetta*. *Small Carnivore Conserv.*, 25:9-11.
- Zielinski, W. J. & Kucera, T. E. 1995. *American Marten, Fisher, Lynx, and Wolverine: Survey methods for their detection*. Albany, Pacific Southwest Research Station, Forest Service, United States Department of Agriculture.
- Zuberogoitia, I., Torres, J. J., Zabala, J. & Campos, M. A. 2001. *Carnívoros de Bizkaia*. BBK, Bilbao.

**¹ Sebero Otxoa 45, 5 B. E-48480 Arrigorriaga
Biscay Basque Country
jzabalaalbizua@yahoo.com**

**² Icarus. C/ Pintor Sorolla 6. 1º
26007 Logroño, Spain
inigo.zuberogoitia@wanadoo.es**

REQUEST FOR INFORMATION ON MUSTELIDS: FOLKLORE, MYTHOLOGY AND BELIEFS.

For a work on ethnobiology, I would greatly appreciate any information on local beliefs and uses related to mustelids, such as the use of badger fat as medicine or the belief that weasels can kill people as a revenge if disturbed.

Any type of reference from all around the world is welcome, but published data and especially from Europe are preferred. Please send data to:

**Jabi ZABALA ALBIZUA
Department of Zoology and Animal Cellular Dynamics
Euskal Herriko Unibertsitatea
E-48080 Bilbo. P.O. BOX 644
Basque Country, Spain
jzabalaalbizua@yahoo.com
Thank you very much.**