

Research study on the European mink, *Mustela lutreola*

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The European mink, *Mustela lutreola*, is a species catalogued as in danger of extinction, due to the large decline in their population over the past century. It is considered to be one of the most endangered mammals, both locally and internationally.

The PhD by University of the Basque Country (UPV/EHU, Spain) researcher, Maria Teresa Cabria Garrido, the title of which is Development and application of molecular markers for the study of the biology and the conservation of the European mink, *Mustela lutreola* (Linnaeus, 1761), deals with the study of this species. With this PhD thesis, advances have been made in the knowledge of various aspects involving the population genetics of the European mink and its interaction with the polecat, *Mustela putorius*.

Ms Cabria developed a method for identifying species on the basis of non-invasive samples gathered in the field, and which enabled the detection of the presence of this endangered species with respect to other mustelids such as the polecat *M. putorius* or the American mink, *Neovison vison*. Thus, on the one hand, Ms Cabria applied certain [molecular tools](#) for the [DNA analysis](#) of the intestinal cells found in the excrements of the animals. The technique developed enabled identifying two haplotypes or genetic patterns for the European mink (AA, AB), two for the polecat (AC, AD) and just one for the American mink (BC), all specific for the species. Moreover, these patterns are different from those obtained from other species of mustelids that leave similar trails.

Genetic diversity

Ms Cabria also studied the levels of populational genetic diversity and structure for the European mink. To facilitate the undertaking of this study she drew up a genomic library specific to the European mink. According to Ms Cabria, the results obtained confirm the low levels of genetic diversity detected amongst the European mink populations. The greatest values of genetic variability were found in Eastern Europe, concretely in the northeast region (restricted to isolated areas of western Russia and north Byelorrusia) where the results were the most polymorphic. The western population (limited to southwest France and the north of Spain), however, was characterised by the lowest levels of populational [genetic diversity](#). This may be due to either a rapid expansion of the species in Eastern Europe, followed by its extinction in central Europe, or otherwise, to the introduction of the European mink into France due to human activity.

Finally, the application of certain molecular markers by the author enabled the investigation of the process of hybridation between the European mink and the polecat, as well as the quantification of the same amongst the natural populations of the two species.

The results of this PhD has provided useful information for the design of plans of action within the various programmes for the conservation of this endangered species, and which are being drawn up in those countries where the European mink is present.

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