

Otter population in Roya-Bevera river: a strategic challenge for the Western Alps recolonization.

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- Last centuries the Eurasian Otter (*Lutra lutra*) was widely diffused as an essential component of river ecosystems. In the late 1970s progressive habitat destruction, water pollution, hunting and direct persecution gradually caused otter rarefaction and disappearance.
- Many authors (Cagnolaro *et al*, 1976; Balletto, 1977; Cagnolaro e Spagnesi, 1981) illustrated distribution maps of NW Italian regions showing an otter significant presence in southern western valleys, between Liguria and Piemonte (Imperia and Cuneo Province). Concerning West Ligurian valleys otters turned out present in all the main rivers, for Italian side of Roya and tributary Bevera records were reported until 1972.
- The WWF National Survey, 1984 (Cassola, 1986) did not provide objective data for Imperia and Cuneo Province; the only record available is a single spraint results from Torrente Erro (Savona Province).

In July 2019 an isolated otter population was discovered in the French side of Roya-Bevera valleys (Laurent Malthieux, 2020). Surveys carried out during 2019 summer-autumn, observing IUCN-OSG standard-methods, describe a continuous distribution zone covering Roya River and Bevera Creek in the adjacent valley.

This mustelid population is strategic for the biodiversity of the French-Italian border and can turn out to be essential for the natural recolonisation of the Western Alpine region from the southern mountains where Alps passes are less high.

The Ligurian stretch of Roya-Bevera is part of Natura 2000 Sites :



On October 3, 2020, an extreme climate event – Storm Alex – devastated Roya valley and others neighbouring Italian and French valleys causing a flood in Ventimiglia city. In the first Italian stretch of Roya – where spraints are found in summer monitoring on July 2020 – the water rise has exceeded 10 meters causing total disappearance of riparian vegetation and a bridge destruction. The water physical state is now very critical as waters are still murky and muddy.

The fish populations were heavily impacted by the disastrous event, notably small species such as Italian riffle dace (*Telestes muticellus*) or species already critically endangered such as European Eel (*Anguilla anguilla*). The persistence and increase of fish and amphibian populations in the areas where the otter is present, are therefore an important point to take into consideration in a conservation plan of the species, which can be implemented through the creation and restoration of suitable riparian vegetational areas and the design of new wetlands alongside the streams.

The improvement of river water is necessary to ensure fish populations and amphibians survival for : -The conservation of fish stocks, with many species on 92/43/EEC Habitat Directive ; -The conservation of amphibian populations and Invertebrata species – Italian white-crawed crayfish *Austropotamobius pallipes* and others – of biogeographical significance ; -The conservation of trophic bases for the otter population.

After October 2020 catastrophic floods and in view of a river restoration, a best practices catalogue for otter habitat enhancement may be developed at regional level: current practices in forestry and in river management are not always enough for otter appropriate conservation.

Finally, very important is promoting information on mustelid conservation status to prevent hostilities in the fishing community of Roya basin.

Western Liguria represents the heart of the Apennine-Alps Biocorridor, a crucial place for connecting the Alpine and Apennine ecosystems. The Biocorridor was studied and described in a European WWF Alpine Program project in 2012-2016 and it's a crucial bottleneck for the future of many species, especially in climate change times. This large scale preliminary work is a basis for establishing a long-term monitoring of the ecological connections of river and fluvial ecosystems of which the Otter can be considered both a symbol and an ambitious goal.