biology and life sciences forum

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Abstract

LIFE RESQUE ALPYR: Restoration of Aquatic Ecosystems in Protected Areas of the Alps and Pyrenees †

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† Presented at the IX Iberian Congress of Ichthyology, Porto, Portugal, 20–23 June 2022.
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Abstract: In alpine biogeographic regions, aquatic and semi-aquatic habitats are important biodiversity reservoirs and habitats for species of community interest, but they are often threatened by multiple factors. The conservation state of protected habitats and species in the EU is expected to worsen as long as no actions or conservation strategies are implemented. LIFE RESQUE ALPYR aims to restore mountain aquatic habitats by improving the conservation of several target habitats/species in four Nature 2000 sites from the alpine biogeographical regions of the Pyrenees (in northeastern Iberian Peninsula) and the Alps (in northwestern Italy). The target habitats include eleven aquatic and semi-aquatic habitats, of which five are prioritary: high mountain lakes (HCIs 3110 and 3130), alpine and subalpine grasslands, heaths and meadows (HCIs 4020*, 6230*, 6410, and 6520), mires (HCIs 7110*, 7140, 7230, and 91D0*) and petrifying springs (HCI 7220*). The target species include native amphibians found either in both areas (*Rana temporaria*) or solely in the Pyrenees (*Euproctus asper* and *Alytes obstetricans*); the semi-aquatic mammal *Galemys pyrenaicus* living in Pyrenean streams and lakes; and seven insectivorous bats, including *Barbastella barbastellus*, *Myotis myotis*, and *Plecotus macrobullaris*, which are present in the Pyrenees and the Alps, and *Rhinolophus hipposideros*, *Myotis blythii*, *Myotis bachsteinii*, and *Nyctalus lasiopterus* from the Pyrenees. The target habitats and most of the target species have naturally fragmented distributions, occurring in small areas of the European alpine biogeographic zone, and are affected by anthropogenic pressures. The introduction of trout or minnows in most alpine lakes caused the disappearance of native amphibians and invertebrates at local and landscape scales, indirectly affecting aquatic mammals and terrestrial species, such as bats, that rely on aquatic insects for feeding. Minnows can also cause the strong eutrophication of lakes, leading to drastic habitat degradation. The affected habitats and species are HCIs 3110 and 3130, *R. temporaria*, *E. asper*, *A. obstetricans*, *G. pyrenaicus*, *R. hipposideros*, *P. macrobullaris*, *B. barbastellus*, *M. myotis*, *M. blythii*, *M. bachsteinii*, and *N. lasiopterus*. The proposed actions and methods with regard to fish species involve the experimental eradication of non-native fish in high mountain lakes by means of both chemical (rotenone) and mechanical methods (traps, nets, and electrofishing). The project will provide data regarding replicable and exportable conservation actions and will increase awareness of pertinent conservation issues among stakeholders and the public. In addition, the project will promote the transfer of its background data and results to conservation authorities concerned with other European high mountain areas.

Keywords: ecological restoration; non-native fish eradication; Nature 2000; Pyrenees; Alps; LIFE RESQUE ALPYR

Citation: Ventura, M.; Tiberti, R.; Buchaca, T.; Ninot, J.M.; Pérez-Haase, A.; Pou-Rovira, Q. LIFE RESQUE ALPYR: Restoration of Aquatic Ecosystems in Protected Areas of the Alps and Pyrenees. *Biol. Life Sci. Forum* **2022**, *13*, 22. https://doi.org/10.3390/blsf2022013022

Academic Editor: Alberto Teodorico Correia

Published: 2 June 2022

Author Contributions: All authors have contributed equally to the present work and have read and agreed to the published version of the manuscript.

Funding: This research was funded by the European Comission grant number LIFE20.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.