N.E.C.C.A

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TITLE

Biodiversity monitoring and mitogenome characterisation of the Critically Endangered Greek brook lamprey Caspiomyzon hellenicus from Tenagi, Filippi

(Project ID: 11560)

PRINCIPAL INVESTIGATOR

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ABSTRACT

Freshwater ecosystems and their biota are severely endangered, with the extinction risk of taxa being consistently higher than the one of their terrestrial counterparts. In fact, one third of fishes are threatened with extinction. The Balkans are the home of a very diverse and highly endemic fish fauna, however, the 28% is considered to be endangered. Moreover, the area of Tenagi, Filippi-Kavala hosts approximately 20 fishes, including species of low and high economic value, invasive species, and two endemic species. Despite the small size of the area of approximately 40 km2, it is intensively used for agriculture and farming, polluting the water bodies, soil and natural ecosystems, and affecting the living conditions and the life cycle of various fishes. For example, the endemic species, the Greek brook lamprey Caspiomyzon hellenicus, is classified as Critically Endangered by the International Union for Conservation of Nature Red List. In this proposal, diverse, yet complementary high-throughput multi-omic techniques will be applied to investigate the ecological and evolutionary processes of this species. Firstly, the presence of C. hellenicus will be monitored using massive parallel sequencing of eDNA extracted from water samples from the river system of the area. Additionally, Nanopore-based sequencing technology will be used to characterize the mitogenome of the Greek brook lamprey and subsequently examine the phylogenetic relationships among local freshwater species. The results will be used to inform the general public and the local authorities in order to improve management in the region, securing the protection of threatened endemic fish fauna against anthropogenic activities.