



Saving freshwater crayfishes: extinction drivers identification and ecosystem services assessment

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Topic: Freshwater conservation – invasive species

Release

From Italy to Colombia to discuss and receive feedback on one of the most urgent conservation topic for European freshwater ecosystems: the conservation of native freshwater crayfishes and the spreading of allochthonous ones.

Freshwater crayfishes are in fact suffering dramatic extinctions across European countries. Other than to some chronic threatens such as habitat destruction and water pollution, that had already fragmented their distribution, native freshwater crayfishes are currently pushed at the edge of extinction by the wide spreading of different introduced American species.

Thanks to the Mohamed bin Zayed Species Conservation fund, we sampled more than 200 sites in Lombardy (NW- Italy), a highly urbanized region with several conservation problems. Sites were sampled and characterized to detect the occurrence of alien freshwater crayfishes and evaluate the factors that are driving native freshwater crayfish (species: *Austropotamobius pallipes*) extinction. Results revealed a wide occurrence of the alien freshwater crayfish *P. clarkii*, especially in ponds, lakes and pools for sportive fishing. The analyses conducted in more than 100 sites in which *A. pallipes* occurred till 2006, such as before American crayfishes spreading, revealed that extinction is significantly affected by the occurrence of the alien freshwater crayfish *P. clarkii* in the catchment basin and by the combined effect of water quality decrease and urbanisation increase. On the contrary isolation and the occurrence of dams or other barriers downstream sites occupied by the native *A. pallipes* significantly contrast extinction in catchment basins in which *P. clarkii* occurs.

These results challenge the idea that fluvial continuity is always positive and provide useful indications for the management of freshwater ecosystems.

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