Application of species distribution modelling in freshwater crayfish conservation

Species distribution models (SDMs) have become a useful and almost an inevitable tool in guiding species conservation strategies. They can be effectively applied in various aspects such as in identifying species distribution patterns in space and time, in habitat preservation and restoration, in assessing habitat connectivity, in predicting potential range shifts in response to different climate change scenarios, as well as in identifying invasive species threats.

Combined with genetic data they can for example aid in identification of areas with suitable habitat conditions for crayfish survival in the future that at the same time harbour populations with high genetic diversity, supporting long-term viability of populations. In addition, they may help in prioritization of areas and crayfish populations at risk for developing appropriate management strategies. Combined with potential distribution and niche shift of invasive crayfish species, they can effectively identify areas where native populations may be exposed to invasion. Overall, SDMs provide valuable piece of information for informed decision-making and conservation actions for target species.