

Mapping the Potential Cumulative Impact of Invasive Alien Species on Mountain Ecosystems from Different Biogeographic Regions of the World

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Introduction

This study aimed to assess and map the potential cumulative impact of invasive plant and animal species in mountainous regions worldwide.

Materials and methods

Data was extracted from scientific literature and potential impact weights were estimated.

The conservative additive model developed by Katsanevakis et al. (2016) was applied by broad mountain ranges using:

- presence data,
- land cover information,
- and matrices of potential impact weights.

Resulting values were standardized by cell area (hereinafter, StCIMPAL scores) and were mapped using GIS software tools.

Results

The StCIMPAL scores vary spatially, with several hotspots identified in various mountain ranges around the world. These hotspots include the Alps and the French Massif Central (Fig. 1), the Appalachian Mountains, the Rocky Mountains, Taiwan, the Cape Ranges, the Great Dividing Ranges, and the Southern Alps.

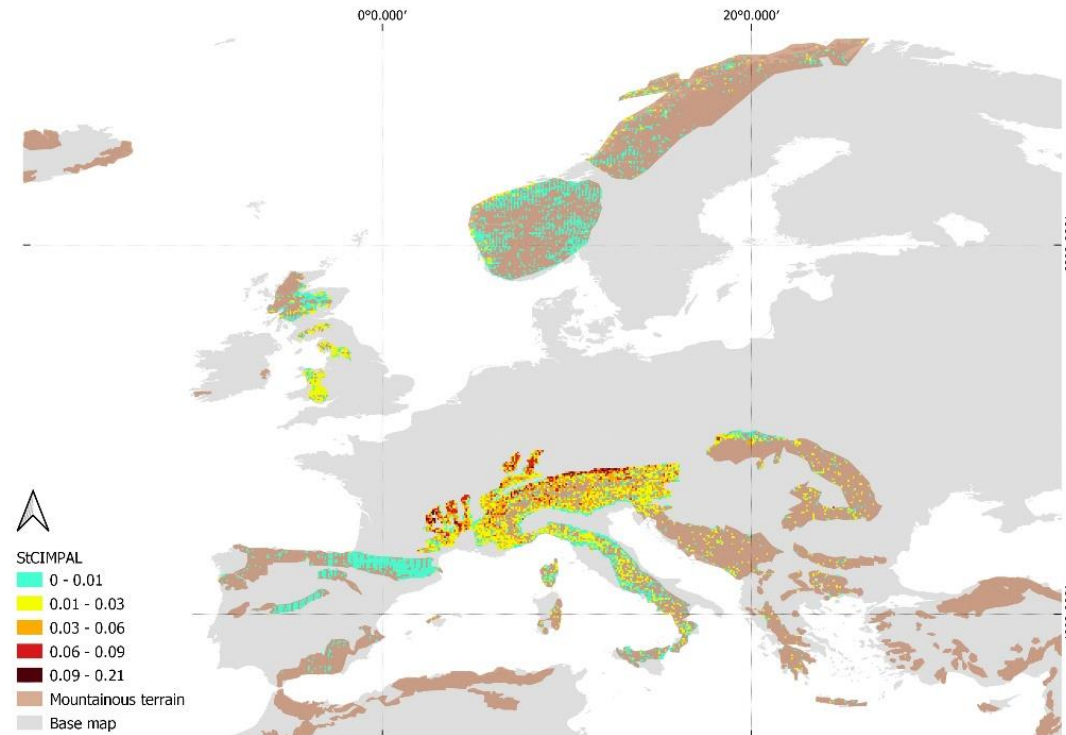


Fig 1. Invasive alien species pose a significant threat to the mountains in Central Europe.

Discussion

The distribution of StCIMPAL scores can be influenced by various socioecological variables, including introduction pathway patterns, elevation, current management practices and policies, and other direct and indirect driving factors.

Conclusions

This approach provides a robust framework for evaluating the impacts of invasive alien species in mountain ecosystems.

Literature cited

Katsanevakis, S., Tempera, F., & Teixeira, H. (2016). Mapping the impact of alien species on marine ecosystems: The Mediterranean Sea case study. *Diversity and Distributions*, 22(6), 694–707.