>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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Abstract

Predicting the spread of wildlife diseases relies on knowledge of the wild host abundance and landscape topography. The risk of disease outbreak and transmission has been increasing with climate change, with large consequences for wildlife host populations and livestock industry in mountain regions. The arrival of the highly lethal and virulent disease African Swine Fever (ASF) in Italy has resulted in an alert response in France. ASF is a disease that can be transferred from wild animal hosts to domestic livestock, with drastic consequences on local meat export. In Europe, the disease is often transmitted from its wild vector, the wild boar. However, predicting the evolution of such events, and tracking the potential spread of disease via the density and movement of wild animal species, relies on access to standardised data at a fine resolution and covering a large area.

Using a Europe-wide database of wild animal population density and distribution established and maintained by the Enetwild consortium (and funded by the European Food Standards Authority EFSA), we use municipality-level hunting-bag densities of wild boar to predict the most crucial points of transmission of ASF across the topographically heterogeneous French-Italian Alps. We demonstrate that the major potential points of arrival of ASF are strongly related to forest connectivity and elevation. Our study highlights the importance of open-access, transparent and standardised data for pre-emptive action to prevent potential disease transmission, with implications for wildlife management and local industry.

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