Ecology, physiology and behaviour

Beyond borders: expansion of striped field mouse in Slovakia

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DOI: 10.20315/evmc.2025.018

Range expansion, as an extension of the normal colonisation process, is characterised by establishment and an increase in abundance. This study combines conventional methods with citizen science to investigate the occurrence of the striped field mouse (*Apodemus agrarius*; thereafter SFM) in Slovakia and its ongoing expansion. In 2024, fifty years after the first records of SFM's spreading in eastern Slovakia, the species expanded its range to approximately 18,600 km², reflecting a remarkable 135% increase in occurrence compared to its initial distribution in 1974. We observed a dynamic increase in SFM's dominance following the colonization of new sites, with no significant seasonal effects on its abundance. This sustained rise in dominance signifies successful establishment and indicates that the "expansion front" is effectively overcoming environmental barriers, thereby facilitating further spreading into adjacent territories. Our findings suggest that the expansion process of native species like the SFM can mimic characteristics typically associated with invasions by alien species, raising important ecological implications regarding species interactions and community dynamics. Utilising citizen science significantly enhanced our data collection efforts, allowing for a more comprehensive understanding of SFM's distribution and abundance. This collaborative approach not only enriched our dataset but also engaged local communities in conservation efforts, demonstrating the value of citizen science in ecological research and species monitoring.

In conclusion, the striped field mouse's expansion serves as a compelling case study illustrating how native species can exhibit invasive-like behaviour concerning dominance and range increase. Our results emphasize the necessity for ongoing monitoring of small mammals and the development of effective management strategies to address potential ecological impacts arising from their spreading. Understanding these dynamics is crucial for biodiversity conservation and habitat management in the face of changing environmental conditions.

The study has been conducted with the support of grant project VEGA 1/0080/23.