

A large-scale citizen science approach to assess the distribution and ecology of the declining Garden Dormouse in Germany

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Abstract

The Garden Dormouse has shown an ongoing decline over the last decades across large parts of its range. As the reasons for the species' shrinking range are poorly understood, effective conservation actions have been lacking so far. The Germany- wide project "In Search of the Garden Dormouse" aims to investigate the causes, and develop concepts and measures to mitigate the decline. The current distribution has been assessed using a large-scale citizen science approach. More than 6,000 dormouse observations were gathered via an online reporting tool, of which >4,000 reports could be verified by photos, videos, or call recordings. Our aim was to obtain important information about the ecology of the species in different habitat types. For this, volunteers systematically collected approximately 1,000 Garden Dormouse droppings for food analysis, installed footprint tunnels and camera traps, helped to obtain several hundred DNA samples, collected > 500 carcasses, and recorded Garden Dormouse calls from various sampling sites. Volunteers also used a novel device for automated Garden Dormouse monitoring in the field that was developed and successfully applied in support of the project. The gathered data displays the current Garden Dormouse distribution in Germany and provides insights into the biology and ecology of this endangered, understudied species. The multidisciplinary approach of the project combined several disciplines, from field ecology to population genomics, in a fruitful cooperation of scientists, citizen scientists, and a conservation NGO. It can serve as a template for future projects aiming to produce large-scale scientific data in animal research and conservation.

Keywords

In Search of the Garden Dormouse, citizen science, distribution range, dormouse ecology, conservation

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