
Population monitoring and management

Conservation of capercaillie (*Tetrao urogallus*) in Poland: monitoring the effects of reintroduction and genetic rescue

Santorek, Anna¹; Rutkowski, Robert^{1*}; Gwiazdowska, Aleksandra¹; Grabowska, Julia¹; Merta, Dorota²; Ławreszuk, Dorota³; Flis-Martyniuk, Ewa⁴

¹ Museum and Institute of Zoology, Warsaw, Poland

² Pedagogical University of Cracow, Department of Ecology and Environmental Protection, Cracow, Poland

³ State Forests, Głęboki Bród Forest District, Głęboki Bród, Poland

⁴ State Forests, Janów Lubelski Forest District, Janów Lubelski, Poland

* rrutkowski@miiz.waw.pl

DOI: 10.20315/evmc.2025.058

Molecular genetic methods, especially those related to the genetic identification of individuals, are extremely useful in monitoring populations of endangered species. The capercaillie (*Tetrao urogallus*) is completely protected in over 20 European countries, and in most of them it is Red-Listed. In Poland, in the second half of the 20th century, the species occurred mainly in the mountains, but survived also in three lowland populations. Unfortunately, one of them –the Lower Silesian Forest– became extinct in the late 1990s, and the other two have experienced a significant decline in number. In the 21st century, an attempt was made to actively protect capercaillie in Poland. As part of these activities, the species was reintroduced to the Lower Silesian Forest and the genetic rescue of the two remaining lowland populations, i.e., the Augustów Forest and the Solska Forest, was initiated.

The presented results summarize the effects of over ten years of conservation activities. Based on microsatellite genotyping of non-invasive samples collected in Polish lowland populations, the effectiveness of genetic rescue was determined – the genetic diversity of the populations was compared before and after the reinforcement with reintroduced individuals (Augustowska Forest, Solska Forest). In the case of the extinct population (Lower Silesian Forest), based on microsatellite genotypes of reintroduced birds and an extensive collection of non-invasive samples, the survival and reproductive efficiency of reintroduced individuals were monitored. In total, for genetic analysis more than 1500 samples were collected between 2010 and 2023, including biological material from introduced birds and non-invasive samples found in a field. The results emphasize the importance of active conservation measures to ensure the survival of endangered species populations.