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Post-release acclimation of translocated Black Grouse (*Lyrurus tetrix*): a multi-time scale analysis using telemetry

Dewilde Justine^{1,2}, Delcourt Johann^{1,2}, Vangeluwe Didier³ and Poncin Pascal^{1,2}

¹Station scientifique des Hautes Fagnes, University of Liège, Route de Botrange 137, B-4950 Robertville, Belgium

²Behavioural Biology Unit, Zoological Institute, University of Liège, Quai van Beneden 22, B-4020 Liège, Belgium

³Belgian Ringing Scheme BeBirds, RBINS (IRSNB), Rue Vautier 29, B-1000 Brussels, Belgium

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INTRODUCTION

Translocation of living individuals is a conservation strategy used to reinforce declining populations. However, failures are not uncommon, notably due to factors such as high mortality or unexpected behaviors (e.g. absence of reproductive behavior, tendency to leave the release area, etc.).

We translocated 88 Black Grouse (*Lyrurus tetrix*) from Sweden to Belgium to reinforce the last population occurring in the country. We tracked 58% of them by GPS telemetry and analyzed their movements to see if an acclimation in the release area was noticeable, but also to gain insights on the pattern of activity of the Grouse (a) right after a translocation event and (b) over the course of the year.

MATERIAL AND METHODS

The translocated Black Grouse were captured in Kårböle (Sweden) in late April 2017, 2018 and 2019 and 2022. Trapping took place on the leks, using fall traps. Individuals were then ringed, measured and placed in individual boxes to be transported to the 'Hautes Fagnes' Nature Reserve (Belgium), in which they were released circa 30 hours after capture. Spatial data was collected via solar-powered GPS-GSM backpack transmitters deployed on 51 individuals. Analyses were conducted using QGIS and RStudio.

RESULTS AND DISCUSSION

We noticed a high inter-individual variability, probably related to different stress-coping mechanisms and personalities. However, it is noteworthy that the longest movements, including explorations out of the reserve, are performed during the first 3 weeks post-release. All grouse then returned to the reserve and only moved over short distances for 3-4 months, until a second peak of higher activity in October. Although some grouse died during their long-distance movements, it was not an inevitable fatality.

CONCLUSIONS

Except the 3 weeks post-release, the general activity pattern detected is in line with the behavior of non-translocated Black Grouse, suggesting that translocated individuals need a short (but critical) period of acclimation to their new environment, then behave normally and have therefore the potential to thrive.