Migratory connectivity analysis

by EURING Migration Atlas

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1. Connectivity between individuals

The analysis evaluated 27 individuals (54 encounters) filtered from a total of 553 records in the EURING databank which were considered for the Atlas. The species shows a significant connectivity from clustering, with a number of first-level clusters = 3 (Table 02040-1; Figure 02040-1).

Table 02040-1. Results from the migratory connectivity analysis. For each cluster, the degree of connectivity (r_M), its statistical significance (p-value) and 95% confidence interval limits are shown. When the p-value is less than or equal to 0.1, the degree of clustering structure (oasw) and the best number of clusters identified are reported.

Cluster name	Level of clustering	N individuals	Migratory connectivity (r_M)	p-value	Lower 95% confidence limit	Upper 95% confidence limit	Best number of clusters	oasw
0	0	27	0.399	0.002	0.203	0.713	3	0.704
1	1	8	-	-	-	-	-	-
2	1	15	-	-	-	-	-	-
3	1	4	-	-	-	-	-	-

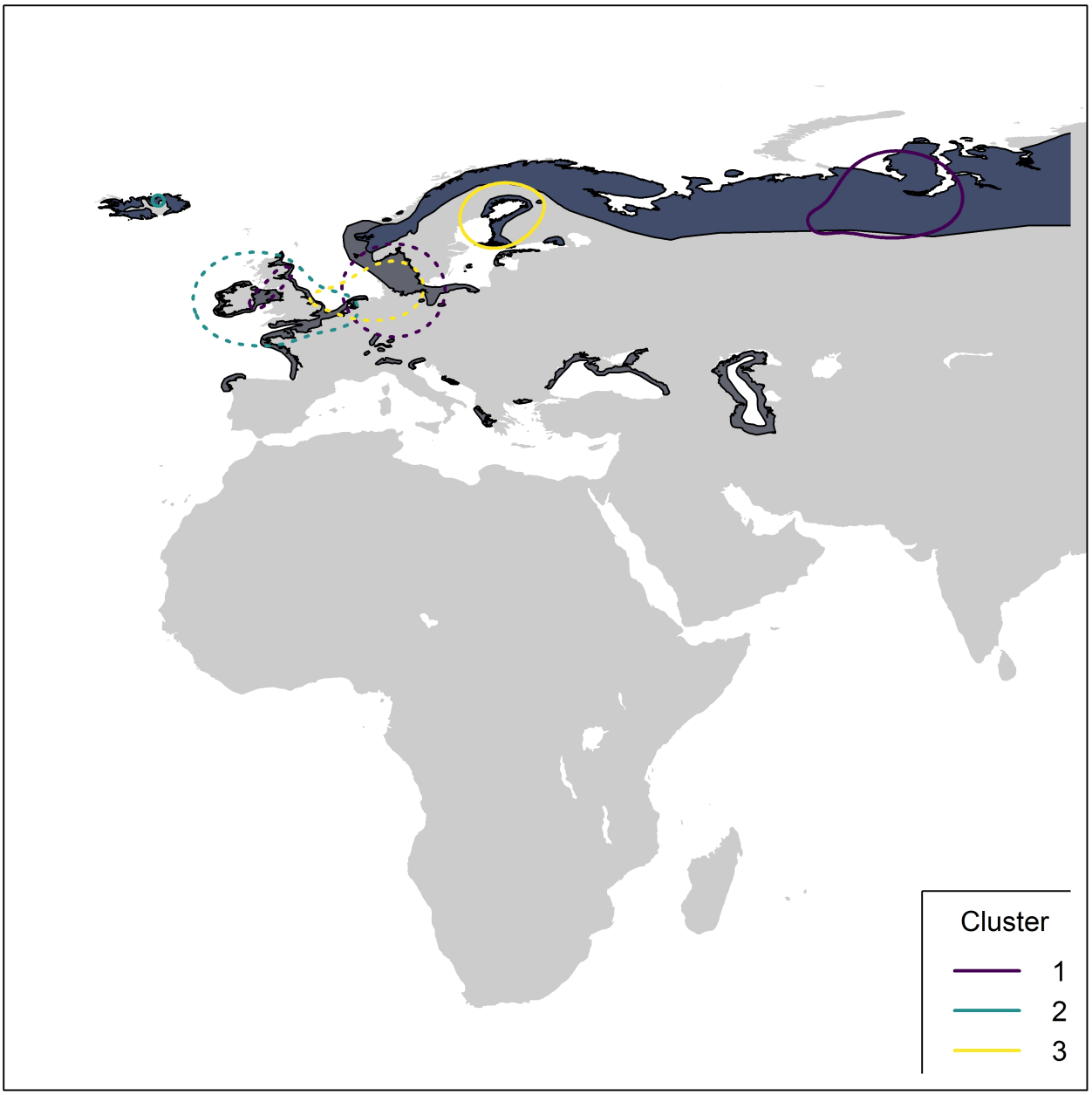

Figure 02040-1. Map showing 95% kernel contours of of first-level clusters identified by the migratory connectivity analysis, if any, or 95% kernel contours of all encounters, in case of no clustering structure. Solid lines indicate the clusters in the breeding range, dotted lines those in the non-breeding range. Different contour colours correspond to different clusters, as reported in legend. The species distribution range is also shown (breeding range: blue; non-breeding range: dark grey; resident range: beige; from BirdLife International, 2019).

2. Connectivity between pre-defined regions

The species shows low connectivity (MC = 0.185; MC = 0.179 when adjusted for absolute abundance) between 3 breeding regions and 4 non breeding regions (Table 02040-2; Figure 02040-6).

Table 02040-2. Transition probabilities between pre-defined regions. Estimated abundance (number of

individuals) in each breeding region is also reported.

Breeding region	Abundance	Non breeding region	Transition probability
East Europe	300006	Central Europe	0.556
East Europe	300006	North Europe	0.222
East Europe	300006	North-west Europe	0.222
North Europe	4160	North Europe	0.333
North Europe	4160	North-west Europe	0.333
North Europe	4160	West Europe	0.333
North-west Europe	8000	North-west Europe	0.800
North-west Europe	8000	West Europe	0.200

Figure 02040-6. Map showing pre-defined regions in different colours, with black arrows linking centroids of individual encounters in different regions. Arrow width is proportional to transition probability.

Reference

BirdLife International and Handbook of the Birds of the World (2019). Bird species distribution maps of the world. Version 2019.1. Available at http://datazone.birdlife.org/species/requestdis.