Loop migration in adult European rollers (Coracias garrulus) through the Middle East

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Introduction

• The European roller (Coracias garrulus) is a medium size, long-distance migrant bird species.
• Former studies found different migration pathways for central and northern population of European rollers (Finch et al. 2015) and suggested the use of Arabian-peninsula in spring based on ring recoveries (Finch et al. 2016).
• The aim of this study was to identify the migration route, stopover sites and wintering area of the Carpathian basin within the framework of LIFE13/NAT/HU/000081 LIFE+ project.

Methods

• 6 adult European rollers were deployed with -a self-powered PTT-100 satellite transmitters (Microwave Telemetry Inc., Columbia, MD, USA).
• The tagged birds represented the most significant roller subpopulations in Hungary.
• All rollers were tagged during the incubation period 2015 and 2016.
• 8 h ON/ 15-h OFF in 2015 and 10-h ON/ 24-h OFF duty cycle.
• 7 spring ringing recapture data (1931-2017) was provided by the Hungarian Bird Ringing Centre.

Results

• 2 rollers died during the migration (after the rainfall zone and in Tanzania) and one during the wintering period.
• The spring migration pathway was longer in each bird than the autumn (9616±912 km vs 8341±765 km) and the duration was 186±6 days shorter.
• Wadi Fara region is Chad was used by 4 birds as a stopover sites for 8-27 days (Fig 3.)
• All of the tagged birds spent the winter in different countries (Angola, Namibia, Botswana) (Fig 1.2-)
• All of the rollers which has started the spring migration used the counter-clockwise loop pathway trough the Arabian peninsula (Fig 4.)

Discussion

• However, Finch et al. (2015) found slightly clockwise migration in Austrian population, all of our tagged rollers follow counter-clockwise loop during spring migration.
• This migration pattern was also found in the Latvian population, as well.
• We found weak migratory connectivity and rollers from the Carpathian basin most probably share wintering areas with the south-western roller populations (Finch et al., 2015).
• Ring recoveries suggest the existence of an other migration pathway for the Hungarian roller population, but the counter-clockwise loop seems to be the most common migration route which occurs in any subpopulation in Hungary.
• The migration route was shorter but lasted longer in autumn than in spring.

References


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Fig. 1. Overview map of the migration of six European rollers from the Carpathian basin

Fig. 2. Wintering sites of the tagged European rollers

Fig. 3. Crossover-sites in Sahel region

Fig. 4. Spring migration of rollers through the Arabian-peninsula

Fig. 5. Wintering sites of tagged rollers

Legend

Male Adult
Female
 juv.

-Adult autumn (2016)
-Adult spring (2017)
-Eleven autumn (2016)
-Eleven spring (2017)
-Fehérő autumn (2016)
-Fehérő spring (2017)
-Cable autumn (2015)
-Bukféc autumn (2016)

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Biography

Orsolya Kiss was born in 1980 in Pest, Hungary. She completed her studies in Biology at the Eötvös Loránd University in Budapest in 2004. She has been working at BirdLife Hungary since 2005 and in 2012 she became a member of the LIFE programme LIFE13/NAT/HU/000081 ‘Conservation of the European Roller in the Carpathian Basin’. She is currently the project manager of this LIFE project. Her research interests include migration studies and conservation projects of the Roller in Hungary. She is involved in detecting and supporting the Roller’s stopover sites and wintering areas. She is also involved in the recovery of tagged birds and the dissemination of the results. She is currently working on a PhD thesis on this topic.