

**ROLLER LIFE+ - Conservation of the European Roller (*Coracias garrulus*)  
in the Carpathian Basin  
LIFE13 NAT/HU/000081**

**Research grant for surveying European Roller (*Coracias garrulus*) in  
Serbia**

**- Report –**

Project goals

Protection and research of European Roller populations, through:

- identification of areas important for the species' migration
- monitoring of areas important for migration
- monitoring of breeding population in installed dedicated nest boxes
- installing additional nest boxes and identifying potential locations for the species' population expansion

Planned activities and expected outcomes

**1. Identification of areas important for migration:**

- analysis of movement of birds with satellite transmitters
- analysis of locations of observations of European Roller during migration
- collecting data on locations of gathering of larger number of individuals during migration

**2. Monitoring of areas important for migration**

- monitoring numbers of European Rollers on locations of gathering during migration (seasonal and annual dynamics)

### **3. Monitoring of breeding population in installed dedicated nest boxes:**

- Survey of each of the installed nest boxes at least once between June 15<sup>th</sup> and July 10<sup>th</sup>
- Additional survey of occupied nest boxes with young, which were not yet of appropriate age for ringing during the first visit
- Ringing of young and adults with metal and plastic color rings
- Determining whether the nest box is occupied, the number of eggs, young hatched, as well as the number of successfully fledged young
- Maintenance of database on nest box surveys and ringed individuals

### **4. Installing additional nest boxes and monitoring of the population's expansion**

- Construction and instalment of nest boxes within occupied and suitable habitats of the species
- Maintenance of database on installed nest boxes

## **Results**

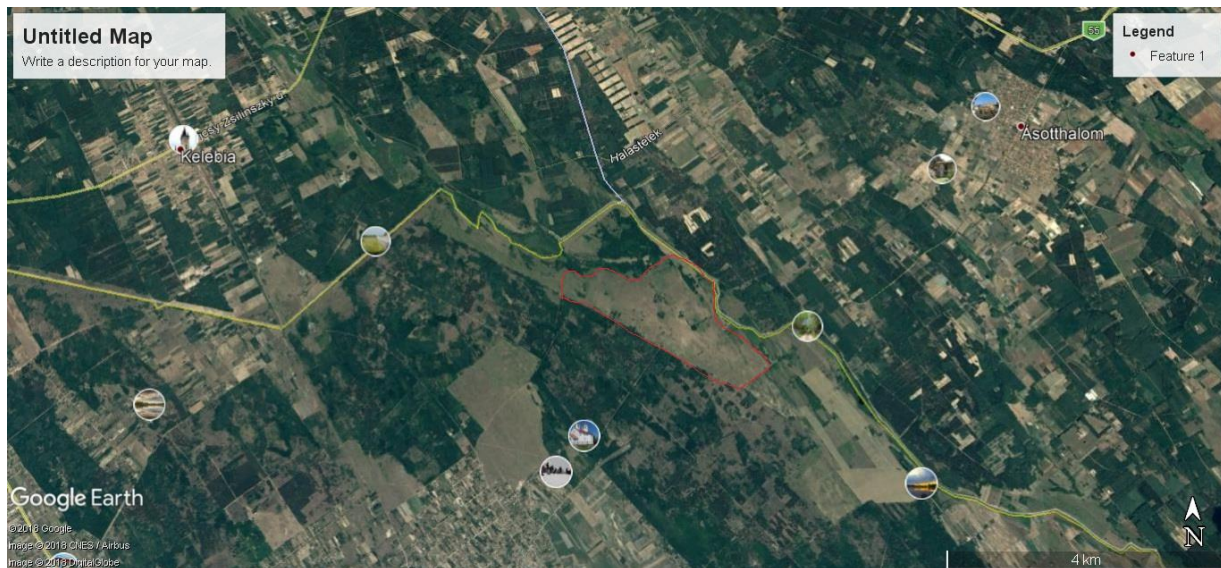
### **1. Analysis of movement of birds with satellite transmitters**

During the project, satellite transmitters were mounted on a total of 17 European Roller individuals (16 in Hungary and Romania, and one in Serbia). Only a part of the transmitters has given appropriate data on individuals' movement, while the rest became inactive after a while. The individuals tagged with satellite transmitters have not remained in Serbia for longer than a day. During autumn and spring migration, the individuals have flown almost straight over the territory of Serbia, with very rare changes in direction. Based on satellite tracking of the tagged individuals, it wasn't possible to determine locations important during migration.

### **2. Analysis of locations of European Roller observations during migration and data on gathering of larger number of individuals**

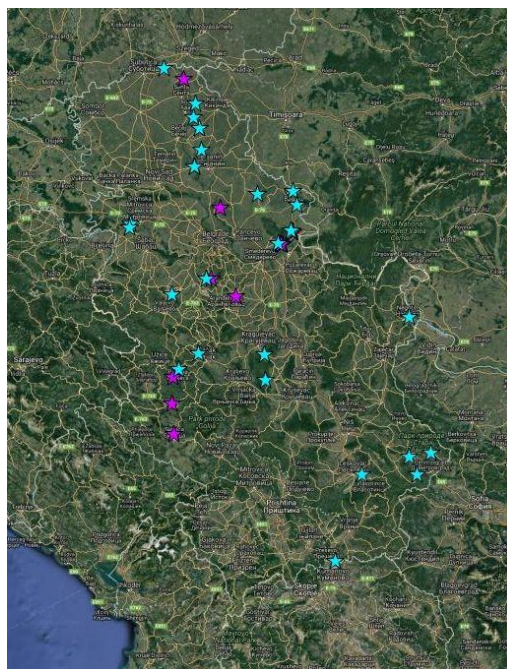
Through field survey during migration period, one location with larger aggregation of individuals was identified – Subotička Peščara (46.169413°, 19.707907°, **Fig. 1**). Besides this, anecdotal data on records of gathering of larger number of individuals was obtained from associates. Sporadically, groups of about 10-15 individuals were recorded in the mid of August in the vicinity of Novi Bečej (45.571728°, 20.172475°), Novo Miloševo (45.723099°, 20.286897°) and Kapetanski Rit (46.017642°, 19.964522°). Still, the mentioned localities are also European Rollers breeding sites, so it wasn't possible do determine

whether it was a post-migratory stopover of juvenile birds or adult individuals on migration. Later in the season, larger aggregations were not recorded. The number of individuals during migration in Subotička Peščara reached 113 in 2016.



**Fig. 1:** The site of gathering of European Rollers during migration, in Subotička peščara.

Within the project, observations of European Roller collected during migration were also analyzed (records before the 1<sup>st</sup> of June and after August 15<sup>th</sup>). Single individuals were observed throughout Serbia, without regularity or specific locations with aggregation of records. An overview of the records is given on the map (**Fig. 2**).



**Fig. 2:** Records of European Roller during migration (pink star: 2015-2017, blue star: 2000-2014)

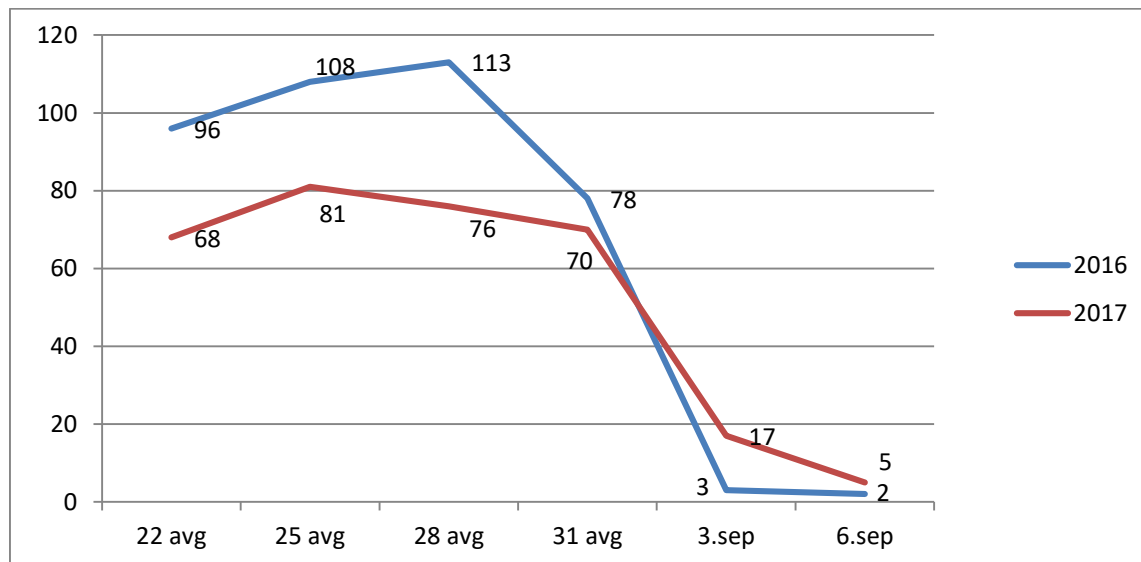
### 3. Monitoring numbers in areas of gathering of European Rollers (seasonal and annual dynamics)

Monitoring of migration was conducted only in the area of Subotička peščara, where a larger number of migratory individuals gathers. The monitoring was done in 2015, 2016 and 2017.

In 2015, during monitoring of migration in IBA “Subotička Peščara”, on 27<sup>th</sup> of August, an intensive migration of European Rollers was observed. During an entire day in the field, a total of 327 individuals were counted, from which most were young individuals (first calendar year). The highest concentration of individuals was recorded in the part of IBA that is nationally protected as a Landscape of Outstanding Features “Subotička Peščara”, where 104 individuals of European Roller were counted within an area of around 300 ha.

In 2016, the migration was monitored in the part of the IBA “Subotička jezera i pustare”, more precisely on the 300 ha of steppe/pasture habitats within the nationally protected area “Subotička Peščara” (central coordinates of the locality: N 46.169837° E 19.711586°, **Fig. 1**). Between 22<sup>nd</sup> of August and 6<sup>th</sup> of September, a total of six field days were done at this locality (on field visit after three days), with recorded numbers of European Rollers. The highest number was present on August 28<sup>th</sup> – a total of 113 individuals (Fig. 3). As early as August 22<sup>nd</sup>, during the first visit, more than 90 individuals were present at the locality, while the numbers fallen to less than 5 at the beginning of September (Fig. 3).

In 2017 the migration was monitored at the same locality within the IBA “Subotička jezera i pustare”, ie. the nationally protected area “Subotička peščara”. The locality was again visited six times, with the dates of visits the same as in 2016, for data comparison. The maximum number of individuals in 2017 (81 individual on 28<sup>th</sup> of August) was lower than in 2016. Even though, the migration in 2017 was prolonged, so the numbers recorded in September were higher than the ones in 2016 (**Fig. 3**).



**Fig. 3:** The number of European Rollers during autumn migration at the surveyed site in Subotička Peščara

### **3. Monitoring of breeding population in installed nest boxes**

Nest boxes for European Roller have been installed in Vojvodina, Negotinska Krajina and in Šumadija since 2000. Outside Vojvodina, the number of installed nest boxes is relatively low (<50), while the monitoring of occupancy is not being conducted completely. On the other hand, monitoring of occupancy and reproductive success and ringing of individuals in Vojvodina is done systematically each year. Installation of nest boxes has obviously contributed to the population growth, ie. its recovery and recolonization of former habitats in Vojvodina (ie. Ružić et al, 2017). Since 2014, the area of Serbia has been divided in 16 subunits, in order to make control of, as well as installing new, nest boxes easier. Each subunit has it's coordinators, who send the data to the European Roller program coordinator (Oto Sekereš). The data mentioned is then entered in the database that consists of three sections: database on nest boxes, database on nest boxes visits and database on ringed individuals. Due to tardiness of some of the coordinators, the records in the database are entered with a certain delay, also causing a delay in the analysis of the data. Still, a system of control of precisely defined monitoring units has proven efficient and has given good results in 2015, 2016 and 2017.

#### Results in 2015:

- 158 pairs of European Roller, with successful breeding of 146 (at least one fledged young).
- A total of 479 ringed young (pullus). 30 adult individuals were caught on nests, out of which 15 have been previously ringed (control records). A total of 324 individuals were marked with plastic color rings.
- On adult individual that nested in a nest box in Subotička Peščara was tagged with a satellite transmitter. Unfortunately, the transmitter had stopped working before the start of migration.

#### Results in 2016:

- A total 181 pairs of European Roller nested in artificial nests boxes, from which 162 have successfully bred (at least one fledged young).
- A total of 594 young (pullus) were ringed. 42 adult individuals were caught, from which 26 were ringed earlier (control records) A total of 324 individuals were marked with plastic color ring (the same number as previous year).

### **4. Installing nest boxes and identifying potential locations for the species' population expansion**

The nest boxes for European Roller have been installed since 2000. From 2014 onwards, Serbia has been divided into 16 subunits in which nest boxes are installed, and each of it is managed by one or more coordinators. New nest boxes were made from funding provided by local organisations. A significant part of the nest boxes was assembled in the Visitors' Center in Ludaš , often during bird ringing camps or after workshops on European Roller research. The local coordinators of subunits have taken a number of nest boxes according to their own opportunities and the local needs. During 2015, a total of 135 nest boxes

were installed, in 2016 118, while the results of activities in 2017 are still processed. The nest boxes were installed in all subunits, except for the unit number 15 and 12.

### **Other activities**

2015: A two-day workshop on the protection of the European Roller was held in the Special Nature Reserve "Ludaško jezero", for regional coordinators for the protection of the European Roller, as well as other interested ornithologists from Serbia present. The workshop was also attended by the representatives of the Hungarian Ornithological and Nature Conservation Society (MME) who are involved in the Life Project.

2016: A two-day workshop on the protection of the European Roller was held in the Special Nature Reserve "Ludaško jezero", which was attended by regional coordinators for the protection of European Roller, as well as other interested ornithologists from Serbia. The workshop also hosted representatives of the Hungarian Ornithological and Nature Conservation Society (MME) who are involved in the Life Project.

2017: A four-member crew from Serbia has attended the conference on the protection of European Roller in Kecskemét, Hungary.

The Bird Study and Protection Society of Serbia

In Novi Sad, March 30<sup>th</sup> 2018