

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

REPORT

Surveying European Roller (*Coracias garrulus*) in
Bulgaria in the frame of a research grant contract



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1. Summary

Exact migrating routes and wintering sites of the Roller population in the Carpathian Basin are barely known, thus threats of migration are still undiscovered. The present report is developed for the purposes of LIFE13/NAT/HU/000081 project in accordance with C Action (Reveal potential threats on migrating and wintering sites). It aims to assess the effectiveness of the concrete conservation action as estimating the number of migrating population of European Roller (*Coracias garrulus*) in Bulgaria and the main threats for the most important stopover sites.

Planned activities:

- Localize and survey of migratory hotspots of migrating European rollers from 2015 to 2017;
- Identify threats of migratory hotspots in a technical document in English with a summary also in English by 31.03.2018;
- Raising public awareness and organize in situ actions if required.

2. General information

The European Roller (*Coracias garrulus*) is a common breeding species in Bulgaria. The Roller is priority for conservation threatened species (Biodiversity Act, Annex 2) and protected over the whole territory (Biodiversity Act, Annex 3). The breeding population size is estimated between 2500 – 4000 pairs.

With almost unbroken distribution in the plain and low-mountain parts of the country mainly along the Danube River, at the northern and eastern parts of the Danubian Plain, including Ludogorie and Dobrudzha, as well as to the south of the Balkan Range over almost the whole Thracian Plain, the Eastern Rhodopes, Sakar and Derventski Hills, etc. isolated or grouped in some localities in the Fore Balkan, Sub-Balkan Plains and the western part of the country (Struma and Mesta valleys, Sofia Plain, etc.).

During 19th and the first half of the 20th century widely distributed and at most places numerous. The status of the species was similar at the middle of the 20th century. Until about 1970 recorded still as common and distributed in many parts of the country – at Dobrudzha and Ludogorie, along the Black sea coast between Balchik and Varna and to the south up to Burgas,

in the Thracian Plain, between Veliko Tarnovo and Rousse and eastward along the Danube, around Sofia, Sub-Balkans Plains, the foot of the Central and Eastern Balkan, Struma valley, etc. Though as rarer established also in regions, not recorder before (Southern Black sea coast, Petrich Plain, Lyulin, etc.). Around 1975 the numbers decreased, especially in the Thracian Plain and South-Eastern Bulgaria and at some places the pairs disappeared from considerable territories. Amongst the possible reasons is the intensive use of chemicals in agriculture. Around 1985, coincident with the decline in agriculture, the return of the species and an increase in numbers was observed in some of the regions where it was present previously (Sakar, Eastern Rhodopes, Thracian Plain, Danubian Plain, etc.). At the same time, decreased and even disappeared from some areas in the Fore Balkan, Dobrudzha and other regions. As whole, during 1990 – 2010 the breeding population increased.

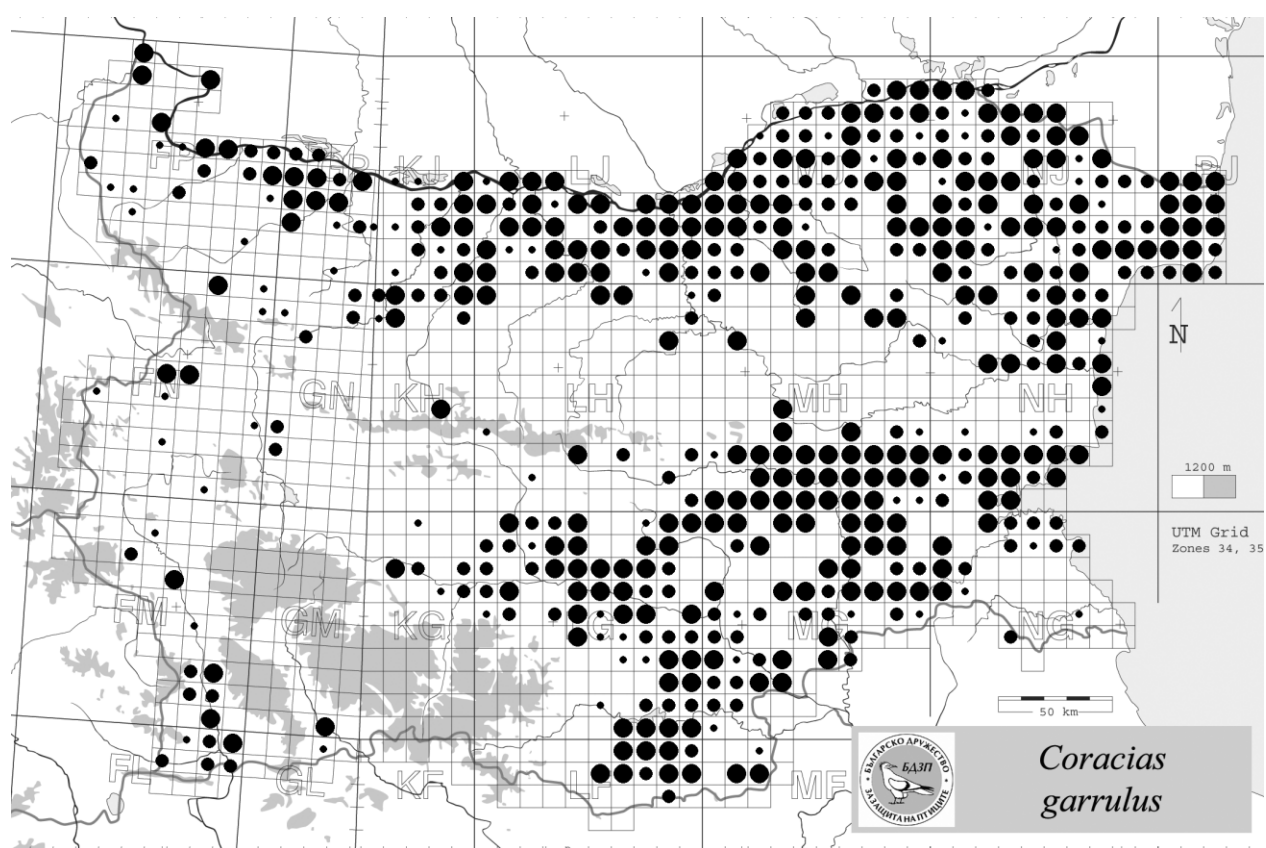


Fig. 1 Distribution of European Roller in Bulgaria (BSPB, 2007)

The European Roller (*Coracias garrulus*) is a very common migrating species in Bulgaria. The most important stopover sites in the country are preferred habitats in the Danubian Plain, Dobrudzha, Thracian Plain and Sofia Plain.

3. Habitats

The European Roller breeds mainly in holes in old solitary or groups of trees within open terrains, especially in riverside tree belts, but also at the edges of loose broad-leaved forests in the lowlands and plains, abandoned orchards. Often nests in rock holes and in tunnels in vertical loess, sand or soil walls. In isolated cases the species breeds in ruins, abandoned single buildings and in the vertical holes of concrete electricity pylons.

During the migration the European Roller can be observed in open landscapes, including mixed farmland, open forest with clearings and steppe habitats.

4. Results

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 Bulgaria for longer than a day or two. During autumn and spring migration, the individuals have flown almost straight over the territory of Bulgaria (mainly with direction from SE Bulgaria to NW Bulgaria during the spring migration and from NW Bulgaria to SE Bulgaria during the autumn migration), with very rare changes in direction (Fig. 2). Based on satellite tracking of the tagged individuals, it wasn't possible to determine locations important during migration.

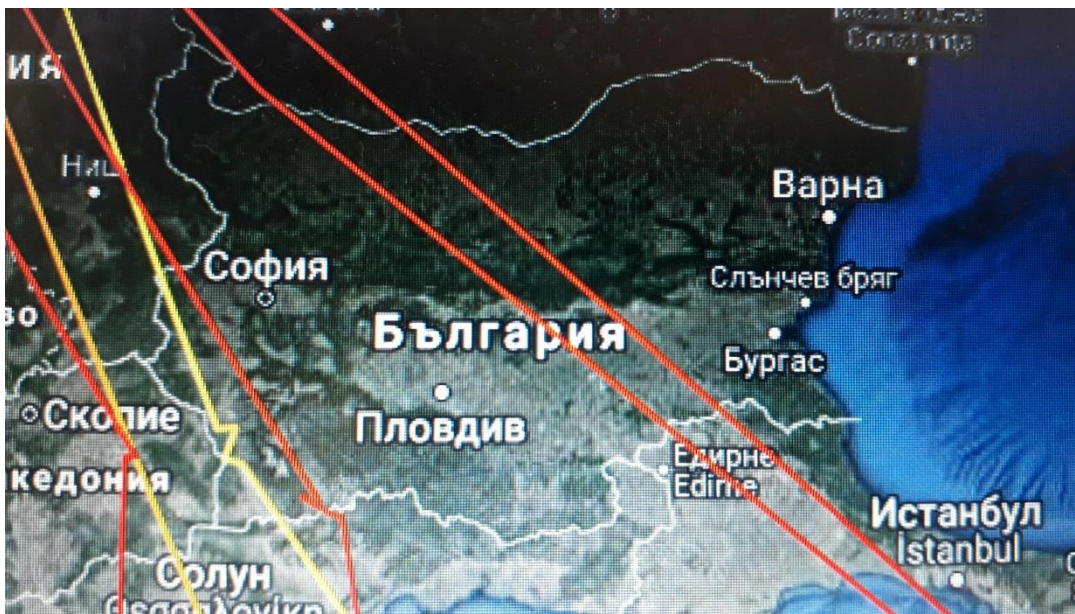


Fig. 2 The migrating routes of the birds with currently functioning tags

During the field survey in 2016 and 2017 BSPB team localized three important stopover sites for migrating Rollers in N Bulgaria: SPA Zlatiata, Svishtov-Belene lowland and SPA Belene Islands Complex.

SPA Zlatiata (43°41'38.68"N 23°37'51.38"E) is located in north-western Bulgaria, in the Danubian Plain, between the Danube river and the town of Kozloduy to the north, the road connecting the towns of Vulchedrum and Hayredin to the south and the courses of the rivers Tsibritsa and Ogosta to the west and east. It covers a plateau with open grasslands of steppe character and arable lands. At certain places there are earth loess walls and low trees and shrubs, composed mainly of *Crataegus monogyna*, *Rosa canina*, etc. *Ailantis altissima* is abundant on the earth walls and around them. The territory of Zlatiata includes the water reservoir Shishmanov Val. There are also dispersed pastures, orchards, vineyards, wind protection belts, small broadleaved woodlands and riverine forest along Ogosta River. Sporadically, groups of about 5-15 individuals were recorded in the mid of August to the mid of September. The number of individuals during migration in Zlatiata reached 62 in 2016 and 74 in 2017.



Fig. 3 Records of European Roller during migration in SPA Zlatiata (2016 & 2017

SPA Svishtov-Belene lowland (43°37'9.23"N 25°14'30.86"E) is located in northern Bulgaria, south of the Danube and the Belene island group, between the towns of Belene and

Svishtov. To the north it borders on the Danube, to the south on the Svishtov – Belene road and railway, to the east on the industrial zone of Svishtov and to the west its limit passes north-west of the village of Dekov. It is huge Danubian lowland, periodically flooded by the Danube in the past, when it formed a natural complex of wetlands with rich flora and fauna. At present it is turned into farmland with semi-natural grass vegetation, shrubs and isolated groups of trees and wind-belts, cut by a network of drainage canals. Its south-western part is occupied by the Kaykusha marsh. Sporadically, groups of about 5-10 individuals were recorded in the mid of August to the mid of September. The number of individuals during migration in Svishtov-Belene lowland reached 54 in 2016 and 61 in 2017.

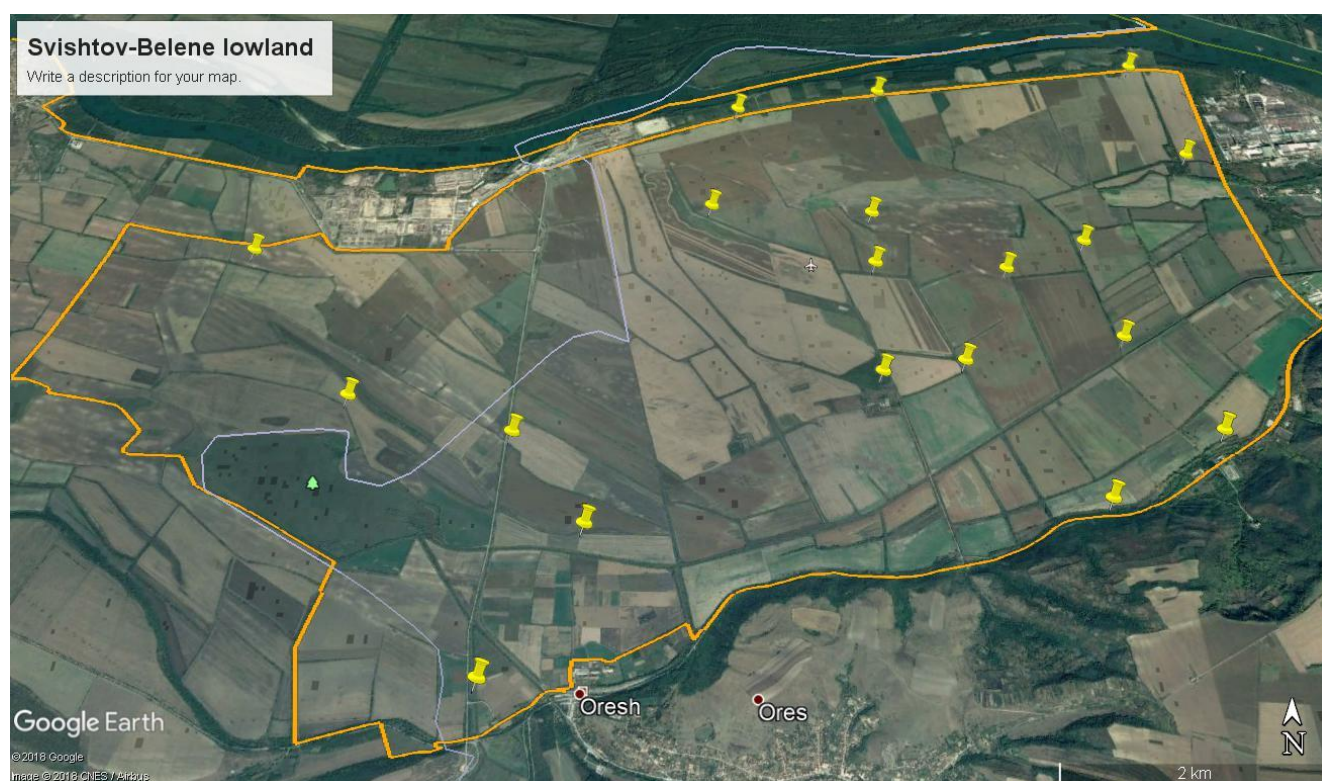


Fig. 4 Records of European Roller during migration in SPA Svishtov-Belene lowland (2016 & 2017)

SPA Belene Islands Complex (43°39'52.68"N 25°10'48.79"E) includes the biggest Bulgarian Danube island, Belene, with the three freshwater marshes on its territory, surrounded by old riverine willow forests, as well as the nearby islands Milka and Kitka (Ljuta), which are entirely covered by riverine forests. The islands are located between km 576 and 560 of the Danube River, north-east of the town of Belene and 18 km west of the town of Svishtov. The prevailing habitat is natural riverine forest mainly of willow *Salix sp.* and White Poplar *Populus alba*, on the island of Milka – White Elm *Ulmus laevis* too. Their formation is directly related to

the river's water regime. The high waters do not allow the complete development of the spring vegetation. The water withdrawal coincides with the high summer temperatures, as a result of which lush summer vegetation covers the island. The tree – shrub vegetation has poorer composition compared with that on the riverbank of the Danube and is dominated by White Willow *Salix alba* and Blackberry *Rubus caesius*. The three marshes on the Belene Island (Peschina, Murtvo and Djuleva Bara) are connected by a canal that flows into the Danube. In high spring waters the wetlands are fed by fresh water coming through the open sluice of the canal. Typical marsh associations develop in the marshes - *Nuphar lutea* and *Potamogeton natans* in the deeper sections, *Nymphoides peltata*, *Hydrocharis morsus-ranae* and *Trapa natans* in the shallower ones. The marshes are overgrown to a different extend with *Phragmites australis*, *Sparganium ramosum*, *Alisma plantago-aquatica*, etc. The formation of *Azola filiculoides* is quite typical for these marshes. Part of the territory of Belene Island is occupied by meadows. The grass associations are represented by several plant communities that often merge, dominated by *Cynodon dactylon*, *Scirpus michelianus*, etc. In the eastern and western parts of the islands sand strips, usually without vegetation, are being formed. The number of individuals during migration in Belene Islands Complex reached 47 in 2016 and 42 in 2017.

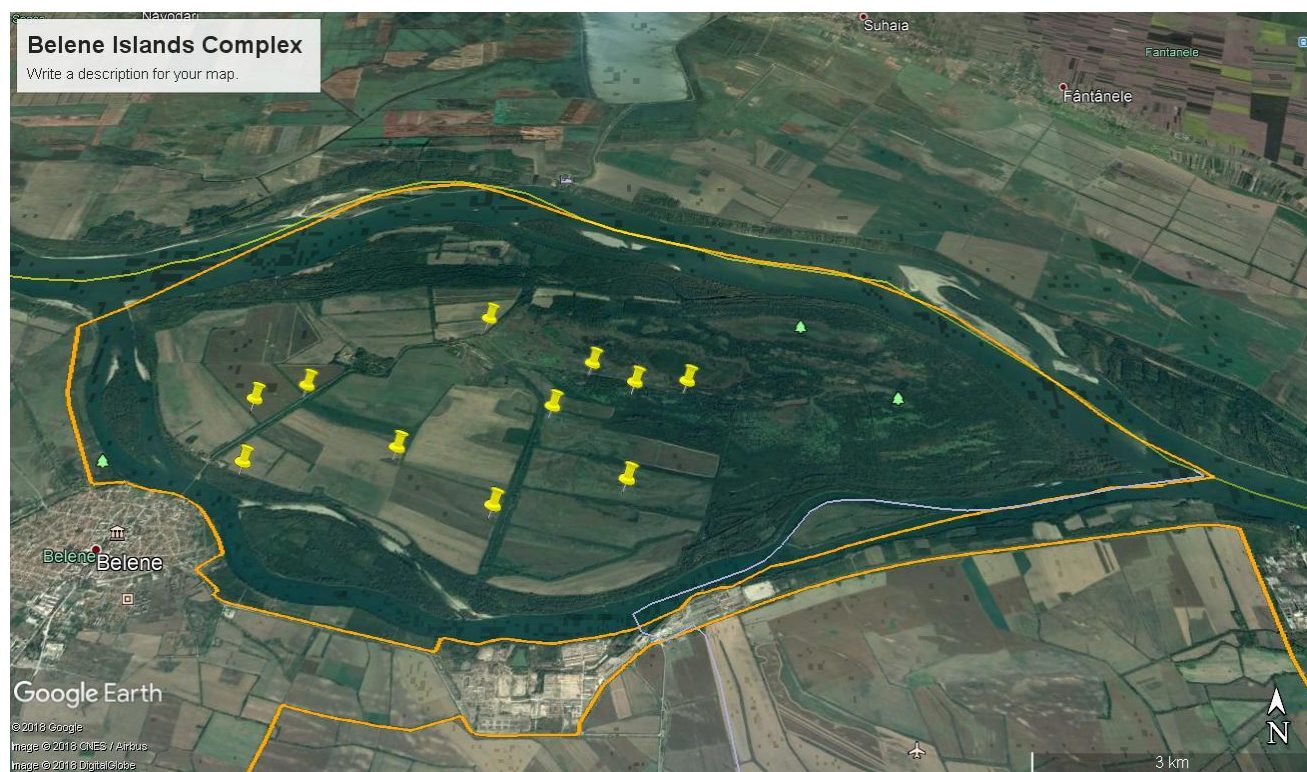


Fig. 5 Records of European Roller during migration in SPA Belene Islands Complex (2016 & 2017)

5. Threats

The threats for the European Roller in Bulgaria are as the following :

- **Secondary poisoning by insecticides** – There are no concrete evidences for secondary poisoning, but there is high probability for such poisoning.
- **Land abandonment/reduced land management (e.g. meadows and pastures)** – Usually land abandonment has no negative impact on the population. However, there might be local negative influence in areas where abandoned land overgrow with scrubs and trees, which reduce the available foraging areas for the Rollers.
- **Shifts in crop composition e.g. change fallow, uncultivated land, dry cereals to bio-fuel plantations.**
- **Increasing habitat homogeneity (e.g. large land parcels)** – The reduction of field margins and tree lines in intensive agricultural areas reflect negatively on Roller population. Grassland stripes along the fields that used as foraging areas and trees lines between farmland parcels are important for the species. Currently land-consolidation is taking place and often such landscape features are cleared, ploughed and included into the arable parcels.
- **Replacing natural forests with wood plantations** – The replacement of native tree species and forests with cultivated wood plantations usually reduce the number of available nest sites.
- **Deforestation of nest site** – Directly connected with legal and illegal logging activities.
- **Illegal logging** – Illegal logging, especially in riparian forests and tree lines in the open areas with pastures and farmland, reduce the number of available nesting sites. We have had two cases of trees where we have installed nest boxes being illegally logged in the territory of Persina Nature park.
- **Legal clearing of nest trees (e.g. along streams and hedges)** – Legal clearing of nest tree is a common problem across the country. Together with illegal logging it cause significant reduce of nest sites availability.
- **Infrastructural development** – Infrastructural development has significant impact in NE Bulgaria, along the Black Sea coast, where new beach resorts are built on the traditional breeding sites, covered with step vegetation or other type of grassland. However, this problem is spreading out across the country due to the fact that private land plots are

fragmentary and all big land plots are owned by the state or municipalities. As a result of this all new big investments, such as new factories, new intensely managed vineyards, wind turbine parks etc. are built on such plots. Usually these large plots are used as pastures and meadows and with their destruction decrease the available hunting areas and nest sites.

- **Burning of vegetation for land reclamation and agriculture** – This could be serious problem in the Southern eastern part of the country, but on national level has limited impact.
- **Collisions with wind farm turbines** – There is no data for such mortality however the surveys are
- **Electrocution** – electrocuted Rollers have been found during specialized surveys on bird mortality in Southeast of Bulgaria. They represent 7 % of all electrocuted birds found for one year along 140 km power lines (Demerdzhiev et al.,2009).