

After-LIFE Conservation Plan



conservation of the
EUROPEAN ROLLER
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ROLLERLIFE project
Conservation of the European Roller in the Carpathian Basin
(LIFE13/NAT/HU/000081)
2020



ROLLERLIFE project details

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INTRODUCTION

Scientific name: European Roller (*Coracias garrulus*)

International conservation status:

- EU Birds Directive: Annex I.
- Bonn Convention (CMS): Appendix II
- Bern Convention (CCEWNH): Appendix II
- IUCN Red List Category¹: Near threatened
- European Conservation Status²: SPEC2

European Roller is a member of order Coraciiformes, and the only one from the roller family (Coraciidae) to breed in Europe.

Taxonomy

Phylum: Chordata

Class: Aves

Order: Coraciiformes

Family: Coraciidae

Genus: *Coracias*

Species: *C. garrulus*

Biological assessment

The European Roller is a medium sized, primarily insectivorous species (31–32 cm, wingspan 52–58 cm). Its body mass is 120-160 g, varying according to sex and condition. Sexes are similar, although blue colours in males are more vibrant, and the violet of the rump is wider. There is only a small difference in biometric data between the sexes; males have slightly longer wings than females.

Juveniles are paler, with browner cheeks, distinctly brown throat and breast, shorter outermost tail feathers with no dark spots at their tips. The second-year birds have unmoulted greater coverts and very worn flight feathers and tail.

The European Roller is a polytypic species with two subspecies:

- *Coracias garrulus garrulus*: NW Africa, SW, SC & E Europe and Asia Minor E through NW Iran to SW Siberia;
- *Coracias garrulus semenowi*: Iraq, Iran (except NW), Pakistan, south Kazakhstan, Turkmenistan, and possibly NW China (W Xinjiang);

Subspecies *semenowi* is slightly paler, with neck, underparts, great and median upper wing coverts more greenish.

Global distribution and European population

The Roller breeds throughout temperate, steppe, and Mediterranean zones enjoying reliably warm summer climates. Predominantly a lowlands species but ascends in Moroccan High Atlas to 2,000 m in Caucasus no higher than 800–1,000 m and in central Europe only to that level in isolated cases, 400–600 m being normal limit. Normally avoids deserts, semi-deserts, and treeless grasslands, and shows no attachment to water but will inhabit lines or groups of poplars. In Europe, Kovács et al. (2008) mentioned an estimated number of 55,000 - 117,000 breeding pairs in Europe (50-74% of the global breeding range), nowadays the breeding population is estimated to 40,057-80,167 breeding pairs (Kiss et al. 2020). The European population is still declining.

Following a moderate decline during 1970-1990, the species has continued to decline by up to 25 per cent across Europe during 1990-2000. It is extinct in Germany, Denmark, Sweden, Finland and the Czech Republic. The species recently became extinct in Slovakia, Estonia and possibly in Slovenia. Small and declining populations occur in Austria, Belarus, Latvia, Lithuania, and Poland. Declines have also been reported from Russian regions (Malovichko, 1999) and north-eastern part of Ukraine. However, several Roller populations show increasing trends, mostly in Southern Europe (France, Italy) and conservation measures were also successful.

Distribution throughout the annual cycle

The European Roller is a long-distance migrant. The breeding season starts from the beginning of May and lasts until the end of July. Autumn migration begins in August/September. Birds spend ca. 1-1.5 month (from September until late November) at stopover sites in the Sahel Belt and overwinters in an area extending from Angola to South Africa and Kenya.

Different breeding populations use different but overlapping wintering areas, and individuals from the same population might use different wintering regions.

Spring migration takes place between March and June, mainly in April/May.

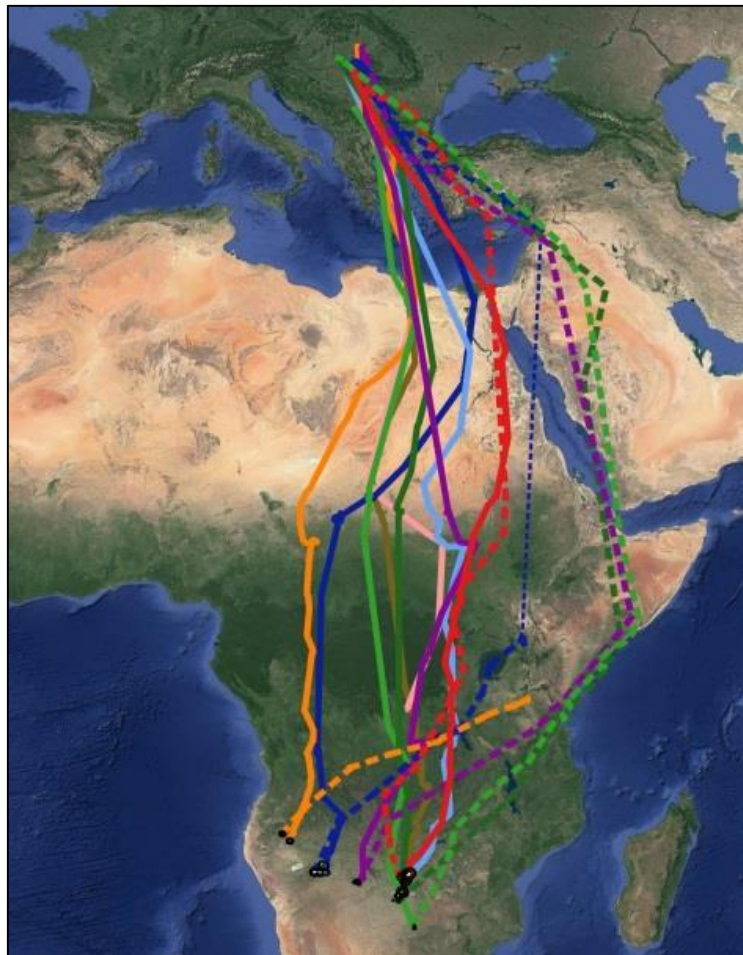


Fig. 1. Overview map of the migration of European rollers from the Carpathian basin

Habitat requirements on breeding areas

The European Roller avoids closed forests and, over most of breeding range, is predominantly associated more with open habitats with plenty of hollow trees. It inhabits old parks, tree-lined river banks, orchards, willow stands, and dry plains with scattered old trees, but usually avoids intensive cultivation. It is a secondary cavity nesting species, i.e. it needs natural hollows for breeding. Usually, it uses the old holes of Black Woodpeckers (*Dryocopus martius*) and Green Woodpeckers (*Picus viridis*) and bee-eater burrows, but may also nest in sand banks, cliff faces, buildings and, increasingly, artificial nest-boxes. The species is polyphagous, eating a wide variety of invertebrates and occasionally vertebrates or even fruits.

Habitat requirements during migration and wintering

Information on this aspect of their ecology is very scarce. It is believed to winter primarily in dry wooded savannah, and bushy plains; in the United Republic of Tanzania also in sisal fields, and clearings of montane forest; and in West Africa in cultivated derived savannah woodland, also in edges of secondary forest below 1500 m.

Feeding habitats and diet

They prey on insects, mainly Coleoptera and Orthoptera followed by Araneae and Hymenoptera. Animals other than insects comprise about 3 per cent of prey: scorpions, millipedes, centipedes, spiders, worms, molluscs, frogs, lizards, snakes, small mammals and birds.

Breeding biology

The European Roller is considered to be monogamous, but social polygyny, extra-pair paternity and extra-pair maternity have also been recorded. Participation of a helper in nestling rearing is rare. Normally the species is solitary and territorial, but semi-colonial breeding also occurs. The egg laying period is mostly May and June, with clutch size usually 4-5 (2-9); mean clutch size varies between 3.79 in Hungary. Incubation lasts about 17-28 days and starts before the clutch has been completed. The fledging period is 26-27 days. The reproductive success (fledglings/successful nest) in the declining the Polish and German population (the latter is extinct now) was between 1.5 – 1.8 but higher (3.74) in an increasing Spanish population. Both parents take part in nestling care.

PROJECT HISTORY

1. Strengthen the European core population in the Carpathian basin and ensure its conservation by the implementation of suitable conservation measures.
2. Restore former Roller habitats and demonstrate new or unfamiliar management practices.
3. Increase the population size of the Roller by creating new nest sites and by the promotion of bird friendly habitat management of Natura 2000 sites.
4. Involve relevant stakeholders into the conservation activity and therefore establish the fundamentals of sustainable protection of the species.
5. Decrease the mortality of the targeted population by promoting the bird friendly electric pylon designs, insulating the most relevant pylons.
6. Identify endangered migratory and roosting sites; make the first steps for their conservation through networking.

According to the threats identified in the background of the problem, the following concrete objectives have been targeted by the project

1. Create nesting opportunities for Roller in 17 SPAs in Hungary holding altogether 589-717 breeding pairs and in 15 SPAs in Western-Romania holding altogether 97-137 breeding pairs.
2. Improve nesting and feeding habitats on the three characteristic Roller habitat types on three project sites. Demonstrate the new management methods to owners and managers of key Roller habitats to promote their use.
3. Decrease mortality of Rollers caused by unsafe nesting opportunities and electrocution.
4. Promote the bird friendly habitat management of Natura 2000 sites, prevent especially tree logging.
4. Ensure sustainable and long-term conservation management of the species by the “Farmer for Rollers program” and the creation of National Action Plan in Hungary
5. Increase public awareness of European Roller to strengthen the conservation of the species.

The ROLLERLIFE project successfully achieved all relevant targeted goals. A series of preparatory actions have been executed to establish the conservation and dissemination actions of the project.

The project team delivered the National Action Plan and updating the International Species Action Plan to ensure sustainability of the conservation measures to the European Roller in national and international level. Direct conservation actions included creation of nesting sites with 2320 nest-boxes in Hungary and 65 woodpecker cavities inspected. Altogether 883 nest-boxes (776 wooden + 140 wood-concrete) installed within the Romanian project SPAs.

Both countries used the handbook of nest-box installation methods developed under action A.2 which was published on the project website as well.

Project partners contracted altogether 113 farmers, planted 5387 saplings, installed 102 T-woods and 214 nest-boxes for them. 16 workshops have been held for the participants of the Programme, where they learned about the European Roller, bird-friendly agriculture.

The new knowledge gathered from the autumn and spring migration routes and wintering grounds. The 12 adult European Rollers tagged with 5 gram solar charged PTT. Network partners from Cyprus, Bulgaria, Serbia and Israel assessed threats along the flyways presented report about all of the experiences.

The communication and dissemination of the project results were key elements of project activities. We developed www.rollerproject.eu to a sustainable brand Roller conservation worldwide.

Website

45 000 unique users visited the website and there are 177 367 page views. There were 61 002 sessions

Facebook site

www.facebook.com/pages/Rollerproject/) is also online from the beginning, since November, 2014. The basic communication languages are English, Hungarian and Romanian.

To this date, there are 313 posts on Facebook, 2122 people liked the page.

122 webpage articles and press released altogether, 3 press conferences, 5 various lengths (4-7 min) short films and a 32-min documentary.

Technical communications of the project

4 EU conferences, 8 scientific publications and 24 presentations or posters were achieved.

However, some of presentations and conferences were deleted by COVID-19 in 2020.

In summary we can conclude that project actions had direct effect on local European Rollers their breeding places, habitat and increased the targeted populations. We successfully elaborated and monitored the habitat management techniques in favour of the species and elaborated conservation and dissemination tools for the promotion of future use.

The future of the core populations seems to be secured as Roller's population increase more than twice bigger than it was 10 years ago. The species returned to the Trans-Danubian region by the end of the project, more than 45 pairs have been found as a breeding species in the year of the project-closing year.

The European Roller now seems be stable in Hungary, but the other part of the European populations is still decreasing. There is only one pair in Austria, Baltic population are very close to extinction, Spanish breeding Rollers are decreasing as well.

Main threats are dependence to human conservation activities besides the effects of modern agriculture's technics.

Farmers for Programme seems to be a very good solvation of active communications and helps to secure natural breeding and feeding places, it need to be continue after LIFE programme.

After-LIFE objectives and methodology

The purpose of this After-LIFE Conservation Plan is to set out how conservation activities are planned to continue and to develop after the end of the ROLLERLIFE project, and how the achieved results can be maintained in the mid- and long-term. Information is provided on the proposed prioritization, implementation and monitoring of the actions identified through the project. In the following two chapters we analyse the recent situation by a SWOT analyses and give details for the needed continuation of each specific action of the project.

SWOT analyses

	POSITIVE	NEGATIVE
Internal	<p>Strengths</p> <p>Existing infrastructure and equipment. Existing partnerships, well-based knowledge.</p>	<p>Weaknesses</p> <p>Short less in funding. Lack of personal capacity.</p>
External	<p>Opportunities</p> <p>International and national network possibilities Increased public awareness. Most important knowledge gaps already filled. Major experience with the previous and other LIFE-projects</p>	<p>Threats</p> <p>Increased human conservation dependence Effects of climate change. Major mortality on migration route and wintering places. Lack of knowledge in Africa. Intensification of agriculture.</p>

After-LIFE framework of specific project actions

Action nr. and short name	Output and achieved indicator during the life-time of the project	Priority	After-Life performance and targeted output /2020-2025/	Responsible	Cost /year and APL - After Life Period	Funding	Tasks of participants
A.1 Establish the sustainable management of Roller nesting habitats	Habitat and management guidelines	High	Provide knowledge background to the new planning processes	MME/Milvus Group	no cost	n/a	Spreading the guidelines to further stakeholders, rural micro-regional associations, water management authority staff, forestry staff and other mayor offices.
A.2 Assessment of existing breeding opportunities	Database of breeding Rollers, handbook on nest box installation	Negligible	Provide knowledge background to future conservation works	MME/Milvus Group	no cost	n/a	Yearly control of nest box provided by volunteers of MME Milvus: PDF version of the handbook was spread on many internet forums and groups and will serve as a tool for those interested in Roller conservation in the future too. In eastern and southern part of the country many volunteer bird lovers have already produced nest boxes and put them out according to the instructions of this guide.
A.3 National Action Plan	Approved Species Action Plan	High	Follow up of the implementation phase	MME	no cost	n/a	MME Species coordinator will regularly collect information from the international community and thus follow the implementation phase
A.4. Elaborate monitoring schemes and training of participants	Monitoring plan for the species	Negligible	No special action needed	MME/Milvus Group	no cost	n/a	Regular communication between volunteers by the coordination of MME.
A.5 Develop the business plan for the sustainable management of the Roller Visitor Centre	Business plan	High	Annual update of the plan	MME	no cost	n/a	Develop the marketing and business structure in order to make the Visitor Centre maintainable.

C.1 Restoration of steppe habitats	Improved habitat conditions on 205 Ha	Critical	Grazing on 205 ha to secure prey abundance and availability of Roller	KNPD	no cost	n/a	KNPD maintains the project results, tenant contractor ensures constant grazing on the area.
C.2 Restoration of wooded pastures	Improved habitat conditions on 28 Ha	Critical	Mowing on 28 ha to secure prey abundance and availability of Roller	BNPD	15400 EUR/year		BNPD maintains the project results: mowing the area twice a year as long as the conditions are suitable for grazing. Stem-crushing on the areas where the eliminated invasive trees are growing back.
C.3 Management of riparian forest	Improved habitat conditions on 60,13 ha	Critical	Roller-friendly forest management	Dalerd Ltd.	approximately 4400 euro	own funding	Dalerd Ltd. Maintains the project results
C.4 Creation of artificial nest sites - HU	1280 wooden-concrete + 1040 (BNPD 1000, Dalerd Ltd 40 pcs) nest boxes	High	Maintenance of nest boxes, at least 50-60 % of average yearly occupancy rate	MME/BNPD/Dalerd	MME: 1000 €/year BNPD: 90000€	own funding	MME: Annual monitoring of nest boxes by coordinating of Roller Working Group. Produce annual monitoring report. BNPD: monitoring and maintenance of nest boxes, replacement if necessary
C.4 Creation of artificial nest sites - RO	883 nest boxes (774 wooden + 109 wood-concrete)	High	Maintenance of nest boxes	Milvus Group	cost needed for 5 years: 4675 EUR	own funding	In the following years, we will ensure the annual control of a number of 340 nest boxes from the two main target project areas with the involvement of our volunteers. In regions where the nesting of the species is only scarce, we will control the nest boxes every two years. The damaged nest boxes will be replaced every year before the birds arrive, with new nest boxes from our stock. This way, the number of usable nests is maintained continuously over a long period of time.

C.5 Plantation and maintenance of forest patches - HU	saplings planted: (BNPD: BNPD-DHTE: 1000 saplings planted, 580 pcs replaced in 2019, BNPD-BMTK: 11000 saplings planted, replacement in autumn, 2018 /2000 saplings/ and in autumn 2019 /1668 saplings/), KNPD: 1200)	High	Maintain the extent of forest cover in the project area KNPD: 2021:re-plantation of 600 trees;2022:re-plantation of 400 trees; 2023 re-plantation of 200 trees. To enhance the effectivity of the re-plantation irrigation and installation of protective netting against grazing animals can be used. Growth of the plans will be supported with regular hoeing (3 times /year)	BNPD/KNPD	BNPD: 16000 EUR/year KNPD: 2021: 3500 EUR, 2022: 2500 EUR 2023: 1250 EUR	own funding	Maintenance of plantations in the project area: watering in dry seasons, replacement if needed. BNPD: weed control and mowing around the saplings as long as they are developed enough. KNPD: Maintain the extent of forest cover in the project area 6x500m2. Because of the more and more disadvantageous conditions (saline soil) the required target density of 1000 trees/acre can only be achieved with annually re-plantation (many of the trees cannot survive the first year)
C.5 Plantation and maintenance of forest patches - RO	more than 6000 saplings planted	High	Maintain the results (total area and tree density)	APMSM/Milvus Group	Milvus: cost needed for 5 years: 12400 EUR APMSM: no cost	Milvus: watering in dry season will be insured and provided from own sources. We have not yet identified sources for fencing the plantations	Milvus: Maintenance of plantations in the project area: watering of seedlings in dry periods will be ensured for at least two more years after the end of the project, until the seedlings become less vulnerable to drought. In addition, we will monitor the survival rate of the seedlings and, if necessary, their replacement and the planting of other indigenous species such as oak will carry out. We plan to fence two of the main important plantations (fund dependent). APMSM: informing the municipalities about the planted tree patches is in progress, commitment with at least 10 municipalities will be signed about the future maintenance of the plantations

C.6 Farmers for Roller Program - HU	106 farmers participating (BNP: 30, MME: 76, 74 T-woods installed, 4335 saplings planted)	High	Maintain the network	MME/BNPD	MME: 1000 €/year BNPD: 8000 EUR	own funding	MME: Annual visit at every partner, controlling plantation and nest boxes. BNPD: to maintain the personal contact with farmers BNPDS plans to organize events for farmers in the afterLIFE period, too
C.6 Farmers for Roller Program - RO	40 farmers involved, every farmer received 200 saplings, 300 m fence, 75 poles, 4 pcs of 5m high wooden poles for nest box installation, 4 pcs of nest boxes and 4 T-woods	High	Maintain the network	APMSM	no cost	n/a	APMSM: contacting farmers regularly through phone
C.7 Insulate dangerous pylons	1000 pcs of poles insulated	High	Maintain project results	Milvus Group	cost needed for 5 years: 2740 EUR	own funding	During the nest box controls, once a year we will check each insulated power line in order to identify possible defects or problems occurred.
C.8 Reveal threats during migration/wintering	contracts with the BirdLife partner NGOs signed, threat assessments are ready (Bulgarian Society for the Protection of Birds, BirdLife Cyprus, Society for the Protection of Nature in Israel, Bird protection and study society of Serbia)	High	Maintain the network by regular online information exchange	MME	no cost	own funding	
C.8 Reveal threats during migration/wintering	Ringling activity to develop knowledge about migration and dispersal.	High	Continue regular monitoring and ringling.	MME/Milvus Group	MME: 2000 €/year Milvus: cost needed for 5 years: 1800 EUR	Own funding.	MME: Ringling adult birds and chicks by metal and colour rings. Yearly report of ringling. Milvus: During the nest box controls (under the action C4), we will continue the ringling and colour ringling of adults and nestlings

C.9 Control activities to identify and proceed against illegal logging	Regular monitoring of sample areas	Medium	-	APMSM/Milvus Group	n/a	n/a	During the controls carried out under action C9, we identified only one tree felling case, we do not consider it necessary to continue this activity in the future. The virtually non-existent number of illegal logging is due to the fact that: most areas selected at the beginning of the project to be controlled are part of the Mureş Floodplain Natural Park or other protected areas, and the trees outside these areas are too exposed to be cut down since the trace of the illegal act is immediately apparent.
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