



LIFE Project Number
<**LIFE13 NAT/HU/000081**>

Final Report
Covering the project activities from **01/09/2014** to **30/09/2020**

Reporting Date
<**11/01/2020**>

LIFE+ PROJECT NAME or Acronym
<**ROLLER – Conservation of the European Roller (*Coracias garrulus*) in the Carpathian Basin**>

Project Data

Project location	Hungary and Romania
Project start date:	<01/09/2014>
Project end date:	<30/09/2020>
Total Project duration (in months)	<73> months
Total budget	€ 5 046 097
Total eligible budget	€
EU contribution:	€ 3 784 572
(%) of total costs	75 %
(%) of eligible costs	

Beneficiary Data

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2. Executive Summary

The target species of this project, the European Roller (*Coracias garrulus garrulus*) and its' conservation has some special attributes.

The Roller does not build nest but depends on the actual availability of cavities for breeding. The species does not only compete with cavity-nesting bird species and modern forestry, but also with agriculture, as his main habitats are former grasslands already partly converted to farmland habitats. The modern infrastructure, mainly electrocution cause increased mortality and as Rollers are long-range trans-equatorial migrants the conservation work cannot stop at the EU borders.

Moreover the targeted CB population of the species (Hungary and W-Romania) is an edge population compared to the core /eastern/ distribution of the species.

The main aim of the Roller LIFE+ project was to:

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

The ROLLER project successfully achieved all relevant targeted goals, only minor changes were made during the project implementation.

A series of **preparatory actions** have been executed to establish the long term sustainable conservation of the species.

In action A.1 habitat and forest management guidelines were prepared in both countries. The document has been approved by the relevant authorities, shared with large number of stakeholders (National Parks, Environment Agencies, forestry companies). In Hungary recommendations has been incorporated to the National Action Plan for Roller to secure their implementation.

In action A.2 we produced the “Handbook of nestbox installation methods” and collected the baseline monitoring data necessary for the evaluation of the project success.

In action A.3 we submitted the National Action Plan for to the Ministry of Agriculture in Hungary. The approval of the NAP within the project period secures its future implementation.

Before the first field season the Monitoring plan has been developed and we trained the participants according to it (action A.4).

In action A.5 we prepared the business plan of the Roller visitor center. Recent worldwide events (especially the COVID-19 pandemic) will certainly rewrite some details, however the

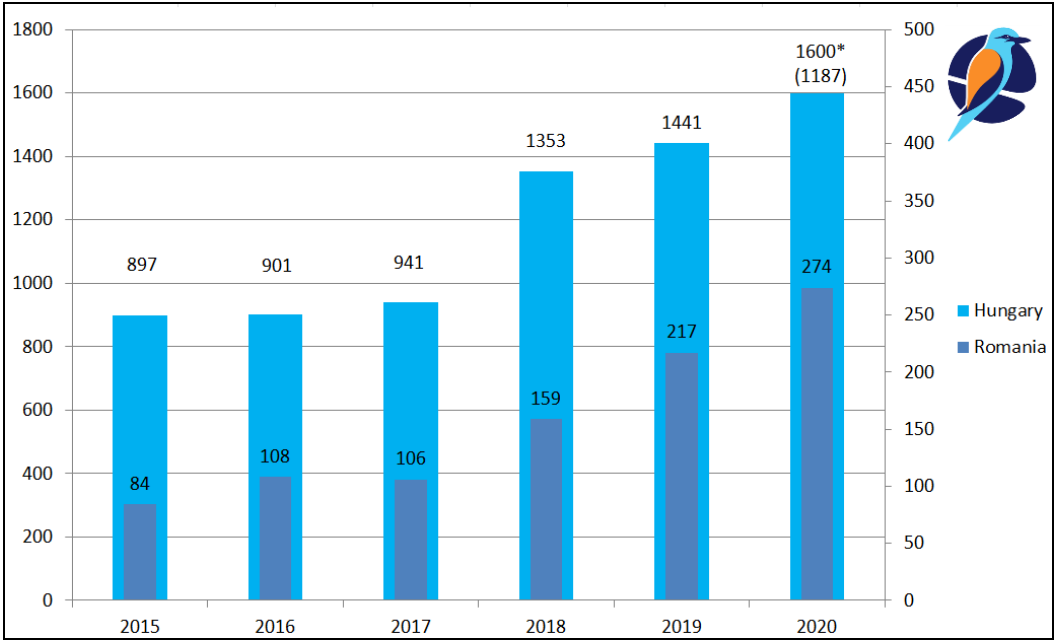
document will serve as a long term basis of the educational work and the sustainable management of the centre in the future.

Direct conservation actions included demonstrative **feeding habitat restorations** for the target species in 3 different habitat-complexes, altogether on 487 hectares.

In the framework of the project we restored the natural water regime of 205 ha grasslands, where we eliminated the invasive trees and secured the long term food availability of Rollers by traditional grazing (action C.1). In action C.2 we eliminated the invasive trees, we (re-)converted arable land to grassland and re-introduced the traditional grazing in the whole area in two steps on altogether 177 ha. Formerly the open pasture-forest habitats along the main rivers of Hungary were essential breeding habitats of the target species. In action C.3, we demonstrated the practical methods of modern forestry (elimination of invasive trees, plantation of native species) to ensure the possibility of the roller to return to these riparian habitats. The complexity and the dependence of these actions from external factors (weather, change in law, procurement difficulties, permitting etc.) forced us to replan the activities several times. As the early monitoring data show (action D.1), both the native flora and fauna of the treated sites were either tolerant or responded positively to the reconstruction actions in short term. Rollers equipped with gps loggers in the habitat reconstruction sites didn't increase their home-range, as control individuals did. This result suggests that the project actions may contribute to preserve the suitable condition for rollers.

The **creation of nesting sites** under action C.4 with 3236 new nestboxes (2320 in HU and 915 in RO) increased the nest site availability of roller in the project SPAs and its buffer zones. Not surprisingly monitoring data (action D.2) showed the effectiveness of this conservation action. The baseline population (year 2015: 897 pairs in HU and 84 pair in RO) increased to cca. 1600 pairs in Hungary and 274 pairs in Romania.

Roller population in Hungary and Romania during the project period*



*At the date of reporting data for 2020, in 5/17 SPAs from HU are only available from estimates based on the average annual growth rate experienced in 11 sites with complete dataset. Some minor changes may apply later, however this will not affect the evaluation of the overall success of the project actions.

The early results of the nestbox schemes suggest that the current capacity of feeding habitats in Hungary and Romania may carry even more breeding pairs. However the long-term availability of natural nesting sites is directly linked the tree availability of these farmland habitats. During the project we planted 30.146 trees altogether, in 79 patches and in tree-lines extending to cca. 38 kilometers in a wide variety of roller habitats under action C.5. Obviously such large areas cannot be protected by fences and guarded, therefore are subject to vandalism, natural loss or damaged by wildlife. The estimated success rate of plantations varied among regions from 25 to 57% according to the latest data. These results are in line with the natural conditions (soil, precipitation, wildlife density) and also reflect the difference in methods used (solitary trees, tree lines, forest patches).

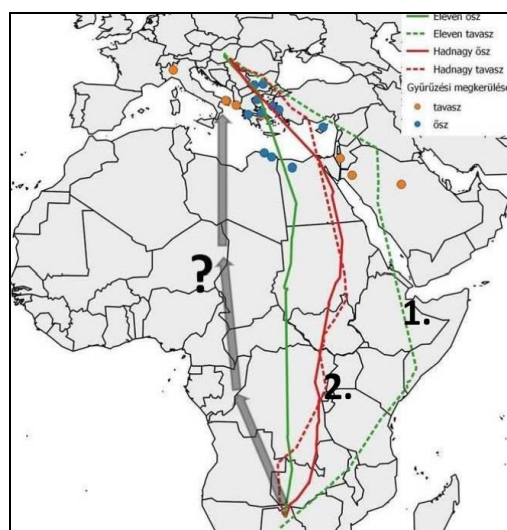
Sustainable habitat conservation was strengthened in action C.6 by further tree plantations (4335 saplings), by the installation of T-woods (72 pcs) and nestboxes (214 pcs) with the involvement and active participation of 106 farmers in Hungary. Moreover 40 farmers in Romania were committed to plant 200 saplings and 300 m fence, 75 poles, 4 pcs of nestboxes and the related poles to install and 4 T-woods.

The illegal logging of fully grown trees in project sites had much lower extent than previously estimated. We realized 211 control activities to detect logging in Western Romania and only found 3 cases (action C.9), therefore the long-term viability of trees seem to be secured.

The most important direct threat to the breeding population is the **electrocution** of individuals on mid-voltage pylons. We insulated 1011 dangerous poles in Romania under action C.7, the post-hoc monitoring (action D.4) proved the high effectiveness of measures taken. In Hungary the monitoring of 6735 electric pylon was financed in the project SPAs. Altogether 35 roller carcasses were found, but all detected cases were submitted to the central warning system (<https://totem.mme.hu/>) for further action (action D.4).

The project made efforts to disentangle the **migratory route** of the CB population by individual tracking of rollers altogether with 15 PTTs in HU, 6 PTTs in RO, 90 geolocators in HU, 50 geolocators in RO.

The migratory pattern and wintering ground of Rollers based on individual tracking and ringing recoveries



During the project we ringed 11492 rollers in Hungary, 4132 of them also with colour rings to study the phenomena of dispersal. Traditional ringing provided 581 (5%) recoveries, colour ringing showed to be less efficient with 133 (3,2%) resightings. In Romania we had 32 (3%) recoveries from 1043 ringed individuals (among them 896 colour ringed). The results allowed us to describe the general migration pattern, timing, routes and the wintering grounds of the population investigated. Moreover we could initiate concrete conservation actions with 4 subcontracted NGOs (Serbia, Bulgaria, Cyprus, Israel) within action C.8 and establish the future background of species conservation in the most relevant migratory stopover sites of Southern Europe with networking under action F.3.

The project placed particular emphasis on the **multi-level communication and professional dissemination** of the results. External circumstances, such as permitting, procurement, and tendering delays (especially action C.1 and E.3), moreover the COVID-19 pandemic in the critical last year of the project hindered the implementation of these actions. Despite the difficulties the project either reached high percentage of the planned audience in every target group or even outperformed the foreseen indicators.

Demonstration and communication of E actions and C.6 action reached 7626 **professional stakeholders**¹ personally and moreover 2022 persons by online platforms or solutions. We were very successful to reach citizens² with personal meetings, exhibitions and school presentations (74.603 persons) and also in the online media (FB site, media releases, website altogether 386.696 persons worldwide).

No large scale specific poll was planned to measure **the performance of overall project communication**. However the inventory submitted by the external companies to estimate the socio-economic impact of the project under action D.3 may be used to reflect the relation of the general public to the project. In the project period in Romania, based on 1030 questionnaires filled, the percentage of respondents who have heard about the project increased from 25% to 100%, the awareness of Roller increased from 10% to 90% and the individual willingness to participate in the conservation activities changed from 25% to 75%. In Hungary in the most important target group (farmers) the growing reputation of AES showed the attitude change toward nature conservation.

In summary the ROLLER project faced serious obstacles, including the COVID-19 pandemic in the last year, some actions had to be delayed and re-planned, the project end date had to be postponed by 6 months, but we finished all actions, the overall performance of the project is near to the planned, and the most importantly **the breeding population of Roller almost doubled in the project area in the project period.**

¹Professional stakeholders in state agencies, NGOs, nature conservation, scientists and **partner sectors** (agriculture, forestry, hunters and electric companies)

² citizens: involved volunteers, birdwatchers, friends of nature, general public

Problems encountered

The overall execution of project has been managed according to the project proposal, however some delays occurred as it is usual with a large complex project with numerous beneficiaries. The PM supported all Beneficiaries with elaboration alternative scenarios of possible solutions, rescheduling or subcontracting tasks or reallocation budget lines. Monthly reporting allowed the PM team to follow up the results achieved and several targeted discussion took place among the project team members and the leaders in charge of the Beneficiaries. Following the reports and monitor visits the PM team prepared the list of most important tasks for each Beneficiary separately. Detailed instructions were accounted on the solution of the problems encountered, and the Beneficiaries were informed on the revised deadlines set up by the EC regarding the affected actions. When deemed necessary, the Director of the CB addressed directly the leaders in charge of all Beneficiaries to draw up the attention at the highest level of the executive board.

We believe that these measures helped the progress of the project and the delays encountered did not have significant effect on the overall objectives of the project.

Problems causing minor delays

The financial balancing of the Romanian part of the project depended mainly on the own contribution of APMSM. However as we informed the Commission earlier in the Inception Report of the project the Romanian Ministry of Environment Water and Forest (RMEWF) was always late to approve the necessary budget for APMSM. The staff managed to overcome the problem and could handle the cash-flow need of the project within the budget of the Beneficiary but this issue caused delays in the actions implementation in the beginning of the years.

Procurement processes and difficulties of permitting procedures of public body beneficiaries in Romania also caused delays in the implementation of individual actions (action C.5, C.6). However, the planned activities have been implemented and the indicators achieved.

Problems causing major delays

Multiple re-planning and multiple permission requests resulted in significant delays in the procurement process and implementation of actions C.1 and E.3 which had further effects.

The external company started the monitoring action under action D.1 to survey the species composition and abundance of potential prey species of European roller (arthropods, amphibians, reptiles and mammals) to follow up changes resulting from habitat restoration activities of action C.1, C.2 and C.3. However due to the delays in action C.1 the subcontracted monitoring activities could not measure the effect of project actions in 2018 as previously planned. We reorganized the monitoring works to 2019-20 with the same related budget.

The delays in opening of the Visitor Centre and further delays in building the outdoor furniture and the watchtower hindered to achieve the originally planned indicators (15000 visitors for 41 month /366 visitors each month/) therefore the proportional re-calculation was necessary: we envisaged 5500 visitors until the end of the project. To reduce the effects of the COVID-19 pandemic the Visitor Centre had to be closed between the end of March and July, 2020 and the organized events were also limited, by the end of September the number of guests was 3862 in total. We tried to maintain the results and increase the awareness of the Visitor Centre with online videos; we reached 4869 viewers on the dedicated youtube channel.

3. Introduction

The target species of this project, the European Roller is the only species in the family Coraciidae to breed in Europe. Following a moderate decline during 1970-1990, the species has continued to decline by up to 25% across Europe during 1990-2000. Overall European decline exceeded 30% in three generations (15 years) in Europe at the time of the proposal writing and in consequence the species was listed as Category 1. Near Threatened in IUCN Red List. Meanwhile conservation actions in several countries have contributed to national recoveries, especially the nest box schemes proved to be successful to create new nesting sites in suitable habitats. Therefore the Roller has been down-listed to Least Concern on IUCN Red List recently. Although the population is still thought to be declining, the declines are not thought to be sufficiently rapid to warrant listing as Near Threatened.

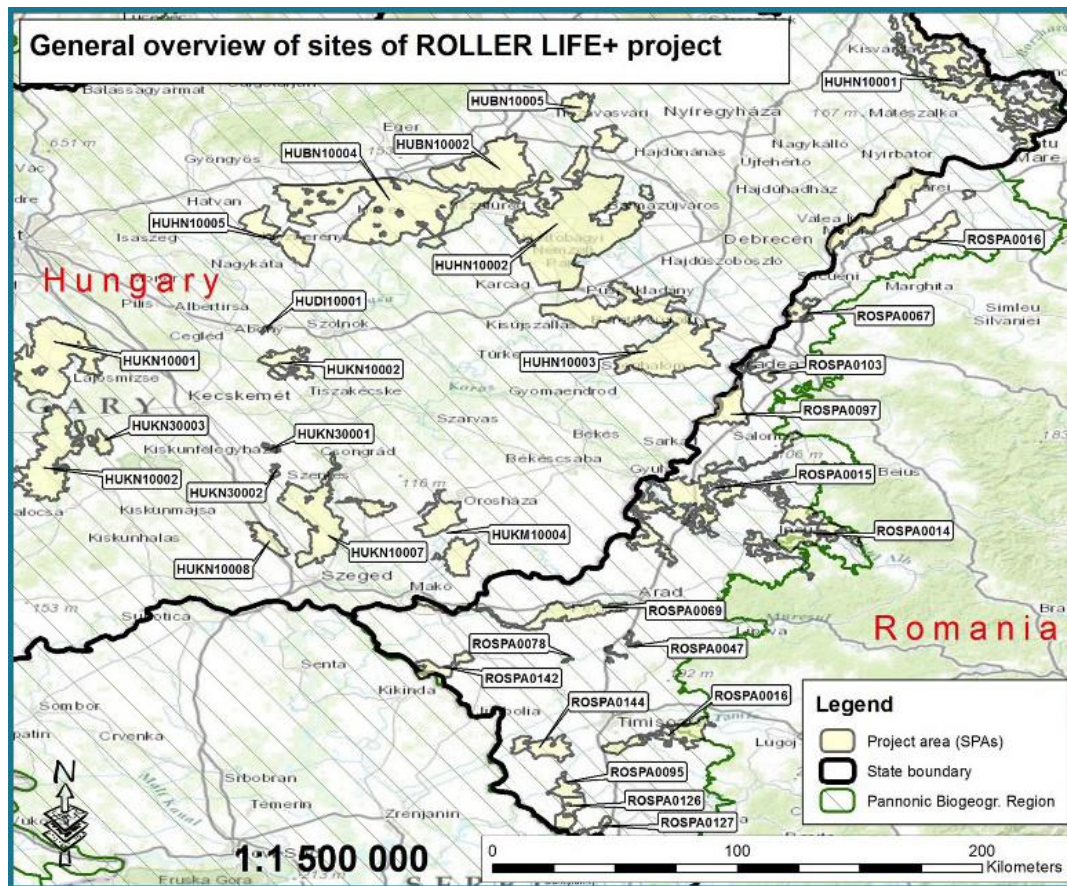
The previous experience with the species specific actions and the conservation planning of the species is well documented and were available before the project both at international and national levels³.

The following specific 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.
5. 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.
6. Increase public awareness of European Roller to strengthen the conservation of the species.

Sites involved to the project include 15 SPAs in Western Romania and 17 SPAs in Hungary.

³ Kovacs A., Barov B., Orhun C., Gallo-Orsi U. (2008) International Species Action Plan for the European Roller *Coracias garrulus garrulus*



Main conservation issues present in our project area and thus being targeted:

- Threat 1: Decreased size and quality of foraging habitat
- Threat 2: Loss of suitable nest sites
- Threat 3: Increased mortality
- Threat 4: Low public awareness
- Threat 5: Absence of strategic tools ensuring the proper conservation management of European Roller

Socio-economic context

The direct economic effects of the project are easily measurable through the number of employees and the value of the created goods as forest patches, feeding habitats, the visitor centre, awareness raising materials, etc.

However the Roller is also the top predator of various invertebrate taxa. The viability of roller population can be used as general indicators of agro-biodiversity of these habitats.

The project demonstrated to stakeholders the economic viability of high nature value farming, especially grazing. The targeted habitat restorations also provided example for the sustainable farming and a more natural human living.

We also put emphasis to the economic transparency and transfer of project data. The project prepared special recommendations for the long term conservation of grassland and high nature value farmland habitats. These objectives serve the benefit of not only several other

sympatric species of international conservation concern of the Pannon-eco-region but also local citizens and those who will buy the food produced here.

In general the majority of the farmers believe that the financial support in the AES is sufficient. Also the overwhelming majority of them are either neutral or positive related to the statement that long-term economic sustainability is possible with AES practices. However, those who participated earlier in AES tend to be more neutral than positive about long term economic sustainability. We experienced a significant increase in the awareness of the roller and the conservation problems of their habitats. Moreover the willingness to participate also increased in the targeted citizen groups.

We believe this is the best indicator of the demonstrative and socio-economic value of the project.

Expected results vs. achievements

Initially we set up the goal to increase the Roller breeding population of targeted SPAs in Hungary by >20% during the project (707-860 breeding pairs by 2019).

- In Hungary we found 1441 breeding pairs in 2019, in 2020 at the end of the project period the incomplete dataset contained 1187 pairs and the expert estimate was cca. 1600 pairs together with the SPAs where the data evaluation is still in progress.

The planned population increase of the western Romanian project area (15 SPAs) was at least 20% during the project (116-164 breeding pairs in 2019).

- In Western Romania we registered 217 breeding pairs in 2019 and 274 breeding pairs in 2020 respectively.

We planned to develop 459 hectares of new nesting and foraging habitat in different regions of Hungary by the project beneficiaries.

- In 2020 the total area managed by the project beneficiaries reached 487 hectares.

The proposal set up the indicator that the treated parts of the roller home-ranges (in action C.1, C.2) will be used more frequently for hunting (data provided by action D.1 for each treated site).

- The indicator must be changed as in the light of the data this is biologically irrelevant (the measured home ranges are much larger than previously estimated). Both monitoring data suggest the positive effect of habitat restorations, and also the field evaluation underline the utmost importance of open grassland in the habitat preference of the species.

When we submitted the proposal we expected that based on the experiences of the actions C.1, C.2, and C.3 and followed by the appropriate monitoring (D.1) and dissemination of the management techniques (E.1) the know-how necessary for the range expansion of the species in the Carpathian-basin will be established.

- Action C.1 was delayed and re-planned several times, however finally we reached the milestones by the extended end date of the project (including the monitoring in D.1). We cannot judge the effect of these actions to the future range expansion at this stage, however the strategic documents where the treatments and the recommendations were incorporated (Action Plan and AES review in action A.3, forestry guidelines in A.1 etc.) guarantee itself the availability and integration of these experience to the relevant policies and guidelines.

1000 dangerous pylons will be insulated in Romania (C.7).

- We insulated 1011 electric pylons by 2020 in Romania.

Plantation and maintenance of forest patches, treelines and solitaire trees, wooden poles will establish the background of long term the sustainable management of Roller nesting habitats on Natura 2000 sites.

- This complex action reached its' goal to establish the long term availability of solitary trees, treelines and pasture forests in the project area, however even short term weather and climate scenarios can have drastic effects on its performance, therefore the care and maintenance of the trees will be one of the most important after-LIFE conservation action.

Revealing migratory stop-over sites and the initiative of their conservation will help to minimize the mortality factors on surveyed pathways.

We disentangled the migratory hotspots and the general wintering grounds of the tracked individuals. The general pattern, timing and even the loss observed helped to initiate conservation actions, networking, future planning of actions with partner NGOs.

List of deliverables

The following deliverables have been prepared and attached to the document as annexes of the relevant actions:

- action A1: A1_1 Habitat and management guidelines in Hungary
- action A1: A1_4 Habitat and management guidelines in Romania
- action A2: A2_1-3 Handbook of nest box-installation methods in English
- action A2: A2_2 Handbook of nest box-installation methods in Hungarian
- action A2: A2_3 Handbook of nest box-installation methods in Romanian
- action A2: A2_4 Study on the potential range expansion of the species in Hungary
- action A3: A3_3 National Action Plan
- action A3: A3_5 Review and policy recommendation of Roller habitat management in AES
- action A4: A4_1 Monitoring plan
- action A5: A5_1 Business plan for the Roller Visitor Centre
- action C8: C8_1 1st assessment of threats by partner NGOs
- action C8: C8_2 2nd assessment of threats by partner NGOs
- action D1: D1_1 Final monitoring report
- action D2: D2_1 Monitoring report for Hungary
- action D2: D2_2 Monitoring report for Romania
- action D3: D3_2 Final socio-economic report in Hungary
- action D3: D3_3 Final socio-economic report in Romania
- action D4: D4_1 Final monitoring report of Hungary
- action D4: D4_2 Final monitoring report of Romania
- action E2: E2_3 Report on mapping of forest-patches, solitude old trees and tree-lines in Hungary
- action E5: E5_1 PR materials in Hungary
- action E5: E5_2 PR materials in Romania
- action E6: E6_2 Layman's report in English

- action E6: E6_3 Layman's report in Hungarian
- action E6: E6_4 Layman's report in Romanian
- action E7: DVD – project film: dvd copies cancelled, project film published online
- action E9: E9_3 Updated International Species Action Plan for the European Roller
- action E10: E10_1 Final conflict maps of bird electrocution
- action F1: F1_1 Signed Partnership Agreements
- action F2: F2 After-Life Conservation Plan
- action F4: F4 External audit report

4. Administrative part

4.1. Description of the management system

Project phases

The Inception Report was submitted in June, 2015 and was accepted by the EC in August. Partnership Agreements (PA) had been signed between CB and each ABs between August and October, 2014 submitted together with the Inception Report.

The Progress Report was submitted in March, 2016 and was accepted in July. A new, modified Partnership Agreement was signed on 19/07/2016 with KNPD (attached to the 1st Mid-term Report), the reason was the reallocation of nestbox procurements from KNPD to MME because KNPD had difficulties with procuring the originally planned wooden concrete nestboxes from Germany. The 1st Mid-term Report was submitted in May, 2017 and was accepted in August. The 2nd Mid-term Report was submitted in April, 2018 and was accepted in July. The 2nd Progress Report was submitted in April, 2019 and was accepted in July.

Mr. András Kovács from the External Monitoring Team NEEMO visited the CB on 5 personal missions (31/07-31/08/2015, 25-26/08/2016, 18-19/09/2017, 4-5 and 11/10/2018, 4 and 6/07/2019). By the reason of the COVID-19 pandemic, the annual monitoring visit in 2020 took place online: we had an online consultation with the external monitor on the 12th May, 2020.

Following of the letter of Mr. Francois Delcueillerie Ref. Ares(2019)4456118 - 11/07/2019 we requested the prolongation of the project period with 6 months and with the coordination of our external monitor we modified the Grant Agreement and the Partnership Agreements with the beneficiaries accordingly.

Activities and tasks

According to the approved proposal the Project Management was selected through a competitive tender process; the tender was held on 17/10/2014, decision was made on the same day and contract was signed with the Consulex Ltd. on 17/10/2014.

The project management team (Peter Palatitz, Zsófia Sümegi - Consulex Ltd.) has coordinated the technical implementation of the project, working in close relation with the administrative and financial staff of MME BirdLife Hungary represented by Lilla Barabás senior administrator and Eszter Babinszkiné Gombos junior administrator.

Changes of the initial staff: in June 2016 Lilla Barabás was replaced by Anna Hunor-Kálmánczi in the position of senior administrator. Eszter Babinszkiné Gombos left the project in March, 2018. From 01/12/2018 project management was elaborated only by Zsófia Nyerják-Sümegi (Consulex Ltd.) who has been in the management team from the beginning of the project (she has her name changed because of marriage), she was responsible for reporting as well. In March, 2020 Anna Hunor-Kálmánczi went on maternity leave, Katalin Kocsis was employed in her position.

The management tasks are detailed in the organigramme of the project team under point 4.3.

The detailed management tasks have been presented in the previous reports and did not change. These are as follows:

- *Technical coordination and communication*
 - *Planning*: Annual working plan (prepared by the Project coordinator of the CB and ABs, revised by the external company, final version accepted by the Director of CB)
 - *Monitoring*: Monthly task report (prepared by the Project coordinator of the CB and ABs, revised by the external company, final version accepted by the Director of CB)
 - *Reporting*: Annual report (prepared by the Project coordinator of the CB and ABs, revised by the external company, final version accepted by the Director of CB and the Project Manager)
 - *Communication*: Annual agenda of tasks (prepared by the Communication officer and/or the Project coordinator of the CB and ABs, revised by the external company, final version accepted by the Communication director of CB and the Project Manager)
- *Financial coordination and book keeping*
 - *Planning*: Annual financial plan (prepared by the Project assistant and the Project coordinator of the CB and ABs in accordance with the technical plans, revised by the Project Assistant of the CB and the external company, final version accepted by the Director of CB and the Project Manager)
 - *Monitoring*: Monthly financial reports (prepared by the Project assistant of the CB and ABs, sent to the Project Assistant of the CB.)
 - *Reporting and payment process*: Annual Report and payment request (prepared by the Project Assistant and the Project Coordinator of the CB and ABs, revised by the Project Assistant of the CB and the external company, final version accepted by the Director of CB and the Project Manager). If deemed necessary the payment request is also accepted quarterly with the related financial report.

Partnership Agreements (PA) had been signed between CB and each ABs and submitted together with the Inception Report. The up-to date monitoring of the administrative requirements and technical advancements based on the approval system of unified Annual Working Plans (AWP). A monthly reporting system was set up and both financial and technical progress reports were required from Beneficiaries in the end of every month. If deemed necessary the payment request was also accepted quarterly with the related financial report.

4.2. Evaluation of the management system

The project management process allowed the Coordinating Beneficiary the follow up of the project implementation. The overall execution of project was managed according to the project proposal, however some delays or minor changes have been occurred as it is usual with a large complex project with numerous beneficiaries. The communication with the external monitoring team and the desk officers were always helpful, we always had answers to our questions with short notice.

Overall project operation and monitoring of the project progress:

F.1 Overall project operation and management

The project management team participated to the kick-off meeting in November, 2014; working contracts has been signed for the most relevant project positions, the project management company started the regular visit of the beneficiaries:

- meeting with APMSM and Milvus Group: 5th November, 2014, Satu Mare, Romania;
- meeting with KNPD: 12th November, 2014, Kecskemét, Hungary;
- meeting with BNPD: 13th November, 2014, Tepély-puszta, Hungary;
- meeting with Dalerd Ltd. and the auditor 22th January, 2015, MME office Budapest, Hungary;
- visiting Dalerd Ltd.: 21th April, 2015, Szeged, Hungary.

MME staff organized the planned workshop between 8 and 9th November 2014. Altogether 51 specialists participated from Hungary, Romania and Serbia sharing their experiences and knowledge about the species and working out the future cooperation.

To follow the implementation MME also held an annual overall project meeting with all the partners at 11th December, 2015 in Jászberény, at 28th November, 2016 in Kecskemét and on 28th November in Felsőtárkány, 2017 to discuss the progress of the project actions.

By every January all beneficiaries finalized the annual working and cost plans, the project management company approved and unified the plans. This internal documents detailed the information necessary for the implementation of all relevant actions for the Beneficiaries in form of an excel table (tasks, responsables, indicators, source of verification). The easy to use tables helped the implementation, the follow up and the reporting of the project.

Consulex Ltd. received the monthly reports from all the Beneficiaries and provided the consolidated version to the external monitor and to the PM of the project.

We have carried out the following annual monitoring visits:

- monitoring visit at 31th July, 2015 in the MME office, a field trip with the monitor at 31th August to the project area of Dalerd Ltd.
- monitoring visit at 25th August, 2016 in the MME office and a field trip with the monitor at 26th August to the project area of BNPD.
- monitoring visit on 18-19 September, 2017: consultation in the MME office and a field visit at KNPD project sites.
- monitoring visit on 4-5 and 11 October 2018: consultation in the MME office and a field visit at KNPD and BNPD project sites.
- visit of the Commission on 4 and 6 June 2019 by Mr. Francois Delcueillerie (desk officer), Ms. Päivi Rauma (financial desk officer) and Mr. András Kovács (external monitor): consultation in the MME office and a field visit at KNPD-MME project sites.

By the reason of the COVID-19 pandemic, the annual monitoring visit in 2020 took place online: we had an online consultation with the external monitor on the 12th May, 2020.

○ Annexes to the current report:

- F1_1 Signed Partnership Agreements (deliverable)
- F1_2 Documentation of the 2-days workshop
- F1_3 Documentation of partner meetings

F.2 Developing an After-Life Conservation Plan

The After LIFE Conservation Plan was prepared in collaboration with project partners in 2020 and was finalised by September. The Plan details which actions of the project should be carried out after the project ends by which responsible organization and from what financial sources. The Plan was prepared in English language in electronic format and was sent to the relevant organizations taking part in the work of Roller conservation in Hungary and Romania.

The After-LIFE Conservation Plan is attached under the administrative annexes.

- Annex to the current report:
 - F2 After-Life Conservation Plan (deliverable)

F.3 Networking with other projects

To share the maximum knowledge we can gain but also build in the experiences, most networking activities took place in 2019.

Project staff members visited the following projects:

IOC – Israel Ornithological Center (Society Of Protection Of Nature of Israel), BirdLife Israel
4-11 March, 2019

BirdLife Israel is coordinating several visitor centres around the country, they successfully combine professional work with conservation education. They also coordinate habitat-reconstructions and demonstrate them to the public and other NGOs as sample projects. They have a significant number of visitors every year, although the total number of population is comparable to Hungary. Their educational centers have similar structure to the Roller Visitor Centre: they have educational trails, public bird ringing events and shop with conservation tools.

The staff visited the following educational centers and gained valuable knowledge about their working system and management:

- JBO (The Nili and David Jerusalem Bird Observatory) – Jerusalem (<https://www.birds.org.il/en/birding-center/The-Nili-and-David-Jerusalem-Birds-Oservatory>): Alen Kacal manager personally presented their experiences about the most popular centre of BirdLife Israel.
- Ramat HaNegev Birding Center – Midreshet Ben Gurion (<https://www.birds.org.il/en/birding-center/Ramat-Ha-Negev-birding-center>) Meidad Goren manager personally presented their experiences of effective space use in small areas and guided around the new building of the center which was in the building progress at that time.
- IBRCE (Eilat Birdwatching Center) – Eilat (<https://www.birds.org.il/en/birding-center/IBRCE-Eilat-Birdwatching-Center>) Noam Weiss manager personally presented their experiences about improving an educational centre from a ringing station which developed into one of the most popular visitor center in the Middle-East.

LIFE+PINZON - Project of range expansion, and population size of the priority species *Fringilla teydea polatzeki* LIFE14 NAT/ES/000077
12-21 March, 2019

https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5322&docType=pdf

During the visit a conference has been held in Gran Canaria between 13-15 March, 2019 where further Spanish species conservation LIFE projects were presented on the field as well. <http://lifepinzon.org/en/international-conference-program-lifepinzon-13-15th-march-2019-in-gran-canaria/>

The most interesting part was to learn about similar problems of replacing old, dead trees, compensating the lack of proper woody habitats, monitoring and ringing protocols, experiences of colour ringing, effects of conservation educations on farmers and the public to decrease threats to wildlife, and the implementation of conservation and scientific works in parallel.

LIFE EGYPTIAN VULTURE - Measures for the conservation of the Egyptian vulture in Italy and the Canary Islands (LIFE16 NAT/IT/000659)

16-19 March, 2019, Fuerteventura

https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=6333&docType=pdf

The project is based on Italian and Spanish cooperation. The main discussion was about the support of population growth, electrocution as one of the major threats to the species, revealing the migration routes, educational activities with the involvement of farmers.

"Urgent Actions to Strengthen the Balkan Population of the Egyptian Vulture and Secure Its Flyway" (LIFE16 NAT/BG/000874)

25-28. June, 2019., Vulture Centre Eastern Rhodopes, Madzharovo, Bulgaria

https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=6380&docType=pdf

The local guide of the centre, Vladimir Dobrev presented their working methods and management system, the activities to reveal migratory routes and threats. The staff was guided around the facility: educational trail, educational room, bird-friends' shop, birdhide.

Palić-Ludaš Agency, Serbia

19 October, 2019 Ludaš, Serbia

The staff visited the international Roller conference organized by the national park directorate and gave a presentation about the project.

A Croatian delegation visited MME staff on 20th November, 2018: the members of Institute of Ornithology, Zagreb, Croatian Agency for Environment & Nature, Public Institution "Nature" Sibenik County and Ministry Of Agriculture visited the Roller Visitor Centre and the surrounding project areas. They have been informed about the project in a professional presentation and a workshop.

Helping the work of the Ministry of Agriculture in Hungary on their capacity building LIFE project (LIFE14 CAP/HU/000010) we participated on their meetings with presentations and as guests as well. We also presented our experiences at the LIFE Projects Fair in Prague on 25th April, 2016 organised by Ministry of the Environment of the Czech Republic in the frame of LIFE 14 CAP/CZ/0001 project.

The staff of AB BNPD also organized a networking trip to Malta, between 11 and 18. September, 2019. The main aim was to observe the habitats Rollers use during migration, to explore the threats bird face. Unfortunately neither the governance, nor local BirdLife partner

answered to the staffs letters, therefore they observed the Natura2000 areas, Natural History Museum, National Aquarium and the nature park of Salina without guidance. In the field visits local birdwatchers shared their experiences with the staff. They helped to organize a meeting with the colleagues of Ghadira nature reserve where there was opportunity for professional discussion. The sad conclusion was the ineffectiveness of conservation efforts: however hunters are allowed to hunt for 40 species this time, our colleagues experienced no control of prey species and numbers.

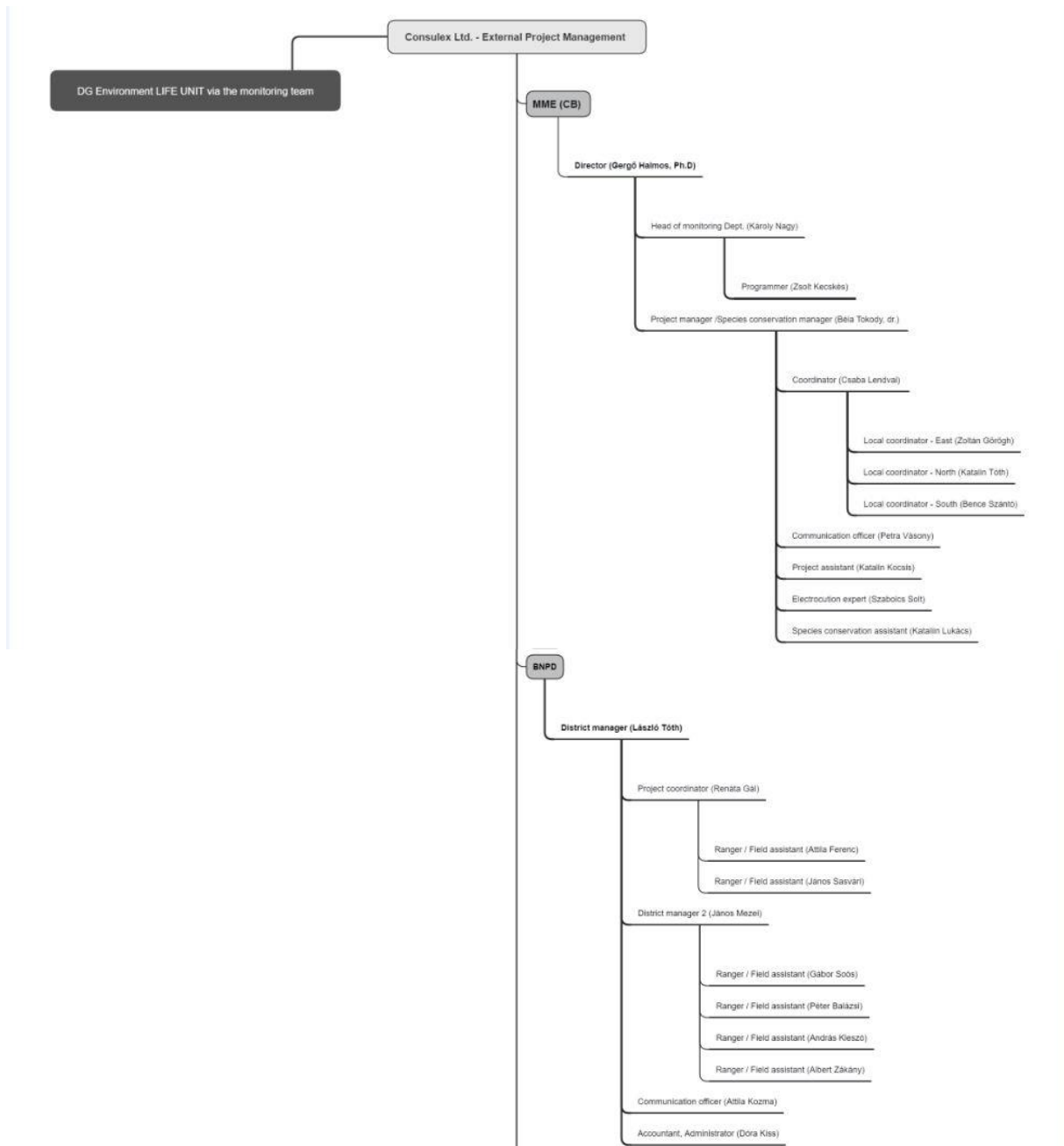
- Annexes to the current report:
 - F3_1 Documentation of networkings by MME
 - F3_2 Trip report by BNPD

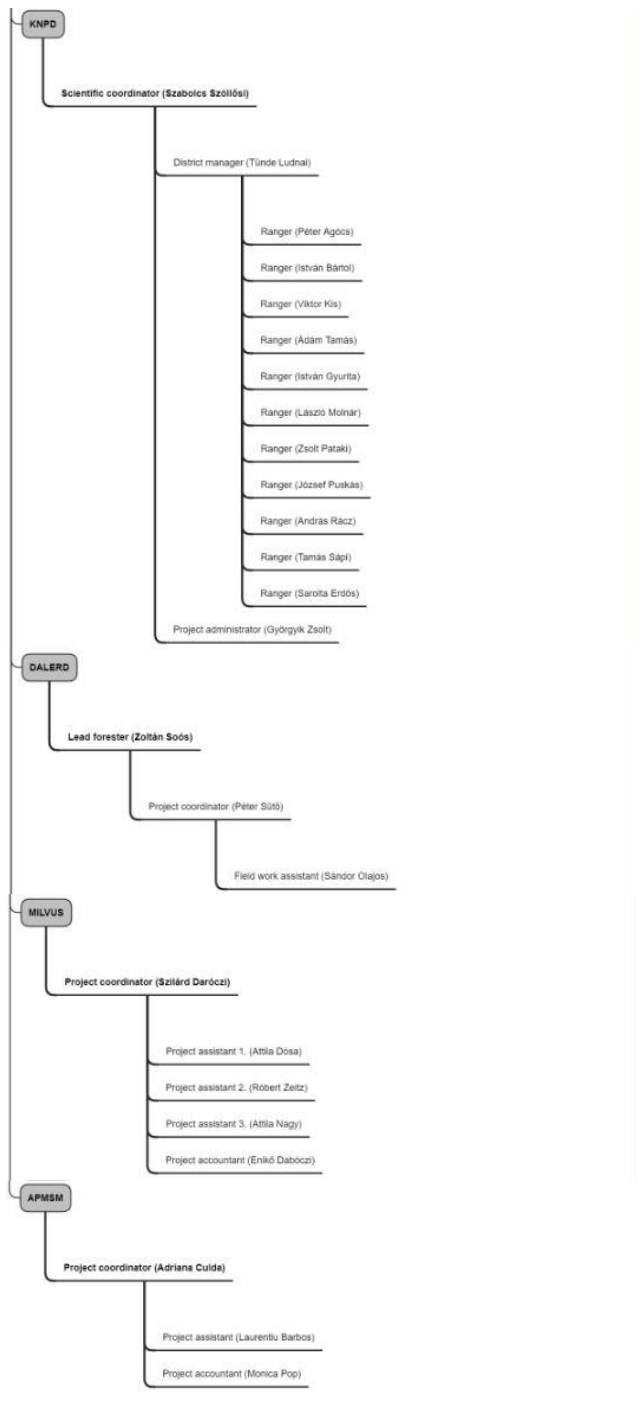
F.4 External audit

The coordinating beneficiary contracted the auditor on 30/10/2014. Apart of the obligatory closing statements, the service included also annual visits and consultation. The final audit report has been submitted on 17/12/2020, please find it under the Administrative annexes.

- Annex to the current report:
 - F4 External audit report (deliverable)

4.3. Organigramme of the project team and the management system





Please note that the organigramme contains only the actual employees at the project end date. The detailed list of all employees in the whole project period (including name, Beneficiary, function, contract period) and the organigramme in higher resolution can be found as Annex 4.3 under administrative annexes.

5. Technical part

5.1. Technical progress, per task

A.1 Establish the sustainable management of Roller nesting habitats

○ Activities and output:

Field works were carried out in 2015 and 2016 on 3 SPAs in both countries: HUKN10007, HUKN10008 and HUKN30003 in Hungary, ROSPA0015, ROSPA0069 and ROSPA0128 in Romania. The reports with the results both in Hungary and Romania were handed in with the 1st Mid-term Report.

In Hungary the main suggested habitat and management guidelines to preserve breeding habitat for Green Woodpecker and Rollers are:

- plantation of soft wood patches, area 1-1,5 ha
- preserve dead wood in forest patches
- preserve at least 20 old trees (poplar or willow species) when the patch is deforested
- maintain high quality grasslands as foraging sites
- eliminate invasive tree species.

MME delivered the recommendations together with the deliverable of action A.3, namely the review and policy recommendation of Roller habitat management in AES since there is a close relationship between these topics and there is an overlap between the stakeholder groups as well, this is negotiated with the Ministry of Agriculture as well. Moreover findings of the study have been incorporated to the Hungarian National Action Plan for Roller as well to secure their implementation, for the details please see action A.3.

MME also decided to send the guidelines to concerned forestry companies via post and in e-mail and encouraged them to share the material on their websites. The following forestry companies have received this study: Bakonyerdő Erdészeti és Faipari Zrt., Budapesti Erdőgazdasági Zrt., Dalerd Délalföldi Erdészeti Zrt., Egererdő Erdészeti Zrt., Gemenc Zrt., Gyulaj Erdészeti És Vadászati Zrt., Ipoly Erdő Zrt., Kaszó Zrt., KEFAG Kiskunsági Erdészeti és Faipari Zrt., NYÍRERDŐ Nyírségi Erdészeti Zrt., VADEX Mezőföldi Zrt., Verga Zrt., Vértesi Erdő Zrt.

The Ministry of Agriculture have already accepted our request and uploaded the document on the central LIFE website of Hungary: <https://www.lifepalyazatok.eu/fenntarthato-kezelesi-terv-kidolgozasa-a-termeszetes-szalakota-feszkelohelyek-szamara.html>.

In Romania we found the following conclusions:

- samples with Green Woodpeckers contain the highest percentage of suitable Roller habitat, that is an evidence of the connection between the two species
- the Roller habitat is very weakly represented in the study areas, which means that there is no more overlap remained between the Roller and the hole-making species, this will lead very shortly to the extinction of the species
- overlap exists only in very small isolated areas, where old, scattered trees exist in pastures with closed forests nearby. Woodpeckers survived in the compact forests, and sometimes come out to the remaining pastures with scattered trees.
- woodpeckers don't breed in small forest patches

- suitable forest patches are not existing in the Western Plain anymore. Only 3.43% of this area is covered by forests, the percentage of those between 1 and 20 ha area is only 0.02%.
- The study showed that woodpeckers do not breed in small forest patches. Based on this fact, we decided to create larger groups of trees in the framework of the C.5 action, instead of a solitary tree, in which the woodpecker can also settle and can dig nesthole. The forest patches survival rate and maintenance are also much higher and more efficient than those of solitary trees.

Milvus Group delivered the documentation about the results of the Woodpecker monitoring, habitat composition and additional information about Roller conservation and protection tools to the Environmental Protection Agencies of the 4 involved counties, the local agencies of the “Romanian Waters” administration at the Mureş-floodplain, to the custodians of the protected areas, to the National Agency for Protected Natural Areas and to the Administration of the Lunca Muresului Nature Park. The letters contain suggestions about applying the Roller-friendly techniques in their management plans and how to build in the proposed methods to their habitat management plans on the suitable Roller breeding and feeding habitats. They did not receive any feedback however.

- o Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Habitat maps of study sites (Milestone)	31/10/2015	-	31/10/2015	Completed, reported in the 1 st Progress Report
Final report of the study by the subcontractor (Deliverable)	28/02/2017	-	28/02/2017	Completed, reported in the 1 st Mid-term Report

- o Indicator: study about the advised habitat and forest management prepared as planned
- o Modification and its approval: -
- o Complementary action outside LIFE: -
- o Perspectives for continuing the action after the end of the project:
In case new stakeholders will be identified (e.g local agricultural associations, rural micro-regional associations, mayor offices), the documentation and instructions will be shared with them to spread. Currently the most important stakeholders are aware of the materials, but the stuff is continuously monitoring new stakeholders.
- o Annexed to the current report:
 - A1_1 Habitat and management guidelines in Hungary (deliverable)
 - A1_2 Habitat maps of the study sites in Hungary
 - A1_3 Letter for the forestry companies by MME
 - A1_4 Habitat and management guidelines in Romania (deliverable)
 - A1_5 Habitat maps of the study sites in Romania

A.2 Assessment of existing breeding opportunities

- Activities and output:

In Hungary:

A unified national database has been prepared in the beginning of the project which contains the data of approximately 3500 nestboxes – all the known natural cavities and the installed nestboxes, too.

The number of estimated Roller breeding population in the project sites was 686 pairs and we detected 211 pairs in the 5 km buffer zone of the SPAs in 2015. We proved the breeding of altogether 897 Roller pairs, thus we use this reference number as baseline data of indicators to evaluate the project achievements. We provided the breeding distribution of the population of each project SPA with buffer zone on table and maps attached to the 1st Progress Report. For the updated data of following years please see action D.2 where we provide the up to date population estimates.

In Romania:

A study has been made about the nesting cavity supply in some target SPA's (identified natural woodpecker holes, woodpecker territories and existing nestboxes). The estimated Roller breeding population in the Romanian project sites was 60 pairs and we detected 24 pairs in the 5 km buffer zone of the SPAs (the detailed table was attached to the 1st Progress Report). We proved the breeding of altogether 84 Roller pairs, thus we will use this reference number as baseline data of indicators to evaluate the project achievements. For the updated data of following years please see action D.2 where we provide the up to date population estimates.

The handbook of nestbox installation methods is available on the website in three languages, a printed copy was handed in with the 1st Progress Report. (http://rollerproject.eu/sites/default/files/allando_tartalmak/Letoltesek/conservation_of_the_european_roller.pdf). It has been prepared after consultation with conservationists to gather all kind of experiences in this field and has been spread among all field employees, volunteers and stakeholders.

The deliverable “Study on the potential range expansion of the species in Hungary” has been prepared and been published in scientific paper Journal for Nature Conservation. In summary grasslands, broad-lived forests, agricultural sites with significant areas of natural vegetation were found as the most important predictors. The majority (71%) of the predicted area was without current nest-box occupancy data. Significantly larger proportion of grid cells with archive data still preserve suitable land cover composition for rollers than cells where the former breeding wasn't confirmed, and only small proportion of former breeding area has become completely unsuitable for the species. The results indicate large overlaps between Nature 2000 network and the predicted area, 16.9% overlaps with Special Protection Area (SPA) sites and 48.6% with Special Area of Conservation (SAC/SCI) sites.

The study highlights the importance to promote the recolonization of the European roller in the Transdanubian part of Hungary and provides a useful tool for direct conservation planning for the species. Results also suggest that coordinated network of protected areas such as Natura 2000 can potentially serve as core areas in the recolonization process.

- Quantitative outputs:
 - Baseline data in Hungary: 897 pairs (686 pairs in the SPAs and 211 pairs in the 5 km buffer zone of the SPAs)
 - Baseline data in Romania: 84 pairs (60 pairs in the SPAs and 24 pairs in the 5 km buffer zone of the SPAs)
 - Handbook in 3 languages prepared

- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Database about suitable habitats for nestbox mounting and existing cavities for breeding in western Romania (Milestone)	31/10/2015	-	31/10/2015	Completed, reported in the 1 st Progress Report
Database on existing Roller nestboxes in the Hungarian project SPAs (Milestone)	31/10/2015	-	31/10/2015	Completed, reported in the 1 st Progress Report
Handbook of nest box-installation methods (Deliverable)	30/03/2016	-	31/01/2016	Completed, reported in the 1 st Progress Report
Study on the potential range expansion of the species in Hungary (Deliverable)	30/03/2016	re-planned in the I. MTR by 28/02/2018 re-planned in the II: MTR by 30/06/2018	28/02/2019	Completed, reported in the 2 nd Progress Report

- Indicator:

Baseline data collected and determined, survey of suitable nestbox places prepared, study of potential range expansion of the species prepared as a scientific publication, handbook of nestbox installation methods produced.

- Modification and its approval:

The study about the potential range expansion of the species in Hungary has been handed in with a delay that was reported to the Commission.

- Complementary action outside LIFE: -

- Perspectives for continuing the action after the end of the project:

The 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 Romania many volunteer bird lovers have already produced nestboxes and put them out according to the instructions from this guide.

- Annexes to the current report:
 - A2_1 Handbook of nest box-installation methods in English (deliverable)
 - A2_2 Handbook of nest box-installation methods in Hungarian (deliverable)
 - A2_3 Handbook of nest box-installation methods in Romanian (deliverable)
 - A2_4 Study on the potential range expansion of the species in Hungary (deliverable)
 - A2_5 Database about suitable habitats for nestbox mounting and existing cavities for breeding in western Romania

A.3 Elaborate National Action Plan for the species

- Activities and output:

CB MME held the planned 2-day workshop on 18-19/10/2018 with 21 participants where the professionals discussed the threats, the conservation problems and the priorities connected to conservation tasks and the national action plan.

During the workshop major threats have been identified and a table has been prepared about the identified and evaluated threats and the suggested measures which served as the basis of the document.

The draft version of the national action plan was prepared by 26/11/2019 and has been sent out for comments among the working group members and the concerned national park directorate employees.

After receiving the feedbacks MME sent the corrected version to the Ministry at 24/01/2020 and received the comments at 17/03/2020.

The document was approved by the Ministry at 30th September, 2020. The Action Plan is also available on the project website. For environmental protection reasons we decided to print only 100 copies (in spite of the originally planned 500 copies) of the Action Plan for sending them to the relevant national park directorates, government offices and NGOs.

BNPD implemented an additional 3 elements that were not planned in the proposal, however highly contributed to the output of the action:

- evaluation and methods of breeding data
- Roller database based on Openbiomaps
- improvement of data collection (QFIELD)

The results of the evaluation of breeding data identified new approaches of research directions. It also contains data from the period before the project, therefore the study shows long-term trends and detailed results. To receive uniformed output not only the population of the project area has been analysed, thus the whole population dynamics of the location could be determined. The study found that the whole breeding population almost quadrupled between 2002 and 2019, and the rate of Rollers breeding in artificial nestboxes grow with 10 %. The numbers confirmed the success of the conservation efforts and the effectiveness of nestbox-installations. Another finding was that the breeding area stretches with the nestbox placement, this way the reintroduction of the species in the traditional and historical breeding areas is also possible.

The uniform database prepared for BNPD helped the data processing, the selection of errors or corrupted data, and also speeded up the data processing. An important aspect was to work with open source software, so the system can be maintained and updated easily in the future.

The improvement of field data collection and the uniformisation was a demand of the national park directorate and the field staff. The improvement of earlier used systems stopped, therefore they became outdated and unusable. The freshly established system has a modern, cost-effective toolkit that enables teamwork in the field as well, and while the number of errors decreased, the data processing speeded up. The system is also capable to involve outsider, volunteer works or to connect different working groups between organizations.

○ Modification and its approval:

We proposed in the 2nd Mid-term Report to reallocate 9000 € related to the monitoring of habitat reconstruction in 2018 in MME budget in action D.1 to action A.3 which was kindly approved by the EC.

The new goal was to subcontract the review and analysis of current effect of agri-environmental measures on roller habitats. The external experts analysed the viability of project treatment under action C.1-C.6, the different habitat and nest-site recommendations of project experts under action A.1, C.4 in the current agricultural policy. The main output was planned to be a complex agri-environmental policy recommendation in favour of the Roller incorporated to and submitted together with the National Action Plan for the species under action A.3.

Proposed (and later approved) deliverables were the following:

1. Review and policy recommendation of Roller habitat management in AES developed together annexed to the National Action Plan in Hungary.
2. PPT slide show for farmers on the review on current AES subsidies and favourable Roller habitat management.

The works have been subcontracted, the subcontractor prepared both documents with consultations with the Ministry and the conclusion has been incorporated to the National Action Plan. The final document is available as a background paper of the NAP.

Main findings of the study and major recommendations:

Habitat and conservation management recommendations on areas designated for the conservation of European roller and bird species with similar habitat and ecological requirement e.g red-footed falcon (*Falco vespertinus*) and lesser grey shrike (*Lanius minor*):

- proper rate of mowing and grazing in grassland management, grazing with increased extent,
- growing crops which require extensive management and are rich in prey insects (e.g green manure, legumes),
- mosaic-like, intermittent mowing and harvest to secure permanent prey availability,
- conservation and plantation of treelines, tree groups, or solitaire trees of native species, especially in the area of arable lands.

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Meeting of participants (Milestone)	31/03/2018	-	18-19/10/2018	Completed, reported in the 2 nd Progress Report
Submission of NAP to MRD for approval (Milestone)	30/07/2019	30/11/2019	24/01/2020	Completed
Formally adopted action plan (Deliverable)	31/12/2019	31/08/2020	30/09/2020	Completed
Review and policy recommendation of Roller habitat management in AES + PPT presentation (Deliverable)	PPT: 30/09/2018 Document: 30/07/2019	30/05/2019	11/09/2019	Completed

○ Indicator:

2-days workshop organized, national working group set up as planned. National Action Plan prepared and accepted by the Ministry. Review and policy recommendation of Roller habitat management in AES and PPT slideshow for farmers prepared.

○ Complementary action outside LIFE: -

○ Perspectives for continuing the action after the end of the project:

the National Action Plan will be available on the official website of the Ministry (termesztvedelem.hu) therefore it will be available for all stakeholders.

○ Annexes to the current report:

- A3_1 NAP workshop invitation, list of participants, pictures
- A3_2 Draft table of identified and evaluated threats and the suggested measures
- A3_3 National Action Plan (deliverable)
- A3_4 NAP approval letter from the Ministry
- A3_5 Review and policy recommendation of Roller habitat management in AES (deliverable)
- A3_6 PPT slide show for farmers
- A3_7 Background studies for the NAP at BNPD
- A3_8 Improvement of data processing, methods and evaluation of breeding data at BNPD

A.4. Elaborate monitoring schemes and training of participants

○ Activities and output:

A detailed monitoring plan has been developed and handed in with the Progress Report. Altogether 6 trainings were held by the field season of 2016 for the project participants, 4 in Hungary and 2 in Romania. Overall 94 /HU/ and 34 /RO/ persons participated to the events. The aim of the trainings was to establish the uniform methodology of nestbox monitoring and database maintenance. We reached this goal: the rangers and volunteers who participated to the trainings and shared their knowledge could collect the data properly, and received instructions to solve problems during their fieldwork, too.

The monitoring plan was prepared to be used under action C.4 and D.2 in the project sites and for future monitoring activities. During the annual revisions we experienced that no changes or modifications had been necessary, the tasks have been put simple.

○ Quantitative outputs:

Planned	Achieved
3 trainings	6 trainings with 128 participants

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Monitoring plan (Deliverable)	31/12/2015	-	31/12/2015	Completed, reported in the 1 st Progress Report
Monitoring training of participants (Milestone)	31/03/2016	-	26/02/2016	Completed, reported in the 1 st Progress Report

○ Complementary action outside LIFE: -

○ Perspectives for continuing the action after the end of the project: the monitoring plan will be used in future monitoring activities both in Romania and Hungary.

○ Indicator:

No. of trainings held.

○ Annexes to the current report:

- A4_1 Monitoring plan (deliverable)
- A4_2 Documentation of the monitoring training held in Budapest, Hungary
- A4_3 Documentation of the monitoring training held in Eger, Hungary
- A4_4 Documentation of the monitoring training held in Debrecen, Hungary
- A4_5 Documentation of the monitoring training held in Kecskemét, Hungary
- A4_6 Documentation of the monitoring trainings held in Târgu Mureş and Oradea, Romania

A.5 Develop the business plan for the sustainable management of the Roller Visitor Centre

○ Activities and output:

The preparation of the business plan of the Visitor Centre has been subcontracted to an external company in November after a three-quotations selecting process. After several meetings and consultations the business plan was ready. The proposed measures of the plan will be taken account in the Visitor Centre's operation.

The business plan of the Visitor Centre was handed in with the 1st Progress Report, however, the delay of opening the Visitor Centre required the recalculation of the number of visitors until the end of the project (for the details please see action E.3) and the EC asked for an updated version of the business plan.

The preparation of the marketing and business plan was started with a wide range consumer research. The subcontractor also studied the pretensions and habits of the potential target audience of the planned visitor centre. They found out that the majority of visitors in similar nature- and species-protection centres arrive from kindergartens and schools. Besides, groups might visit from work places, professional organisations for several-day-long tuition, conference or team-building training. Nature-conscious families and pensioners can also be expected, mostly in week-end programmes. Based on the information from the target audience survey a plan was made on the services to be offered by the visitor centre. Based on the entry fees and service price lists of several Hungarian visitor centres the middle of the range prices were calculated with an approximately 10% rise by 2020. The expected number of visitors was 5500 persons by the project end.

The aim was that at the end of the project period the centre should be self-sustaining: its generated revenue should cover the costs of running it. Please find the revised, final document in the annex.

○ Complementary action outside LIFE: -

○ Perspectives for continuing the action after the end of the project:

The Visitor Centre will be operated by the Csongrád local group of MME with a full-time employee. The labor cost will be covered by donation (currently 3600 €/ year), accommodation fee (estimated 3000 €/ year), guiding groups (estimated 1500 €/ year), „Birdwatching kindergarten” programme (estimated 2500 €/ year).

The established and continuously improved communication channels (Facebook, Instagram, website /www.feher-to.hu/, mailing list with more than 1300 members /mmecsongrad_programok@googlegroups.com/) will be maintained.

In winter, when the visitor centre is out of season, the dedicated Youtube channel will be regularly updated to maintain interest until the opening in April.

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Business plan is delivered by the subcontractor (Deliverable)	28/02/2015	-	28/02/2015 revision on 10/05/2019	Completed, reported in the Inception Report

- Indicator: business plan for the Visitor Centre prepared
- Annexes to the current report:
 - A5_1 Final version of the business plan for the Roller Visitor Centre (deliverable)

C.1 Restoration of steppe habitats

- Activities and output:

Cultivation works:

In February 2015 KNPD started the preparation and concertation of planned field works with the local directorate of water management (ATIVIZIG). Quotations for geodesy surveys arrived in April; application for the declaration of trustees from the local directorate of water management (ATIVIZIG), contract signed with the subcontractor. After the geodesy survey and the implementation plan have arrived from the subcontractor the plans with water rights licence were sent to ATIVIZIG, but it was suspended due to completing request for missing documents. The needed NFA owner permit and the completed geodesy survey have been sent, the remaining missing documents have been prepared by Pro Aqua but further completing requests arrived for missing documents/details. To avoid further time waste, KNPD requested for a statement where ATIVIZIG describes which activities are permitted.

Receiving the final permission and clarifying the permitted components of works and locations required additional months. The budget needed a revision as well, since not all planned works have been permitted by the authorities. Following the consultations with the monitoring team KNPD started the tendering procedure and subcontracted the works by spring, 2019.

In February 2019, the procurement procedure for the construction was successfully completed. The contractor completed the earthworks in May 2019 as follows:

The ditch at location Szatymaz 0375/1 was filled up successfully in accordance with the trustee's consent. Earth excavation was carried out at the remaining earth dams of the former fish offspring breeding cassettes – area referred as Szeged II. dist. 01450. The trustee denied giving permission for filling up locations at Sándorfalva 0157 and 0158/13, so modification of the original concept became inevitable. The earthwork carried out by the contractor was accepted after the on-site inspection, and after the acceptance of its performance, the financial settlement also took place.

Elimination of invasive trees:

KNPD requested the local forestry authority's permission for the planned elimination works in September 2015. However the permission arrived in December its validity expired in 31th December 2015 and a new request was handed in for 2016. Meanwhile KNPD ordered soil exploration at the restoration area to help the planning of tree plantations. The new request has been prepared in accordance with the results of the habitat exploration. In 2016, while the tenant farmer sent the application and later the missing documents to the local forestry authority in regard of elimination of *E. angustifolia*, the legal background changed and a new

permission was required. The new permission arrived in November, 2016 and its validity expired in 31th December, 2016 and the tenant farmer was not able to perform the elimination works. A new request for permission was handed in to the forestry authority, this time it arrived in May for the requested locations and the farmer could perform the elimination works within the determined deadline (31/12/2017).

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Beginning of grazing (Milestone)	24/04/2016	-	24/04/2016	Completed, reported in the 1 st Mid-term Report
End of the investment phase of the habitat restoration (Milestone)	29/02/2016	31/03/2019 (re-planned after the II.MTR)	23/04/2019	Completed

○ Quantitative output:

Planned output	Site	Expected result	Output
destroying 4,8 ha of <i>Eleagnus angustifolia</i> groves at the 205 ha of steppe habitat located in SPA	Székalj	3,53 ha	3,53 ha
	Macskási-gyep	0,25 ha	0,25 ha
	Szaporhegy	1 ha	1 ha
elimination of 2210 meter long artificial ditch	Székalj	667 m	667 m
	Szaporhegy	1550 m	0 m
elimination of a 2820 meter long dam-system	Macskási-gyep	2820 m	1730 m
elimination of 6 pieces of old closing-water constructions	Macskási-gyep	6 pcs	4 pcs

- Indicator: total size of *E. angustifolia* groves eliminated, total length of ditch eliminated, total length of dam-system eliminated, number of old closing-water construction eliminated.
- Modification and its approval: the deadline of the earthworks has been postponed in the II. Mid-term Report and after the project visit in 2018 to the spring of 2019.
- Major problems: the problems during the implementations rooted in the difficulties of the permitting procedure: the communication of KNPD with the authorities have been discontinuous and couldn't be accelerated due to bureaucratic processes deadlines. Also the works could not start before receiving the final permission. The change of administrators and the fact that part of the works have been permitted but rectifications

were required did not help the procedure, therefore KNPD decided to ask for a clarification of the permitted parts and concluded to perform the reduced amount of earthworks.

- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project: Tenant farmer ensures constant grazing on the area to secure prey abundance and availability of Roller.
- Annexes to the current report:
 - C1_1 Table of the earthworks
 - C1_2 Map of the habitat reconstruction area
 - C1_3 Final permission for the earthworks
 - C1_4 Pictures

C.2 Restoration of wooded pastures

- Activities and output

Elimination of invasive trees:

Injection of invasive trees finished by November 2017 on a total of 113 hectares at Tiszababolna 0125/5 and 0125/6. The total area of patches is 24 hectares but solitaire trees and smaller groups of invasive trees were also injected in the most suitable time period when trees absorb substances the most effectively. The monitoring showed that 80% of the trees dried out in part or completely. On those individuals that did not die fully the injection have been repeated on the cut surface of the stump in parallel to the removal of dead and dried trees in October and November, 2018. The location had been cleared, altogether 323 m³ dried wood have been removed. Remaining stumps have been removed and the area has been treated with a forestry mulcher which treatment has been repeated in the autumn of 2019 and in August, 2020 therefore future management of the area (mowing, grazing) became more feasible.

Grassland reconstruction:

Grassland reconstruction was performed on parcels Tiszababolna 0125/5, 0125/6 and 0125/11 (which have been created with a sharing procedure of parcel 0125/4 in 2016) on 35 hectares between autumn of 2016 and spring of 2017.

Deep ploughing was accomplished in autumn 2016, preparation of soil and sowing seed mixture was performed in the following spring. The mixture contains native species: *Bromus inermis*, *Festuca pratensis* and *Trifolium pratense*. Part of the grassland was mowed in 2017 and the weedy area was managed with stem crushing. In June of 2018, significant part of the parcels was mowed, while the area of planted seedlings was not. In 2019 August the reconstructed area has been mowed and stem-crushing took place in a smaller, weedy area.

In 2020, the management continued with mowing in May, which has been repeated in August with a better grass yield.

Rollers have been regularly observed in the area during fieldworks and the monitoring of the reconstruction activities.

Establishment of wooded pasture:

Plantation of seedlings begun with soil preparation works in September, 2017 and 24 000 seedlings were planted until 30th November, 2017 in the following composition: Poplar: 50%, Crack willow-White willow: 15%, Oak: 15%, Elm, Maple, Ash and other species for mixture: 15%, Fruit species: 5%. All species were planted for the most suitable areas in case of water supply and other soil conditions. Individual protective tools were installed around every sapling. The planned 800 meters long fence has been also installed to avoid damage by games.

Unfavourable weather conditions (rainy spring, dry summer) resulted in a low survival rate: only several thousand seedlings survived in 3 smaller patches. These patches have been monitored in 2020 as well, when no further losses were experienced. The areas have been mowed around, no replacement took place.

o Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Plantation of trees (Milestone)	31/03/2016	31/12/2017 (re-planned in the I. MTR)	31/12/2017	Completed, reported in the 2 nd Mid-term Report
Management by grazing (Milestone)	24/04/2016	-	24/04/2016	Completed, reported in the 1 st Mid-term Report
Elimination of invasive trees and sowing of seed mixture of ploughed land (Milestone)	15/10/2016	-	31/03/2017	Completed, reported in the 1 st Mid-term Report

o Quantitative output:

- planned: 177 hectares wooded pastures to be established in the favour of Roller and total biodiversity of the sites to be increased
- achieved: elimination of invasive trees on 113 ha, grassland reconstruction on 35 ha, plantations on 0,7 ha

o Indicator: total size of habitat concerned with plantation, elimination of invasive trees and grassland reconstruction.

o Modification and its approval: -

o Major problems: -

o Complementary action outside LIFE: -

o Perspectives for continuing the action after the end of the project:

The condition of the established grassland is currently not suitable for grazing yet. Therefore the area is managed with mechanical mowing and stem-crushing as long as the condition of the grassland enables animal grazing management. The number of

management event is affected by precipitation, but the mowing 2 times in the season is necessary. The management of the area where the invasive trees have been eliminated will be stem-crushed as long as the whole area is manageable with mowing or grazing.

- Annexes to the current report:
 - C2_1 Pictures about the elimination works, locations, plantations and reconstruction works
 - C2_2 Maps about the wooded pasture reconstruction

C.3 Management of riparian forest

- Activities and output:

The elimination of invasive bushes started in November 2014 (injection of herbicides, clearcutting of the planned sites) after the related modification of the forestry plan.

The contract was signed with a subcontractor for the planned fieldworks. There was progression in the planned preparatory works such as elimination of invasive trees, cleaning the area and planting of native trees by spring, 2015.

The elimination of invasive species has been completed by spring, 2016.

Plantation of trees:

Tree plantations started in autumn, 2015, except the plantation of native trees at Csanytelek 3 B have been delayed because of the water coverage at the project site by River Tisza in 2015 and 2016. Unfortunately the area is in a deep surface level which is covered with water very easily. Due to the water level conditions in the project period finally no plantations have been implemented in the area, but the elimination of invasive plants was carried out here as well.

In autumn 2017 only care works were carried out, no plantations were implemented. Manual works were preferred where possible but mechanical cares were also important for achieving the best soil conditions. Despite that a significant loss was detected and the lost saplings are planned to be replaced in spring, 2018. Game damage was remarkable contrary to preventive chemicals used. Also Dalerd planned to plant Poplar species that are more tolerant to drought since mostly White willows died out. Combating invasive *Parthenocissus vitacea* continued with herbicides and clearings were mowed.

In 2018 Dalerd Zrt. continued the works as planned. Soil preparation works have been implemented on Csanytelek 1 B and Csanytelek 3 D for the replacement of the dead or destroyed saplings. The new saplings were planted in spring (March-April) and the forest patches on Csanytelek 1 A and Csanytelek 1 I were also completed with fresh saplings. Care works were carried out in May: the rows were spud by hand while between the rows mechanical care was implemented. Care works have been finished in September when the chemical works started to protect the planted trees against invasive *Parthenocissus vitacea*.

In 2019 the replacement of dead trees took place in February and March, and Csanytelek 2 CE has also been stem-crushed in March. This was followed by care works in April until September. The area has been monitored continuously. Weather conditions did not cause significant water coverage and did not hinder fieldworks other was either. Altogether 2000 saplings have been planted on Csanytelek 1B.

In 2020 the maintenance works and the habitat management continued: the clearings have been stem-crushed and mechanical care works have been implemented on the plantations.

Total number of planted saplings in the frame of the project:

Total number of planted saplings in the project period				
Region code	Area (in hectares)	White Willow	Black Poplar	White Poplar
Csanytelek 1 A	12,68	21 325	4 100	4 450
Csanytelek 1 B	13,72	26 525	5 250	11 450
Csanytelek 1 I	4,68	13 600	2 700	3 300
Csanytelek 3 D	31,12	25 150	4 300	6 095
Baks 14 C	1,69	4 900	1 000	600
Total	63,89	91500	17350	25895

o Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Elimination of invasive trees (Milestone)	01/09/2015	-	01/09/2015	Completed, reported in the 1 st Progress Report
Plantation of trees (Milestone)	31/03/2016	-	31/03/2016	Completed, reported in the 1 st Mid-term Report
Establish meadows (Milestone)	31/03/2016	-	31/03/2016	Completed, reported in the 1 st Mid-term Report

o Indicator: total number of planted trees

o Modification and its approval: -

o Major problems: -

o Complementary action outside LIFE: -

o Perspectives for continuing the action after the end of the project:

Maintenance works of the planted saplings will be finished in the 5th year of the saplings, when they form a stable population no longer threatened by invasive species.

o Annexes to the current report:

- C3_1 Table of finished works
- C3_2 Detailed table of planted saplings
- C3_3 Maps in pdf
- C3_4 Photos of the treated areas
- C3_5 Photos of the treatments

C.4 Create nesting sites

o Activities and output in Hungary:

Altogether 1280 wooden concrete nestboxes were delivered to Hungary until November, 2016. Their placement finished by April, 2017. Most of them serve as a replacement of the old ones and the other portion means new nesting opportunity for the birds. The nestboxes were placed in the following composition:

- Kiskunság NPD: 915
- Hortobágy NPD: 250
- Körös-Maros NPD: 115

AB BNPD placed 500 nestboxes until the end of spring, 2018 in the following composition:

- BMTK (Borsodi-Mezőség): 260
- DHTE (Dél-heves): 163
- KTK (Kesznyéten): 77

The second portion (500 pcs) has been installed in spring, 2019 as the followings:

- BMTK (Borsodi-Mezőség): 240
- DHTE (Dél-heves): 200
- KTK (Kesznyéten): 60

AB Dalerd also purchased and installed 40 nestboxes in their project area.

o Modification and its approval:

The wooden concrete nestboxes have been procured by MME because KNPD had difficulties with procuring the originally planned wooden concrete nestboxes from Germany.

The project proposal aimed also to create artificial cavities to help cavity-making Woodpecker species under this action. However studies and field experiences showed that there are more natural cavities at the project area than expected, therefore the monitoring of these natural holes is more reasonable. This modification was approved by the EC in e-mail via TMO on 15/02/2017 and reported in the Mid-term Reports as well. The monitoring started in 2017 and continued in 2018: from the inspected 56 cavities 21 met the ecological needs of Roller, 4 have been occupied which is a 19% occupancy rate.

The surveys indicated that larger woodpecker species (Green and Black Woodpecker) show an increasing trend in Hungary and there are enough natural cavities (abandoned woodpecker holes) for Rollers on the available breeding habitats. The growing roller population is occupying the natural breeding platforms in growing number, therefore the long-term goal is to establish sufficient quantity of trees that can offer breeding cavities for Rollers in the future.

o Time schedule:

Beneficiary	Output name	Foreseen deadline	Revised deadline	Achieved by	Status
MME/KNPD	Nestboxes installed (Milestone)	31/03/2018	-	31/12/2017	Completed

MME	Artificial _____ cavities made natural cavity monitoring (Milestone)	31/03/2018	31/12/2018 revised in the 2 nd Mid-term Report	31/12/2018	Completed
Dalerd	Nestboxes installed (Milestone)	31/03/2018	-	31/12/2017	Completed
BNPD	Nestboxes installed (Milestone)	31/03/2018	30/04/2019 revised in the 2 nd Progress Report	500 pcs by 31/12/2017, 500 pcs by 30/04/2019	Completed

- Indicator: total number of installed nestboxes, report on the woodpecker-hole monitoring prepared.
- Activities and output in Romania:

In proper habitats where trees are totally missing, medium voltage power-lines are the only places where artificial nests can be mounted. The dangerous pylons of these power-lines were isolated before the nest boxes were mounted.

A number of 776 wooden and 140 wood-concrete nestboxes were placed during the project. The wood-concrete nestboxes were placed mostly on medium voltage pylons isolated under action C.7 (96 pcs) or on high voltage pylons.

Currently, all insulated powerlines are equipped with a sufficient number of nestboxes. Between 2015 and 2020, a total of 558 nestboxes were occupied by roller, which took place in 288 different nestboxes. During the project, in 334 nestboxes we registered successful breeding which took place in 184 different nestboxes.

In Lunca Timișului SPA the last known confirmed breeding was 14 years before, in 2006. Despite the further surveys carried out in this area the species was no longer found. As a result of the project, in 2020 we were pleased to find that the species had reappeared and successfully breeds in this previously inhabited area.

The species has also been established for breeding in new places from which its nesting was not previously documented. With the existing high number of nestboxes, the distribution range of the species has been significantly increased with several ten kilometers south and north of its previously known distribution areas.

- Modification and its approval:

Milvus Group requested to continue the action until the end of the project, which was kindly approved by the EC in e-mail via TMO on 15/02/2017.

- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Nestboxes installed (Milestone)	31/03/2018	30/04/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed.	30/04/2020	Completed

- Indicator: total number of installed nestboxes

Both countries used the handbook of nestbox installation methods developed under action A.2 which was published on the project website as well. The availability of this handbook has been very useful, it helped informing a wide range of stakeholders and interested, and the English version facilitated the promotion and incorporation of roller-protection tools used in the Carpathian basin in other countries: Macedonia, Montenegro and Bosnia for example.

Milvus Group also experienced that in some parts of Romania many bird fans have made nestboxes and put them out according to the instructions of the guide. They received feedback from several ornithologists from Buzău, Tulcea, Constanța, Brăila, Bacău and Dolj counties who assured them of the usefulness of the handbook.

- Major problems: caused by the difficulties of powerline-insulation works in the Romanian project sites AB Milvus Group could install the last portion of nestboxes by the last breeding season in the project. EC has been informed about this delay beforehand.
- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project:
Nestboxes will be annually checked, monitored and repaired or replaced if necessary.
- Annexes to the current report:
 - C4_1 Report of the woodpecker monitoring in Hungary
 - C4_2 Maps and pictures of nestbox installations by MME (maps include nestboxes of Dalerd, too)
 - C4_3 Maps and pictures of nestbox installations by BNPD
 - C4_4 Maps and pictures of nestbox installations by Milvus Group

C.5 Plantation and maintenance of forest patches

- Activities and outputs in Hungary:

The difficulties in the tender process of BNPD resulted in some delays. Finally, for the plantation works of action C.2 and C.5 BNPD signed the contracts with the subcontractors in August, 2017. Plantations on HUBN10004 (Hevesi-sík) finished with the end of 2017 on 4 locations (Erdőtelek, Átány, Sarud, Tiszanána), 1000 saplings were planted with individual protection in the following composition:

Area	Grey Poplar	White Poplar	Pedunculate Oak	Narrow-leaved Ash	Crack Willow and White Willow	Total
Erdőtelek	65	68	84	80	36	333
Átány	30	30	16	17	50	143
Sarud	35	35	60	63	34	227
Tiszanána	70	67	40	40	80	297
Total	200	200	200	200	200	1000

In 2019 care works were implemented: mowing, mulching (2 times) and watering (2 times + 1 occasion in autumn) and the necessary replacement of 580 saplings with the same method and tree species as the original planting. The replacement has been affected by harsh weather conditions in 2019: frosts in the end of March were followed by 25°C in April which damaged most of the planted saplings.

On HUBN10002 (Borsodi-sík) altogether 20640 saplings were planted with individual protection and drainage that helps effective watering. The planted saplings are native species in the following composition: Poplar: 50%, Crack Willow and White Willow: 15%, Pedunculate Oak: 15%, European white elm, Field elm, Field Maple, Narrow-leafed Ash: 15%, fruit species: 5%. Their distribution was in accordance with soil and water conditions of the locations.

The plantation of the originally planned 11300 saplings started in September, 2017 when 3330 saplings have been planted by the end of 2017, and 7970 saplings by the spring of 2018 with individual protection (PVC pipe and chemical repellents) and drain for watering. Care works (mowing) took place in August, and the replacement of 2000 saplings was performed in November-December, 2018.

In 2019 altogether 5672 saplings survived. Mowing was performed 2 times in the summer, while weather conditions made watering unnecessary. Based on earlier experiences the replacement was scheduled to autumn, when 1668 saplings were planted, and watering was also performed.

The spring monitoring counted 3341 saplings in 2020 which survived, their care works continued in summer with mowing. Also the protective tools of the dried/dead trees have been collected and transported to the conservation management center (Batúz-tanya) of the national park directorate. In the 2nd round of the care works mowing was performed around the saplings again and each of them had been watered with 20 l water.

KNPD started the plantation works with huge delay. The procurement has to follow the national rules of tendering therefore KNPD had to procure this item together with the landscaping of the Visitor Centre. The market research and the bidding procedure was unsuccessful, KNPD had to change to the original concept, and the elements of actions C.5 and E.3 were implemented separately: the saplings were procured by KNPD and planted by the tenant farmer.

Another cause of the delay was that the permission for the elimination works arrived with delay and the plantations had to be implemented in accordance with the permissions specifications.

The tree plantations were made by the tenant farmer until 30/04/2020, the 1st 1200 pcs were planted in spring, 2019 on 3 parcels at Szatymaz 0375/1 (600 pcs pedunculate oak, 200 pcs wild pear, 200 pcs field elm, 100 pcs blackthorn, 100 pcs hawthorn), the 2nd 1000 pcs by 30/04/2020 (800 pcs pedunculate oak, 100 pcs wild pear, 100 pcs narrow-leafed ash) on 2 parcels Sándorfalva 0156, 0155 and 0158/13.

o Quantitative outputs:

Beneficiary	Site	Expected result	Output	Survival rate
BNPD	HUBN10002	38300 m long tree lines in 17 patches (that form a	38344 m long tree lines on 80,5 ha	42 %

		total of 80 ha forest patches)		
	HUBN10004	5 new forest patches (altogether 2 ha)	5 new forest patches (altogether 2 ha)	57 %
KNPD	HUKN10007	7 new forest patches (altogether 4, 5 ha)	5 forest patches planted with the total coverage 4,5 ha	50 %

○ Activities and outputs in Romania:

There was a delay in the plantations of forest patches by APMSM because of the changes in the public procurement processes. Finally, the plantation of forest patches finished in spring, 2018 in the planned 50 locations, and the care works and monitoring was continuous afterwards. To protect the plantation fence has been installed around the patches to avoid game damage and altogether 200 wooden poles has been installed for nestbox placement. Unfortunately 8 parcels were destroyed or vandalism has been experienced which has been reported but the subcontractor restored the damaged items and also replaced the dead saplings regularly.

The final replacement of saplings was carried out in spring, 2020 when the subcontractor brought soil mixture for the plantations to support the saplings more effectively especially on the parcels on alkali steppe.

Planting solitaire trees:

To establish the sustainable management of roller nesting habitats under the action A.1., Milvus Group carried out a woodpecker and nesthole availability survey in three SPAs. During the study we found that roller habitats are very weakly represented in the study areas which means that there is no more overlap between the Roller and the main hole-making species, the Green Woodpecker. We find overlapping only in very small isolated areas, where old, scattered trees and tree clumps exist in pastures in vicinity of the forests.

The study showed that woodpeckers do not breed in small forest patches with only a few trees or in areas with only several isolated trees so no woodpecker holes will be created in these kinds of habitats. Based on this fact, we decided to create larger groups of trees (instead of a few solitary trees) in which woodpeckers can also settle and create nestholes. The forest patches survival rate is also higher and the maintenance works are more efficient to carry out than those for solitary trees.

The planting work was completed by the spring of 2019, and a total of 3006 poplar seedlings were planted during the project.

In this time we continuously monitored the seedling survival rate and the causes of death. In addition, watering was performed when needed.

○ Quantitative outputs:

Beneficiary	Expected result	Output	Survival rate
APMSM	50 small forest patches (0,04 ha each) planted and 200 wooden poles erected	50 small forest patches (0,04 ha each) planted and 200 wooden poles erected	45 %
Milvus Group	3000 solitaire trees planted	3006 trees in 19 forest patches planted	25 %

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Selecting of habitats and property issues clarified (Milestone)	31/03/2016	-	31/03/2017	Completed, reported in the 2 nd Mid-term Report
Plantation of forest patches and erection of wooden poles (Milestone)	31/03/2017	30/04/2020 (the plantation part) revised with the TDO/TMO when the details of the extension of the project period have been discussed.	30/04/2020	Completed
Plantation of solitaire trees in western Romania (Milestone)	30/09/2017	31/03/2019 revised in the 2 nd Progress Report	31/03/2019	Completed

- Indicators: number of planted trees, number of new forest patches planted, total length of treelines, total area of new forest patches covered (see above).
- Modification and its approval:
APMSM and KNPD started the implementation of the action with delay, we continuously informed the monitor about the process in the monthly reports.
- Major problems:
APMSM faced difficulties in the public tendering procedure but finally they were able to contract the works with delay. The fact that the fence and pole installation required permission caused further delays, but did not affect the implementation significantly. Unfortunately locals caused vandalism and APMSM reported for the competent authorities to prevent future conflicts.
The tenant of KNPD elaborated the elimination of invasive trees with delay caused by the permitting procedure and the plantation works had to be implemented in accordance with the final permission and the elimination works, too.
Most of the associated beneficiaries experienced losses caused by weather conditions and built in these experiences in their replacement and care works but losses couldn't be completely prevented.
- Complementary action outside LIFE: -

- Perspectives for continuing the action after the end of the project:
 - BNPD: care works will be continued around the planted saplings (mowing and mulching 1-2 times/year, watering) to support their growth until they are strong enough to develop independently.
 - KNPD: since the plantations were implemented in the final period of the project, further plantation works are scheduled: 2021: plantation of 600 trees; 2022: plantation of 400 trees; 2023 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).
 - APMSM has been in touch with the 32 municipalities about the planted tree patches, they informed them in the project period about the experiences regularly. They also established good cooperation with farmers and involved the interested in the care works as volunteers. APMSM initiated the signature of a cooperation commitment with the municipalities about the future maintenance of the plantations.
 - Milvus Group: During the monitoring and watering activities the staff has gained experience in term of ensuring a better survival rate of seedlings, e.g the percentage of survival was quite high in case of trees plantations which were fenced within the framework of action C.6.
The near future plans are the followings:
 - to draw up a long-term contract and collaboration with a previously contracted company specialized in park landscaping and afforestation
 - 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
 - monitor the survival rate of the seedlings and, if necessary, ensuring their replacement and the planting of other indigenous species such as oak will be carried out
 - the staff plans to fence the main important plantations in Bihor and Timiș counties (this can completely protect the seedlings against stubble burning as well as against the animal origin harming effects as chewing, trampling and rubbing their antlers on the seedling)
 - soil loosening intervention once a year
 - start the shrub-level establishing works which will help the water balance of the soil and the preservation of the shoot shoots of the poplars
- Annexes to the current report:
 - C5_1 Pictures and maps about the plantations by BNPD
 - C5_2 Pictures and maps about the plantations by KNPD
 - C5_3 Pictures and maps about the plantations by APMSM
 - C5_4 Pictures and maps about the plantations by Milvus Group

C.6 Farmers for Roller Program

- Activities and outputs:

In Hungary:

MME contracted altogether 76 farmers, planted 2835 saplings, installed 74 T-woods and 214 nestboxes for them. 7 workshops have been held for the participants of the Programme, where they learned about the European Roller, the project and related conservation issues. The workshops ended with an open discussion about the raised questions, a field visit to the habitat reconstruction sites of KNPD and to installed roller nestboxes. Altogether 74 stakeholders participated to the events.

BNPD involved additional 30 farmers to the action and finished to plant 1600 saplings procured for them and installing their nestboxes in spring, 2018. After continuous consultations with farmers, 220 saplings have been re-planted in these locations in 2019. Altogether 150 nestboxes have been installed in the involved farmers locations.

3 forums were held by BNPD in 2015, with altogether 82 participants. A bird guide of farmland birds (1170 pcs) was also produced as PR material for farmers. The database of farmers and their plantation locations, maps and pictures were also prepared.

BNPD held an additional forum on 27th April, 2018 with 99 participants where the professionals held presentations about the project and there was an open discussion about farming practices and conservation problems.

Next year, on 26th April, 2019 BNPD held a forum again together with the Grey Cattle-driving Festival where 101 farmers participated. Participants learned about the project, the LIFE programme, the grey cattle and their landscape management, and there was an open discussion with conservation experts and agricultural officers to discuss land management and conservation issues.

Altogether 1170 bird guide and 1000 booklet about the Grasslands of South-Heves were produced about farmland bird species and they were continuously handed out to famers during fieldworks, workshops and other events.

In Romania:

AB APMSM contracted altogether 40 farmers by the end of 2018 after changing their strategy of targeting to “door-to-door” which was more effective. They held 3 forums: on the 6th December, 2016 where 11 farmers participated, on 14/11/2018 and 15/11/2018 with 21 and 23 participants.

By the reason of public procurement difficulties they could start the implementation with delay, in the beginning of 2018. Every involved farmer received 200 saplings, 300 m fence, 75 poles, 4 pcs of 5m high wooden poles for nestbox installation, 4 pcs of nestboxes and 4 T-woods. 10 farmers contracted in autumn preferred to have the saplings planted in spring, 2019 because of the weather conditions, therefore the subcontractor delayed the delivery of the planting materials on these locations.

- Indicators: number of involved farmers, number of forums held and farmers participated.

- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Plantations are in place (Milestone)	31/03/2018	31/03/2019 revised in the 2 nd Progress Report	31/03/2019	Completed
Nestboxes and T-woods installed (Milestone)	30/04/2018	-	31/12/2018	Completed, reported in the 2 nd Progress Report

- Modification and its approval: -
- Major problems

Attempts of APMSM to reach farmers on events failed, therefore they had to change strategy to get in touch with them directly. Finally the number of farmers involved reached the originally planned.

The procurement process delayed since APMSM had to purchase the external assistance through public tendering together with action C.5 and the first procedure failed by bureaucratic reasons.
- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project:

The farmers signed the declaration where they undertook to take care of the planted trees therefore the staff expects them to do so but also offers help if necessary.

MME plans annual visit at every partner for controlling plantations and nestboxes by the staff of volunteers.

BNPD plans to organize events for farmers in the afterLIFE period, too to maintain the personal contact with farmers.

APMSM plans to maintain the network in the future as well.
- Annexes to the current report:
 - C6_1 Maps of the involved farmers plantations
 - C6_2 Documentation of the workshops: photos, list of participants
 - C6_3 Bird guide for farmers
 - C6_4 Booklet about the Grasslands of South-Heves
 - C6_5 Photos

C.7 Insulate dangerous pylons

- Activities and output:

Milvus Group contracted an expert after the acceptance of the EC. Baseline survey was carried out and a database was prepared in September 2018 about 1290 pylons, from which 1225 was selected for insulation. After the baseline study several consultations took place

with ENEL which resulted in the preparation of documents about the suggested and the accepted technical solutions, the suggested list of insulators to purchase and the solutions that need further consultations. Negotiations finished in 2018 when we agreed in all technical solutions. With the help of the contracted expert, we soon started negotiations with Textor and Megawatt to make certain modifications on the design of their technical solutions to best fit the grid operated by ENEL. The 1st portion of insulators has been delivered to the operator in the autumn of 2018. ENEL scheduled to install the insulators in the end of 2018 but harsh weather conditions did not allow the works, therefore the actions were rescheduled to spring 2019. Starting with spring 2019, ENEL contracted four different companies who are usually carrying out the maintenance work for them – and as they were doing the maintenance on the selected lines, they also set out the insulators. The companies are - EEI, Electrica, Luxten and Sirti. To achieve the best quality from the work, the project team and the external expert contacted every company before they started to work. At a commonly agreed date we first went to their headquarters and presented the materials they had to use and the how to work with them. Next step was to teach them in practice – or in the ENEL polygon, or directly in the field. Project team members and the external expert usually spent the first few days in the field with them, when the companies started to work – to make sure they understood the presentations and are doing a good job.

Although the works started with a huge delay, finally the staff managed to get more than 1000 pylons (1011) isolated, and have promises for another 55 this year and 124 next year.

○ Indicators

- planned: 1000 medium voltage pylon isolated
- achieved: 1011 pylons insulated by the end of the project

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Database of powerlines selected for nestbox installation in western Romania (Milestone)	31/08/2015	-	31/08/2015	Completed, reported in the 1 st Progress Report
Database of dangerous powerlines in western Romania (Milestone)	31/08/2017	-	31/12/2017	Completed, reported in the 2 nd Mid-term Report
Powerlines selected for nestbox installation isolated in western Romania (Milestone)	30/04/2016	30/04/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed.	30/04/2020	Completed

Dangerous powerlines isolated in western Romania (Milestone)	30/04/2019	31/07/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed.	31/08/2020	Completed
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○ Modification and its approval:

To implement the action with more effectiveness, Milvus Group asked the EC's permission to hire an external expert for the following tasks:

- preliminary coordination meetings with the electricity company - to decide upon the type of the insulators, the methods that can be used, etc.
- calculating the exact amount of materials needed for the insulation
- training the staff responsible for the isolation work
- controlling the quality of work in the field.

This modification has been preliminary approved by the EC via e-mail.

○ Major problems

One major problem was that the project budget contained only the cost of insulation materials. We had excellent collaboration with the electricity company (ENEL) but still, as they were not official partners in the project and had no money for the work, they scheduled the work to set out the insulators together with their maintenance and repair works. This caused major delays in the work, but finally we managed to accomplish more than the planned 1000 pylons (1011 pylons) and we got promises that this year another 55 pylons will be isolated and next year another 124 – only when their maintenance period comes.

Another problem was caused by the COVID19 pandemic, as the expert from Hungary couldn't personally supervise all the works in 2020. This drawback was overcome by taking pictures about all the powerpoles and sending them to the expert to check the quality of the work.

○ Complementary action outside LIFE: -

○ Perspectives for continuing the action after the end of the project:

Milvus Group established excellent collaboration with the electricity company (ENEL) and they promised to continue the work on their own cost: another 55 poles will be insulated this year and 124 the next year – when these lines will be scheduled for maintenance works. They are planning to involve them as associated beneficiary in one of their future LIFE projects.

○ Annexes to the current report:

- C7_1 Database of dangerous poles
- C7_2 Final report of the insulation expert
- C7_3 Photos about the insulation works
- C7_4 Maps of the insulated powerlines

C.8 Reveal threats during migration/wintering

- Activities and output:

In Hungary

The planned contracts about checking the stopover sites and assessing the threats with the BirdLife partner NGOs signed (Bulgarian Society for the Protection of Birds, BirdLife Cyprus, Society for the Protection of Nature in Israel, Bird protection and study society of Serbia). The main goal was to study the migration routes more precisely, and to establish a network with partner NGOs.

Autumn migratory routes of Roller cross the Mediterranean region where they are at significant risk of illegal hunting and bird massacre as well as electrocution.

The partner NGOS mapped the predicted stopover-sites and gave a detailed status report about their country's Roller population.

PTT tagging activities are considered successful: 15 adult Roller individuals have been tagged with PTTs between 2016 and 2019.

Major achievements:

- We mapped for the first time the wintering ground of CB Roller population
- We described the migratory pattern and route of Rollers breeding in the CB
- We determined the potential conservation hotspots during the non-breeding period and contacted local NGOs to initiate further conservation actions

Geolocator study:

Altogether 90 geolocators have been installed on Rollers in 2017 in Hungary in the following areas:

Kiskunság National Park Directorate: 40 pcs

Körös-Maros National Park Directorate: 15 pcs

Hortobágy National Park Directorate: 15 pcs

Bükk National Park Directorate: 20 pcs

2 tagged individuals have been recaptured successfully. The results support the findings and conservation objectives of previous studies. The analysis and publication will be prepared in cooperation with the Swiss Ornithological Institute, the preliminary findings are incorporated in the annex study of this action.

Please note that representation and analysis of geolocation data need complex approach (ref: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2656.13036>) and raw data show several hundreds of kilometres bias due to the technology and environmental factors.

The individual maps of migrating rollers in annex C8_3 show estimated central locations of birds based on raw data in Eastern Africa, but these are not validated actual locations. Obviously birds were not flying through the strait of Madagascar, but along the Rift Valley and the Horn of Africa (Somalia), as PTT tracked individuals.

From previous years only 1 PTT-tagged bird can be tracked (for the interactive map please see http://satellitetracking.eu/inds/showmap/?check_292=292&check_344=344).

In the 5 breeding season altogether 11 492 Rollers were ringed, 4132 individuals have been tagged with colour rings, too. The number of recaptured individuals that has been caught during nestbox monitoring is 581.

In Romania

2017: In Romania 6 birds were tagged with PTTs and 25 birds were deployed with geolocators while in 2018 one bird was tagged with PTTs and other 25 were deployed with geolocators.

During the 2019 years' spring and summer we tried to recapture the rollers equipped with geolocators. In this field season we made regular and active nest controls with the aim to capture adult birds to recover the geolocators. A total of 4 birds with geolocators were successfully recuperated. In June of 2020 we managed to recover the fifth bird with geocator.

In the areas where we had birds with geolocators we paid special attention to recapture as many adults as possible on the nest in order to increase the chance of finding the targeted specimens. During this activity we observed a strong fidelity of adult birds to their territory, because all the equipped birds were recaptured in the same or the nearest nestbox where they were previously caught.

After APMSM ordered the 7 satellite transmitters in 2017, we mounted 6 of them on adult rollers and we began to track their movements in the nesting areas. Unfortunately, three of the captured birds (Ágya, Kondás and Viktor) did not leave the country, their transmitters stopped for unknown reasons.

The two other rollers equipped with transmitters left their breeding grounds (Bolomey in Israel, Biró in Sudan) but on the way to the wintering areas suddenly gave no more signals, so they transmitter has failed or the birds perished.

The transmitter of the sixth bird (Márton) from 2017 sent signals from the Democratic Republic of Congo, where it suddenly stopped and we did not received any more information about him.

In 2018 we mounted the last satellite transmitter on a bird named Otilia, in whose case we were able to follow the entire migration route to the wintering ground (Zimbabwe) and also the first quarter of its returning route. When she arrived in Kenya, from the end of May 2019, the connection with the transmitter was suddenly stopped and did not send any more signals. We have no information about the reason the signal was interrupted, but more likely either the transmitter failed or the bird died.

After a long correspondence, in November 2019 we managed to cancel the frequencies reserved for the transmitters and the ARGOS subscription.

During the project, a number of 1015 birds (903 nestling and 112 adult) were ringed with ornithological and colour ring.

In these years we caught 6 birds ringed in Serbia and 12 birds with Hungarian ring. At the same time, a number of 14 birds ringed by us were recaptured in Hungary. These data show us that the birds from Pannonian Region belong to the same population the individuals of this population are in permanent contact with each other.

The relative high number of the local recaptures from the Romanian project area also serve valuable data regarding the young birds' dispersion (how far they return for breeding from their former birthplaces), or survival rate, information that helps us in conservation of the species.

Year	Ringed pullus			Ringed adult			Total ringed
	Alu	Colour	total	Alu	Colour	total	
Before 2015	28	26	28	0	0	0	28
2015	37	36	37	6	6	6	43
2016	159	159	159	2	2	2	161
2017	184	180	184	33	33	33	217
2018	302	165	302	34	33	34	336
2019	268	265	268	34	37	37	305
2020	221	219	221	16	17	17	238
Total	931	785	931	112	111	112	1043

Number of ringed Rollers (adults and chicks) per years

- Quantitative outputs:
 - planned:
 - 4 BirdLife-partner NGOs from Europe will be contracted to check the national stopover sites, assess the threats
 - HU: 30 Rollers equipped with PTTs and 30 with geolocators
 - RO: 10 Rollers equipped with PTTs and 50 with geolocators
 - achieved:
 - HU: 15 PTTs, 90 geolocators
 - RO: 7 PTTs, 50 geolocators
- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
1st assessment of threats by partner NGOs (Deliverable)	31/03/2018	-	31/03/2017	Completed, reported in the 1 st Mid-term Report
2st assessment of threats by partner NGOs (Deliverable)	31/03/2019	-	31/03/2019	Completed
Results of PTT and geolocator data analysis (Milestone)	31/03/2017	31/08/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/08/2020	Completed

- Modification and its approval: The procurement of PTTs in Hungary was managed by CB MME and the related amount was moved to the budget of CB accordingly, despite to split

these between the involved partners (KNPD and BNPD). These unique equipments had to be ordered from one specialized company from the USA, which complicated the public procurement process of the PTTs in case of public beneficiaries. The CB and ABs therefore agreed to keep together in MME budget the import of the devices, as this solution secured the scheduled implementation of the action. This has been reported to the EC in the Inception Report.

APMSM procured 7 PTT-s instead of the planned 10 by the reason of the price increase. Also they tagged birds from different populations in the country. The geolocators installation had been divided into 2 years (50 pcs in 2017, 50 pcs in 2018).

○ Major problems:

- In Hungary: putting the “ICARUS” system of the Max-Planck-Institute into operation failed. The implementation of the antenna on the international space station delayed and the operation also started with a huge delay. For 2 years we received delayed deadlines for our pre-order but the whole process has been unsuccessful. We have no information about the current situation of their project.
- In Romania: The data collection was made by the project staff, however the data analysis will be realized in a voluntary based researcher-researcher cooperation. The results will be published in the After-life period, as due to the epidemic occurred in the early spring of 2020, sending packages from Romania to other countries were not allowed. For this reason we haven't sent yet the geolocators for data analysis. The geolocators recovered in 2019, together with the one recuperated in June 2020 will be sent in the shortest time to Switzerland, where they will be decoded and the stored data will be analysed. The data analysis and is outsourced in a joint research effort with Swiss researchers, where the scientific work is voluntary based and represent an added value for the project. Within the scope of the project no budget line has been included for this research activity, the raw data analysis has been provided annexed.

○ Complementary action outside LIFE: -

○ Perspectives for continuing the action after the end of the project:

- In Hungary: ringing activities will continue with both aluminium and colour rings. Based on the experiences only adult birds will be tagged with colour rings.
- In Romania: In the following years we will continue the nestbox controls and the ringing of adults and chicks with ornithological and colour ring. Adult birds recaptured at nest can serve us important data about the dispersion and movements between different geographical regions, nesting place fidelity and longevity of the species.

Since the species is relatively regularly photographed, we hope that they colour rings will help to have recoveries from the migration routes too.

Overall, the tagging of Rollers was more complicated than previously estimated. The small body size reduces the weight of devices possible to use and the powerful and long beak of the bird is perfect to destroy the transmitters or damage the harness. Probably these circumstances caused a relatively low rate of data transmission and recapture and hindered the large scale population level analysis. The project staff will participate in the publication of the data

and plan to continue the data collection in the after-life period. The fast improvement of individual tracking devices will enable to better understand the population level migratory movements and to design the necessary related conservation actions.

- Annexes to the current report:
 - C8_1 1st assessment of threats by partner NGOs (deliverable)
 - C8_2 2nd assessment of threats by partner NGOs (deliverable)
 - C8_3 Results of PTT and geolocator data analysis
 - C8_4 Results of ringing activities in Hungary

C.9 Control activities to identify and proceed against illegal logging

- Activities and output:

At the beginning of 2015 APMSM and Milvus Group determined the potential Roller breeding habitats with old trees and prepared the monitoring booklets, which have been used in the field during the regular controls. These notes contain the following information: 1. detailed maps of the surveying routes, location of the control points; 2. table with trees seen from a certain point (species, number, direction from the point); 3. each point has a table to be filled in the field during controls, point coordinates, and two photo images showing the trees or tree patches in vegetation and non-vegetation period. A GPS track helped the fieldworkers to guide around the route.

The number of monitored trees and control points was the following:

SPA name	Total no. of trees	No. of control points
Câmpia Crișurilor (ROSPA0015)	370	64
Lunca Mureșului Inferior (ROSPA0069)	436	116
Lunca Timișului (ROSPA0128)	354	79
Pescăria Cefa - Pădurea Rădvani (ROSPA0097)	131	40
Total	1291	299

Milvus Group team carried out a number of 148 controls in the target areas, in order to monitor illegal logging activities. These activities represent a total number of 223 days spent in the field.

The total number of control points performed by Milvus Group were 299 (totalling 12352 during the whole project), from which points the presence of these targeted trees can be well detected. A number of 1291 trees (totalling 56091 during the whole project) were designated and regularly monitored throughout the project. Detailed information can be found in the table attached to current final report.

In addition to these controls carried out by the project team, investigations regarding the detection of possible illegal loggings in 2020 were carried out by our volunteers in the Câmpia Crișurilor, Lunca Mureșului Inferior and Lunca Timișului SPAs.

During the continuous monitoring of illegal logging the staff of Milvus Group identified only one case when a tree was missing, near the village Mișca. After the investigation it has been realized that the poplar fell as a result of a storm (by natural case), and was cut only after that.

Therefore this case was not appropriate to report to the Environment Guard Department of Arad County.

The virtually non-existent number of illegal logging is much probably the result of 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. The trees outside these areas are too exposed to be cut down since the trace of the illegal act is immediately apparent and easy to be detected.

APMSM elaborated the monitoring on a monthly basis and carried out 63 controls on their monitoring routes at ROSPA0097 in the project period.

They detected 2 cases of illegal logging in this time period:

1. The first case was identified in November, 2015 at the area of Marţihaz municipality. After the documentation procedure the crime was reported to Environment Department in Bihor county (Garda de Mediu – Comisariatul Judeţan Bihor who involved the police and the Environmental Protection Agency of Bihor county. Since the tree has been cut from a private owned agricultural land and the owner did not report the case to the authorities it cannot be considered as criminal case and is not the competence of the Environment Department.
2. In February, 2019 another illegal logging has been detected on the same route that has been reported to the competent authorities: the Environmental Department and the Forestry Department. (The Forestry Department is a new authority to prevent illegal logging in the country.) The case has been forwarded to the police and after the field investigation in June, the case has been reported and criminal proceedings were instituted in court. Later the court terminated the proceedings by the reason of the size of the damage and the lack of identified perpetrator.

In conclusion, the cases did not have criminal consequences, however local people heard about the police reports which have a preventive effect in the future.

- Indicators: map of all lonely trees, tree-patches and tree-lines which are suitable as nestsite for Roller in the selected areas.
- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Database of trees recorded on the selected routes (Milestone)	31/12/2015	-	31/12/2015	Completed, reported in the 1 st Progress Report
Report about illegal logging (Milestone)	31/03/2017	15/09/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	15/09/2020	Completed

- Modification and its approval: APMSM and Milvus Group requested to continue the action until the end of the project, which was kindly approved by the EC.
- Major problems: the main problem during the implementation has been the complicated and ineffective procedure of the authorities.
- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project: during the controls carried out under this action we identified only this cases, therefore we do not consider it necessary to continue this activity in the future in these areas.
- Annexes to the current report:
 - C9_1 Report about illegal logging in Romania
 - C9_2 Filled monitoring booklets with maps

D.1 Monitoring of habitat reconstruction actions

- Activities and output:

Baseline survey targeting the main prey types of the habitat reconstruction areas and the assigned control areas was carried out in 2015 and 2016.

The reconstruction action of C.1 was done during the summer of 2019, therefore the monitoring of small mammals and reptiles/amphibian was delayed to 2020. The insect monitoring finished in 2019 as the method of survey requires at least 3 months after the field work therefore it could not be delayed to 2020. The vegetation mapping of action C.1 and C.2 sites were also done in 2020.

The main conclusions of the monitoring are the followings:

Botanical monitoring:

- In C.1 and C.2 site the removal of the non-native woody vegetation has led to favourable changes in the habitat quality of the subjected habitat patches. Grassland recovery has started in the majority of the patches. The grazing management considerably increased the naturalness of the habitat patches by decreasing the abundance and species richness of annual weeds in dry grasslands.
- In C.3 after the restoration works, in the first phase of regeneration, mainly the disturbance-tolerant plant species were re-sprouting in the understorey. This vegetation can be gradually removed by a well-designed post-restoration management (regular mowing and occasional shrub-cutting) and likely will be replaced by a vegetation consisted by the mesophilous species of hay meadows typical for the region.

Insect monitoring: In spite of the differences in the arthropod diversity among sampled areas, all areas can preserve rich arthropod fauna, and arthropods as potential preys are presumably not a limiting factor for rollers

- The differences in arthropod diversity among areas may partly due to the different management regimes of these grasslands. In these sense, proper management of these grassland is important for biodiversity conservation.
- The established restoration and reconstruction works did not affect negatively the diversity of arthropods. The observed differences in the diversity of arthropods before and after the restoration works was presumably due to the effect of years, rather than the effect of works. However, in some cases it seems that restoration works had a positive effect i.e., increased the diversity of arthropods.

Reptiles/amphibian monitoring: final monitoring was done in 2019 in C.2 site and in 2020 in C.1 and C.3 sites. Both years of the final monitoring were very dry and mostly unfavourable for reptiles/amphibians

- In C.2 site the reconstruction action created new suitable areas for this taxa. The number of the observed species and the number of observed individuals also have increased.
- In C.1 sites were very dry during the final monitoring, therefore the number of the observed species decreased, but the *Bombina bombina*, *Emys orbicularis*, and *Lacerta agilis* population seem to be stable. The *Natrix natrix* was probably decreased because of decrease of its prey due to the spring drought.
- C.3 site had less diverse reptile and amphibian community than the other two project area.

Small mammals monitoring:

- According to the baseline survey the areas at KNPD are grasslands with low small mammal species composition, however riparian forests and their environment at DALERD and the wooded pasture and the grassland reconstruction at BNPD gives home to relative rich small mammal communities.
- These original differences in the characteristics remained after the habitat management as well. Due to gradation cycles the species composition of the areas changed, e. g. common vole was found at the opened habitat after the first reconstruction activities by DALERD, and shrew species were trapped at the BNPD grassland which is in the process of growing vegetation complexity after the treatments.
- The habitat reconstruction interventions did not hinder habitat requirements of small mammal communities. In the riparian forest habitat (C.3) and the grassland reconstruction (C.2) a rich species composition remained, and the first signs of reconstructions' positive ecological effects can be measured mostly on the latter. The impact of the reconstruction works could not be demonstrated on the C.1 areas which originally had poorer small mammal diversity.

Monitoring of rollers activity: Ecotone Pica loggers were used to follow the rollers movement in the project sites and control areas. Minimum Convex Polygon and Kernel method were used for home range estimation. Maximum and mean of routes of rollers were used to characterize movement activity.

- Rollers were breeding every year on the project area and used them as foraging sites continuously, except the C.3 site, where the use of natural breeding sites were only found.
- The average home-range was found $19,4 \pm 3,5$ (kde50), $158,5 \pm 27,9$ se ha (kde 95) and $283,8 \pm 59,3$ ha (MCP) which was usually larger than a project site.
- Most of the core areas (kde50) was on the project site

- The home range size of rollers breeding on project site was the same before and after the habitat treatment contrary to the control sites where the home-ranges increased. This result suggests that the project action may contribute to preserve the suitable condition for rollers while those were decreasing on control sites.

- Indicators: 6 interim reports, 1 final report prepared
- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Monitoring report (Deliverable)	31/03/2019	15/07/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/07/2020	Completed

- Modification and its approval: The procurement of GPS tags in Hungary were managed by the CB (MME) and the related amount were moved to the budget of CB accordingly, despite to split these between ABs (KNPD and BNPD). The reason is the same as described in action C.8. This was reported to the EC in the Inception Report. Since reconstruction works on C.1 site were on delay we proposed to reallocate 9000 EUR related to the monitoring of habitat reconstruction in 2018 in MME budget to action A.3 which was kindly accepted by the EC (for the details please see action A.3).
- Major problems: the delay of the habitat reconstruction action of KNPD resulted in the re-planning of the activities which is detailed under the modifications.
- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project: -
- Annexes to the current report:
 - D1_1 Final monitoring report (deliverable)

D.2 Monitoring of Roller population

- Activities and outputs:

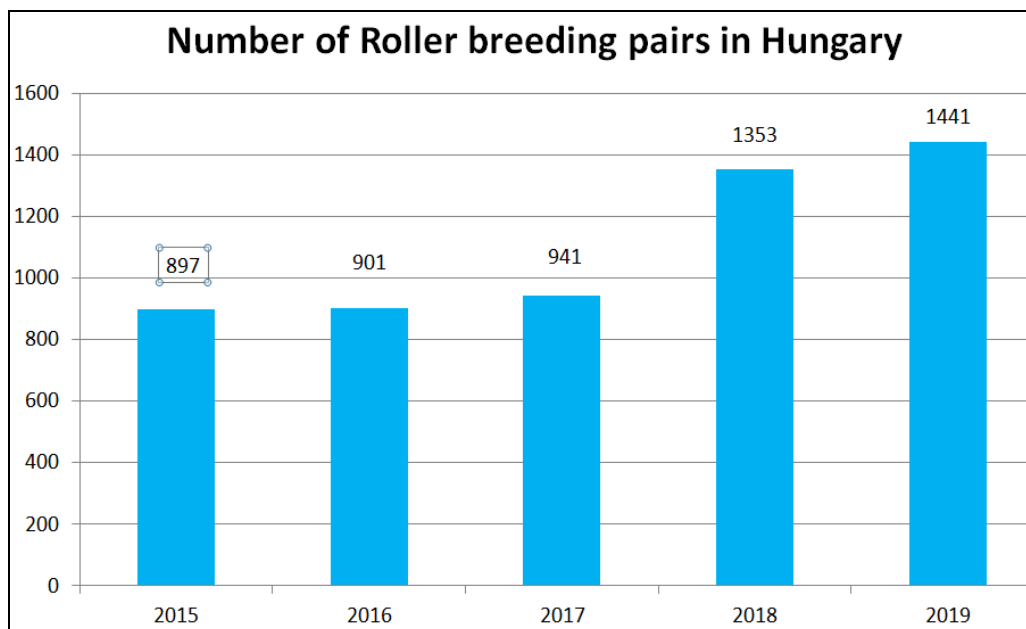
In Hungary:

Monitoring of Roller population ran continuously on all projects SPAs. However baseline data was determined in 2015, the breeding data was annually collected through the project period as well.

Birds continuously occupied the freshly installed nestboxes. The monitoring plan developed under action A.4 helped to coordinate the data collection and the handbook of nestbox installation methods developed under action A.2 has been another useful document, too.

The project proposal aimed also to create artificial cavities to help cavity-making Woodpecker species under this action. However studies and field experiences showed that there are more natural cavities at the project area than expected, therefore the monitoring of these natural holes is more reasonable. The monitoring of natural cavities started in 2017 and continued in 2018: from the inspected 56 cavities 21 met the ecological needs of Roller, 4 have been occupied which is a 19% occupancy rate. For the details please see action C.4.

The number of breeding pairs steadily increased in the project period. From 2015 to 2019 the number of breeding population increased to cca. 160%: from cca. 900 pairs to more than 1440 pairs (see the diagram below for further reference).



The average growth rate of the population was 152% in the total project period (2015-2020) in the project SPAs (where data are already fully available). Please find the detailed number by SPAs and 5 km buffer zones Annexed.

In Romania:

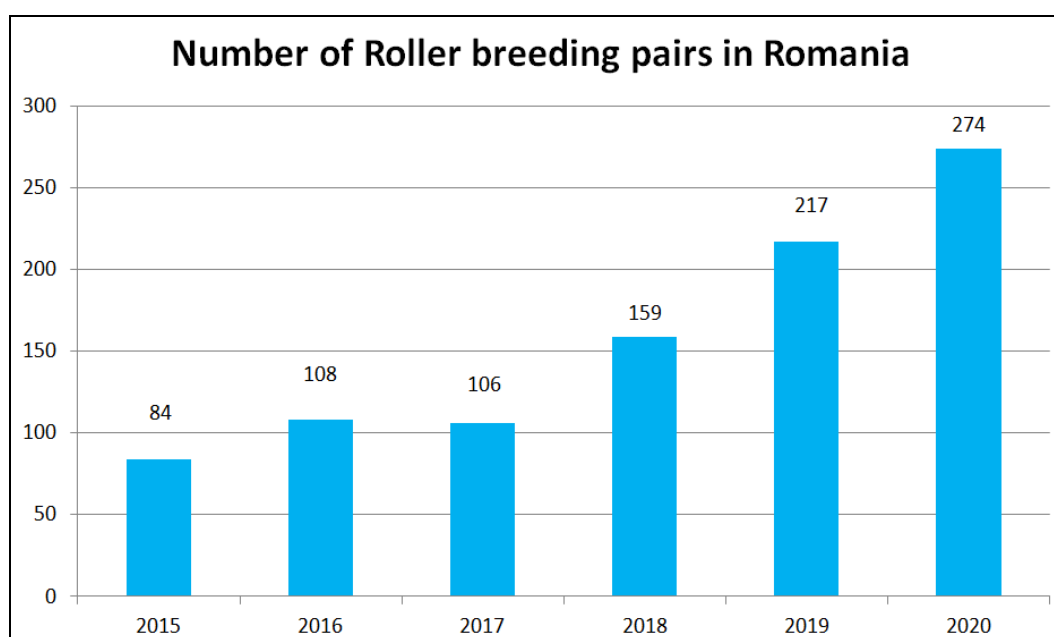
Around the year 2010 we had knowledge about only 20-25 breeding roller pairs in the targeted project areas. From the Lunca Timișului SPA we have knowledge about the species' confirmed breeding only before the year 2006. Further surveys carried out in this area did not bring the desired results and the species was no longer found.

The estimated Roller breeding population in the Romanian project SPAs, before the project was 60 pairs and approximately 24 more pairs within a 5 km buffer zone of these SPAs. We assume the 84 roller pairs for the year 2015 thus we used this reference number as baseline data of indicators to evaluate the project achievements.

We inspected annually all the artificial nestboxes installed within the project, in which breed the majority of the populations in the western part of Romania. In addition, we regularly monitored also the natural hollows and woodpecker holes known from previous years inside SPAs but also buffer zones. We have identified and registered the presence of the individuals and pairs during every fieldtrips, where their establishment for nesting is possible despite the fact that we do not know any suitable nesting place.

In this sense, the total number of birds nesting in nestboxes, natural cavities and seen in pairs during the breeding season in SPAs and in their 5 km buffer gives the population size of the certain year.

The number of breeding pairs steadily increased in the project period. From 2015 to 2020 the number of breeding population increased more than 3 fold, from 84 pairs to 274 pairs (see the diagram below for further reference).



Please find the detailed number by SPAs and 5 km buffer zones Annexed.

○ Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Monitoring report (Deliverable)	20/12/2019	31/08/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/08/2020	Completed

- Modification and its approval: -
- Major problems: As the EC already highlighted in the previous letters the number of breeding pairs/ringed individuals might change during time and between reports. The reason for that is the high number of breeding pairs that is very difficult to determine with census methods. (Biologist usually uses estimation methods for such large populations instead to tell an exact number.) However the project management and reporting needs exact numbers to evaluate the activities. The large coverage and high number of participants (often volunteers) cause itself an inherent error. Roller population experienced a large increase everywhere in the project area, therefore as data shows these small errors do not affect the overall trend and the evaluation of the project success.
- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project:
Milvus Group will give all the effort to monitor the nestboxes annually, at least once most of the nestboxes placed during the project with the help of volunteers.
MME also continues the annual monitoring of nestboxes with the help of national park staffs and volunteers.

Annexes to the current report:

- D2_1 Monitoring report for Hungary (deliverable)
- D2_2 Monitoring report for Romania (deliverable)
- D2_3 Distribution maps

D.3 Assess the socioeconomic impact of the project actions

- Activities and outputs:

In Hungary the subcontractor provided 2 interim reports (in 2017 and in 2019) and a final report by the end of the project.

The surveys have investigated farmer's perception and attitude toward agri-environmental schemes. In general the majority of the farmers believe that the financial support in the AES is sufficient. Also the overwhelming majority of them are neutral or positive related to the statement that long-term economic sustainability is possible with AES practices. However, those who participated earlier tend to be more neutral than positive about long term economic sustainability.

On the other hand farmers have listed many perceived benefits of AES answering to open question. There were a high number of nature and environment related benefits, and many has mentioned healthy food and ecotourism. It seems that local farmers are quite conscious about the increased ecosystem services. There were many respondents who could not mention any disadvantage. Those who mentioned highlighted increased pest occurrence, difficult requirements and very often the difficulty and extent of needed paperwork.

The benefits of AES for nature has been especially highly rated by farmers who did participate in the AES earlier, which indicates that the AES participation has an important sensitising and awareness raising factor as well.

The majority of respondents have also agreed that AES has a positive impact on employment.

In Romania: contract with the subcontractor signed in 2015 to analyse the projects socio-economic effects based on the prepared questionnaires and the collected data on the project events.

Questionnaires have been filled by the participants of the project events: school presentations, participants of bigger events where the project was presented at an own booth, conferences and other events connected to nature conservation. The questionnaires were prepared both in Romanian and Hungarian language. The main goal was to determine whether the target group has gained interest and knowledge about the project and the target species in the project period. Altogether 1030 questionnaires have been filled in the 4 counties covered by the Romanian project area.

The main findings are the following:

	Year	No. of filled questionnaires	No. of respondents who have heard about the project	No. of respondents who have heard about the target species	Willingness to participate in the conservation activities
1	2015	220	25%	10%	25%
2	2016	300	71%	25%	25%
3	2017	200	77%	60%	30%
4	2018	210	90%	80%	50%
5	2019	100	100%	90%	75%

- Quantitative outputs:
 - HU: 2 interim reports, 1 final report
 - RO: initial report, 3 interim reports, 1 final report
- Indicators: reports prepared
- Time schedule:

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Monitoring report (Deliverable)	20/12/2019	31/08/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/08/2020	Completed

- Modification and its approval: -
- Major problems: -
- Complementary action outside LIFE: -

- Perspectives for continuing the action after the end of the project: -
- Annexes to the current report:
 - D3_1 Assessment of the direct impact of the project
 - D3_2 Final socio-economic report in Hungary (deliverable)
 - D3_3 Final socio-economic report in Romania (deliverable)

D.4 Monitoring of the electronic pylon insulation

- Activities and output:

In Hungary 1704 pylons were surveyed in 2015 in a total length of 158 km by project employees and volunteers, data was analysed by the Monitoring Centre of BirdLife Hungary. Only 1 roller was found among the 56 dead individuals of 18 taxa.

In 2016 the monitoring continued: the number of surveyed pylons grew to 3793, and the participants found 182 individuals of 22 taxa, 8 of them were roller.

In 2017 additional 566 pylons were surveyed on 75 km where 73 dead individuals were found of 13 taxa. Also a detailed map and a database were prepared about Balástya-Szatymaz SPAs pylon network to study the insulation conditions which was handed in with the 2nd Mid-term Report.

In 2018 MME conducted a survey on Alsó-Tisza völgy SPA (HUKN10007) where 672 pylons were studied on 64 km, 22 individuals of 8 taxa have been found. The map and the data are attached to the 2nd Progress Report. That year MME launched the website <https://totem.mme.hu/> where the users can report any found animal carcasses and historical data has also been imported to this database.

Between 2018 and 2020 1411 bird individuals of 54 taxa (or category) were identified as victim of electrocution, 35 dead Rollers were found. For the details please see the report in the annex.

In Romania: the action started with delay in 2017 because of the delay in action C.7. Before the insulations the targeted 1064 pylons were surveyed and 87 dead individuals were found of 13 taxa, 1 Roller was found. Since the insulations started only in 2019 the monitoring of insulated pylons also moved to 2019-20.

After the power-lines were isolated (1011 pylons in total) the monitoring of the insulation was performed. Pylons were checked continuously a few months or weeks after the insulation work was finished. The last sections were checked in August 2020. Before-after pictures of all pylons have been taken. The external expert hired to help with the insulation work checked personally part of the lines. Because of the quarantine rules part of the lines were checked by the project team and pictures were sent to the expert. Last sections were checked in August 2020, after all the insulation work was finished. Altogether 37 individuals were found of 3 species.

The general impression is that after the insulation were no electrocution victims, except some species of corvids – rook and magpie – under some of the pylons which were considered safe by the staff and the external expert, too.

The project greatly improved the insulation method of one pylon type – the sustaining type with insulator model DJ 502/2 RO Ed. 02. The collaboration between the external expert,

ENEL and Textor (the company who produced the materials) resulted in a more improved, 1600 mm long insulator material which fits the pylon heads perfectly.

Species scientific name	Before insulation	After insulation
<i>Accipiter nisus</i>	1	0
<i>Buteo buteo</i>	20	0
<i>Ciconia ciconia</i>	3	0
<i>Circaetus gallicus</i>	1	0
<i>Coloeus monedula</i>	3	3
<i>Columba oenas</i>	2	0
<i>Columba palumbus</i>	2	0
<i>Coracias garrulus</i>	1	0
<i>Corvus frugilegus</i>	16	21
<i>Falco cherrug</i>	2	0
<i>Falco tinnunculus</i>	17	0
<i>Falco vespertinus</i>	2	0
<i>Pica pica</i>	17	13
Total	87	37

- Indicators: the effectiveness of isolated power lines were evaluated, reports prepared.
- Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Survey 1. results available in Hungary (Milestone)	07/12/2015	-	07/12/2015	Completed, reported in the 1 st Progress Report
Survey 1. results available in Romania (Milestone)	05/12/2016	re-planned in the I.MTR by the II.MTR	31/12/2017	Completed, reported in the 2 nd Mid-term Report
Survey 2. results available in Hungary	30/09/2019	-	30/09/2019	Completed
Final survey results available in Romania (Milestone)	30/11/2019	31/08/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/08/2020	Completed
Final monitoring report (Deliverable)	31/12/2019	30/09/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	30/09/2020	Completed

- Modification and its approval: The approved proposal text envisaged one baseline survey in 2015 and a second survey in 2019 in Hungary and the related reporting by 31/12/2019. However to ensure the best possible coverage of project sites with monitoring we decided to annually repeat the surveys. This did not affect the budget of the action, as volunteers helped the work of the professional staff. This was reported to the EC in the 1st Progress Report.
- Major problems: the action started with a delay in Romania since the insulation works under action C.7 also delayed. We informed the TMO about the issue and the monitoring has been finished in the extended project period.
- Complementary action outside LIFE: -
- Perspectives for continuing the action after the end of the project: MME continues the work with the involvement of volunteers, the works will be coordinated by the Monitoring Centre. Data will be collected in the TOTEM database and the results will be published on the database of www.mme.map website. Milvus will check the isolated power-lines in the future, to monitor the effectiveness in the long-term and to see if the problem with the corvid species persists.
- Annexes to the current report:
 - D4_1 Final monitoring report of Hungary (deliverable)
 - D4_2 Final monitoring report of Romania (deliverable)

5.2. Dissemination actions

5.2.1. Objectives

- E.1 Demonstration of foraging habitat management techniques for stakeholders
- E.2 Prevent tree logging on Natura 2000 sites
- E.3 Roller Visitor Centre
- E.4 Produce and erect notice boards
- E.5 Produce communication materials
- E.6 Develop and maintain project website, produce Layman's report
- E.7 Ensure continuous media coverage of the project
- E.8 Technical communication of project results
- E.9 Update the International Species Action Plan
- E.10 Promote bird friendly electric pylon design

The number of reaches by specific actions and by planned communication tools have been continuously followed and specified at the relevant actions.

The main objectives planned in the proposal:

- action E.1: 5-2-5 demonstrative workshops (1/year) at KNPD, BNPD and Dalerd habitat reconstruction sites with altogether 925 participants: farmers, foresters,

participants of Farmers for Rollers program, concerning authorities, 20 presentations on local events and participation at 3 professional event to demonstrate the results. The project goals, habitat reconstruction methods and achieved results will be presented at local events where we can also demonstrate the treatments to that land owners who are not professional farmers, however they are interested in bird conservation opportunities. Non-specialist target groups such as students and local people will be informed about management techniques. On the demonstrative workshops a commitment will be signed by 50 participants that in case of available funding they are ready to use the presented methods in favour of the species.

- action E.2:
 - In Hungary: Meetings will be organized for key stakeholders (farmers, local NGOs, general public), to promote Natura2000 network's general measures and Roller friendly forestry management. Leaflets will be delivered to increase stakeholders' awareness about Natura2000 network and the protection of tree-lines and old trees.
 - In Romania: Meetings will be organized for key stakeholders (farmers, local NGOs, general public, local authorities), to promote Natura2000 network's general measures and Roller friendly forestry management. Brochures and leaflets will be delivered about Natura 2000, the target species and the importance of key habitats to increase stakeholders' awareness about Natura2000 network and the protection of tree-lines and old trees.
- action E.3: opening a Visitor Centre with accommodation, an exhibition and conference room. Our plan is to host more than 15000 visitors till the end of the project.
- action E.4:
 - In Hungary: 18 notice boards, 2 educational trails, 1 online camera system
 - In Romania: 30 information boards
- action E.5: producing a high amount of PR materials that will be disseminated continuously in the Roller Visitor Centre (action E.3), on workshops (action C.6, E.2), and on specific educational programmes organized for schools and kindergartens. Deliverable products are effective tools for raising the awareness of the general public, and especially of the young generations. The products will reach minimally 50 000 people, with a special emphasis on children and students.
- action E.6: producing and maintaining a regularly updated trilingual website (we expect more than 1 million visitors during the project), produce a layman's report in both paper and electronic formats in 3 languages (HU: 2000, RO: 1000, ENG: 300). The paper version will be disseminated among decision makers, international partners and key stakeholders, while the electronic version will be freely available on the project website. The report will describe the project and its achievements in succinct, non-technical language.
- action E.7: 3 press conferences, ca. 100 press releases, appearances in the most relevant TV and radio channels, and printed and online journals (>1000 media reports), producing a 50 min. film and 10x2 min. shortfilms disseminated on DVDs (2000 copies) and on TV channels
- action E.8: For the dissemination of results 3 presentations or posters on international conferences will be held: (European Congress of Conservation Biology, International Ornithological Congress, Open Landscapes Conference, European Conference on Ecological Restoration). In addition 20 presentations or posters on workshops and national conferences will be held; 5 scientific publications will be written.
- action E.9: produce the Updated International Species Action Plan of European Roller.

- action E.10: 4 workshops and 12 trainings will be organized to demonstrate the proper installation of different bird protection tools (insulators, anti-collision systems) for the target groups (experts who take part in additional implementation of bird- friendly devices /insulators, anti-collision devices, bird diverters/ such as managers, engineers and professional fieldworkers of electric companies. Designers will be invited, as well.). Technical brochure and its online version will be published and regularly refreshed on the project website (action E.7).

5.2.2. Dissemination: overview per activity

The media and the public are greatly interested in the project. Our press releases were well used by the media and appeared in mainstream online and written magazines, TV and radio. The short films received a lot of positive feedback, and both the general public and roller experts found the website useful from all over the world. The interactive map showing the satellite tagged birds generated a great interest. Our events have been well attended. We only had small challenges with the online nest camera: viewers became emotionally attached to the roller family and at times it was difficult to explain the natural processes happening in the nest.

E.1 Demonstration of foraging habitat management techniques for stakeholders

○ Description of actions:

In 2015 Dalerd Ltd. held a demonstrative event in Alsó-Tisza-völgy SPA (HUKN10007) with 27 stakeholders (2015.06.17) to present the project area and the planned habitat reconstruction especially the elimination of invasive species with injection and management works in the area. Their 2nd demonstrative event had been held on 22th September, 2016 with 70 participants where the early reconstruction works and the progress had been presented.

In 2018 Dalerd held a demonstrative event to present their habitat management activities and progress on 7th November, 2018 for the 37 participants. Our colleagues demonstrated the project and the problems of riparian forest management and the methods of possible solution. They held their final demonstration event on 16th September, 2020 with 31 participants, mostly foresters and conservationists where the experiences and the results were discussed.

BNPD also held a workshop on 26th October, 2018 for 48 farmers, where the professional staff held presentations about the project, the Farmers for Roller program, the habitat reconstruction activities and presented their process on field as well.

The 2nd workshop of BNPD was held on 15th November, 2019 to present the results of the 5 year of the project. Altogether 65 farmers and conservationists participated from both project sites. The staff presented the Farmers for Roller Programme, the LIFE project, the monitoring results, Roller recoveries and the plans for the future.

BNPD also planned to dedicate their annual Grey Cattle-driving Festival in April, 2020 to the project and the concerning topics but they had to cancel the event due to the COVID-19 pandemic risks.

KNPD held an event to demonstrate the project sites before the restoration works on 29th June, 2016 with 34 participants where stakeholders were informed about the project, the planned reconstruction works and goals.

They decided to delay the following demonstration events since the habitat reconstruction was also in delay and no progress could be presented. Finally after the earthworks finished to represent the results of the habitat reconstruction and the overall project they organized an event on 9th September, 2020 with 32 participants. The staff presented the results of the habitat reconstructions, the Farmers for Roller Programme, the LIFE project, the monitoring results, Roller recoveries and the plans for the future.

MME's main objective was to demonstrate roller friendly habitat management practices to the concerning stakeholders and authorities to convince possible users to implement these techniques.

Throughout the project years we were focusing on being able to participate in professional fairs which attract a great amount of people both from the public and the stakeholder groups. There are three of these big fairs that should be emphasised:

- FeHoVa (Fegyver, Horgász, Vadász) - Fishing, Hunting and Arms International Exhibition has been attracting thousands of visitors both nationally and internationally for more than 25 years. It is always a great opportunity to connect with the public and disseminate information about our ongoing projects. It is important that many stakeholders can be reached on this event as most of the foresters are hunters as well, so they always visit the exhibition and meet our staff.
- OMÉK – National Agriculture and Food exhibition and Fair. The main goal of OMÉK has always been to give a comprehensive picture of the full vertical spectrum of agriculture. It takes place every second year and this is where professionals from agriculture and food production meet. As the need for sustainable and nature friendly agricultural practices are growing, lots of farmers have the opportunity to demonstrate how well they are doing in a changing sector. This is where we could meet such farmers and engage in the Farmers for Rollers Program.
- AgroMash - the most significant professional events of the Hungarian agricultural business, presenting the latest innovations and trends to farmers in the sector's rest period. Four days about agricultural machines, services, input materials, prize-winning products, innovations and high-quality professional programmes. It takes place every second year, our target group is the same as in OMÉK.

Another big, national event is the Wild Geese Festival in Tata where the project has been actively presented for birdwatchers from all over the country.

The officially reported number of participants of the above described events:

Event	Year	No. of participants
AgroMash	2015	42 000
AgroMash	2016	45 000
FeHoVa	2015	55 000
FeHoVa	2016	ND
FeHoVa	2017	47 000
FeHoVa	2018	55 000
FeHoVa	2019	55 000
FeHoVa	2020	50 000
OMÉK	2015	87 300
OMÉK	2017	ND
OMÉK	2019	85 000
Wild Geese Festival, Tata	2015 - 2019	10 000/ year

- Quantitative outputs:

Beneficiary	Planned	Achieved
BNPD	2 workshops (1*100 person and 1*25 person)	2 workshops with altogether 113 participants
DALERD	5 workshops (3*100 person and 2*50 person)	4 workshops with altogether 165 participants
KNPD	5 workshops (3*100 person and 2*50 person)	2 workshops with altogether 66 participants
MME	project results presented at 3 major professional events, 20 presentations on local events	project and roller friendly habitat management practices presented at 16 professional events

- Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
BNPD workshop for 100 persons (farmers) (Milestone)	31/07/2017	30/11/2018 re-planned in the II.MTR	26/10/2018	Completed, reported in the 2 nd Progress Report
BNPD workshop for conservation professionals (Milestone)	30/09/2019	-	15/11/2019	Completed

- Reactions and feedback:

Most farmers have been very enthusiastic and the staff gained valuable knowledge from the open discussions about their perspective.

- Annexes to the current report:

- E1_1 Documentation of events held by BNPD
- E1_2 Documentation of events held by Dalerd
- E1_3 Documentation of events held by KNPD
- E1_4 Pictures from events where MME participated and demonstrated the project

E.2 Prevent tree logging on Natura 2000 sites

- Description of actions:

In Hungary:

Mapping of forest-patches, solitude old trees and tree-lines finished. The main finding was that softwood forest patches and treelines in the neighbourhood of proper feeding grounds have enough natural cavities in suitable height and suitable sizes for Roller breeding, the problem is the rareness of these kind of breeding habitats, namely forest patches and tree lines in appropriate quality.

The leaflet has been prepared in 3000 copies to raise awareness about Natura2000 network and the importance of the protection of tree-lines and old trees.

MME held 16 meetings for different groups of stakeholders with altogether 179 participants. The main target groups were inhabitants of Natura2000 sites, hunting associations and farmers. The location of the events was the Roller Visitor Centre, where the project was presented but the importance of Natura2000 areas and old trees was highlighted and the leaflet has been distributed, too.

The staff also participated on events where the mentioned topics and the preventive, communication-based conservation activities have been discussed with other participants. One of the most important national event was FeHoVa, where the representatives of most hunting associations participate together with their rangers who are the most familiar with the condition of the location they work on and meet the most people there, therefore they can spread these information more effectively among the locals.

The brochures have been delivered to the government offices, forestry authorities and visitor centre of national park directorates.

In Romania:

APMSM procured the equipments (laptop, videoprojector, screen), the 3000 leaflets and 3000 brochures about Natura 2000 and illegal logging (see hardcopies as annex).

A database was made about schools of Satu Mare, Bihor, Arad and Timiș counties where the awareness raising presentations can be held.

Most of the PR products have been disseminated in these events.

To highlight the importance of Natura2000 areas, the LIFE project and the importance of old trees the staff held presentations in 108 schools for altogether 3540 students and 408 teachers. They made partnership with 21 schools which establishes the opportunity of future collaborations eg. tree plantation actions and future conservation education.

Besides the activities in schools the staff participated on 26 other events where they presented the project, conservation problems on Natura2000 areas and the project results and experiences. On some of the events the staff had an own booth to present the activities and discuss to concerning topics.

Unfortunately the planned events had to be cancelled or transformed into online event in 2020.

Number of events and presentations with the number of participants per year:

Year	School presentations			Other events	
	No. of schools	No. of teachers	No. of students	No. of event	Participants
2015	0	0	0	4	225
2016	24	74	931	2	190
2017	38	108	1335	4	310
2018	15	60	405	9	595
2019	8	92	413	4	360
2020*	23	23	207	3	192

*events were held online by the reason of pandemic risks

The “other” events besides school presentations were the following:

- 26/03/2015 – Project opening conference, Satu Mare, Kossuth Kert Zöld Háza – presentation – 14 participants
- 05/06/2015 – International Day of Nature Conservation, Satu Mare, Hám János Liceum – presentation – 65 participants
- 22/08/2015 – Hungarian Days of Partium – Satu Mare, Kossuth Kert – booth – cca. 125 participants
- 20/10/2015 – Érendréd, Ökoház – presentation – 20 participants
- 15/03/2016 – Week of Forests - Dobrácsapáti, Szatmár,– demonstrative tree plantation and interactive ecological lesson – 40 participants
- 17/06/2016 - LIFE Info Day 2016 – Bukarest – 35 participants
- 29/03/2017 – Prefectural Meeting of Satu Mare county - presentation – Satu Mare – cca. 40 participants
- 23/05/2017– LIFE Caravan – Szászka, Krassószörény – presentation – cca. 50 participants
- 08/09/2017–Local Council Meeting, Nagylak (Arad) – presentation – cca. 20 participants
- 04/10/2017 – Festival of Volunteers (International Day of Animals), Satu Mare- booth – cca. 100 participants
- 23/03/2018 – International Day of Water – Sárközújlak – presentation – cca. 35 participants
- 03/05/2018 – visit of vice president of ANPM – Satu Mare – cca. 15 participants
- 10/05/2018 - LIFE INFO DAY 2018 – Brasov – presentation - cca. 50 participants
- 15/05/2018 - County-level technical meeting of the Environmental Analysis Committee – presentation – cca. 20 participants
- 23/06/2018 – Info LIFE Day, Nagytarna – cca. 40 participants (participation as organizer and presentation)
- 02/07/2018 - From one bridge to another project opening conference, Ottomány – presentation - cca 70 participants
- 03/08/2018 - Day of Lunca Mureşului Nature Park – booth – 200 participants
- September, 2018 – “A million bottlecaps, a million smiles” events-sequence – booth – cca 100 participants (presentation, too)
- 03/10/2018 – Festival of Volunteers, Satu Mare – booth – cca. 100 participants
- April, 2019 – Earth Day, Satu Mare – booth – 150 participants
- 16/05/2019 - LIFE Caravan 2019 – Satu Mare, Kossuth Kert Zöld Háza – 25 participants
- 19/06/2019 – LIFE INFO DAY 2019 – Poiana Brasov – presentation – 45 participants
- 30/09/2019 – Fény, Szatmár – presentation – cca. 45 participants
- 07/05/2020 – LIFE INFO DAY 2020 – Online videoconference presentation – 86 participants
- 12/05/2020 – Meeting of Nature Conservation Working Group - Online videoconference presentation – cca. 85 participants
- 20/09/2020 – project closing conference at ANPM – presentation – 20 participants

○ Quantitative outputs:

Beneficiary	Planned	Achieved
MME	16 meetings for stakeholders	16 meetings held
MME	2000 brochures about Natura2000 network	brochures prepared in 3000 copies
APMSM	30 meetings	26 meeting/event + 3 online
APMSM	presentation in 90 schools	presentation in 108 schools
APMSM	3000 brochures and 3000 leaflets about Natura 2000 and the European Roller	3000 brochures and 3000 leaflets about Natura 2000 and the European Roller printed and distributed

○ Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Report on tree logging (Deliverable)	31/10/2017	31/12/2018 re-planned in the II.MTR	30/09/2019	Completed
Preparing meetings and brochures (Milestone)	31/03/2019	30/09/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	30/09/2020	Completed
Meetings organized in Romania (Milestone)	30/09/2019	30/09/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	30/09/2020	Completed

○ Reactions and feedback

APMSM received the best feedback from the schools, children were proved to be more sensitive about the raised topics, they participated actively and enthusiastically in the interactive presentations.

○ Annexes to the current report:

- E2_1 Design of the brochure in Hungary
- E2_2 List of participants at the meetings held in Hungary
- E2_3 Report on mapping of forest-patches, solitude old trees and tree-lines in Hungary (deliverable)

- E2_4 Design of the brochure in Romania
- E2_5 Design of the leaflet in Romania
- E2_6 Documentation of educational events in Romania
- E2_7 Documentation of meetings in Romania

E.3 Roller Visitor Centre

○ Description of actions:

After the unsuccessful public tendering procedure (all the proposals of potential subcontractors exceeded the budget significantly) KNPD requested to renovate the existing building in the 2nd Mid-term Report and also asked the approval of the EC to set up a modified indicator of action E.3: as only 15 month of operation was envisaged after the opening of the facilities, the realistic final indicator could have been 5500 visitors until the end of the project.

During construction, the building received a completely new roof structure, water and heat insulation, doors and windows were replaced, as well as the outdated electrical and heating system, new cladding and sanitary ware, kitchen and water blocks were added, and accommodation was created in the loft area which can accommodate 12 people, and an additional 11 people can sleep in a research room with bunk beds. The Visitor center will work as a research station as well.

On the ground floor the exhibition hall can function as a conference room, so workshops and meetings can be organized.

The building of the Roller Visitor Centre has been finalized by 31st December, 2018, the centre started to operate. The official opening took place on 11th of November, 2019. The press was also invited.

The watchtower, the landscaping of the area and the outdoor furniture were realized with delay. The tendering procedure of the landscaping of the area around the visitor center was finished in May 2020. It contained the park development, the outdoor pavilion enlargement (10 to 30 persons) with tiled roof, electrical work and paving, and also an outdoor wood playground for nature conservation education (inclusive outdoor furniture).

The contract for planning the watchtower was signed on 16 April 2018. Since the plans needed to be modified and also the permitting procedure had difficulties, the bidding procedure for the establishment of the watchtower was closed successful in May 2020. Construction works ended by 28th August, 2020.

Until the end of March, 2020, 3388 visitors were registered in the Visitor center. Unfortunately due to the Covid-19 pandemic, the visitor center had to close, visitors were not allowed. In order to continue with the educational work a Youtube channel (https://www.youtube.com/channel/UC724_TkCQRjYHGnk4auRJcg) has been created for the Visitor center. The channel has 7 videos – mostly about bird and habitat conservation - which were viewed more than 4000 people so far.

The Centre will be open for the public in every weekend from April till November, and also upon registration through phone or the project website throughout the year. All visitors and groups will be registered in the visitor book. The Centre will be offered for universities and colleges educating school and kindergarten teachers to hold trainings with children. The Visitor Centre is also the start and end point of the pedestrian education trail developed in action E.7.

Modification:

The delayed opening of the Roller Visitor Center hindered MME to achieve the originally planned number of visitors (15000 for 41 month, on average 366 visitors each month) set up as the indicator of action E.3. As only 15 month of operation was envisaged after the opening of the facilities, the realistic final indicator was calculated to be 5500 visitors until the end of the project which has been reported in the 2nd Mid-term Report.

In the 2nd Mid-term Report MME requested to reallocate 1 000 € from action E6/Personnel cost category/Communication Officer to action E6/External category to develop an independent website for the visitor center for increasing the number of visitors, to expand the scope of social groups involved in the education and increasing the marketing of the LIFE project. This was kindly approved by the Commission in the letter Ref. Ares(2018)3636931 - 09/07/2018.

- Quantitative outputs:

Planned	Achieved
366 visitors/month, 5500 in total	3388 visitors, 7 videos, 4869 viewers

- Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Opening of the Roller Visitor Centre (Milestone)	31/05/2017	31/12/2018 re-planned in the II.MTR	31/12/2018	Completed

- Reactions and feedback:

The experiences if the staff in the operating period was very positive, more and more visitors arrived to the visitor centre after the mitigation of pandemic restrictions, in September too.

The complete, final infrastructure also gained huge interest in the media.

- Annexes to the current report:

- E3_1 Pictures about the building and the environment of the Roller Visitor Centre
- E3_2 Contract of operation
- E3_3 Photos of the official opening event

E.4 Produce and erect notice boards

- Description of actions:

The planned notice boards about the project are ready, 18 bilingual boards were installed in Hungary and 30 in Romania with different designs.

Modification of the Hungarian part: The planning of graphical design and the realization of 70x100 cm posters were moved from each Hungarian ABs to the CB. This cost effective solution helped us to keep deadlines and uniformity of the project on each project SPA. The minor budget change had been documented accordingly. Beneficiaries ensured the raising of notice boards and provided the necessary wooden poles as planned in the proposal. This had been reported to the EC in the Inception Report.

In Romania the aim was to install 30 information boards in 15 Special Protection Areas (SPA). The intention was to draw the attention of local communities and visitors to the Natura 2000 network and the importance of roller protection. After careful evaluation of the target audiences and the selected project sites, bilingual (Romanian and Hungarian) information boards were installed to serve the multicultural local community. The 150x200 cm boards provide information about the project and the distribution, diet, migration and protection of the species.

The interactive educational trail in HUBN10002 is ready.

The 10 boards of the trail, the outdoor educational room and the closed observation tower have been ready by May, 2018. The weather conditions did not allow the staff to approach the wooden boards to place the information boards on them, therefore the posters and the QR codes to the interactive background on them have been installed later, in March, 2019.

Modification: In 2019 BNPD decided to improve the trail with some extra development: the outdoor educational room received roofing and wind-coverage to allow programs in bad weather conditions, too. To reach wide range of potential visitors BNPD refurbished 3 bird hides and a bigger, opened watchtower in the area and included them to the educational trail as extra elements to arouse the interest of more stakeholders.

The online camera system has also been purchased and installed by the breeding season in 2018. Unfortunately a Marten attacked the clutch and the breeding of the pair turned unsuccessful. Moving the system to another nestbox would have been risky, since most of the juveniles were developed enough to leave the nest, therefore – in case of success – the streaming would also have been only a few days long. In 2019 the outdoor camera has been installed to a late-occupying Roller pair, which finally stopped feeding the chicks for an unknown reason and the clutch died. The breeding season of 2020 started also with streaming a Roller pair but they left the nestbox soon, which have been occupied later by a Hoopoe pair. Their breeding was successful, they successfully fledged their offspring.

BNPD planned to produce a publication in the frame of the action, but the concept of the originally planned monograph changed. The beneficiary produced 2 booklets of 40-50 pages in A5 format with text descriptions and photographs that presents and explains the values of their project SPAs: Borsodi Mezőség and Kesznyéten Landscape Protection Area and a picture-book of the natural values on the steppes under the umbrella of the European Roller. The book aimed to introduce us the diversity of the region by the perspective of a local photographer through the flora, fauna and vibes of the landscape.

The boards of the interactive educational trail in HUKN10007 have been installed in May, 2018. The concept of the interactive trail has been improved which was accepted by the EC: the trail consists of 8 boards and has been completed with an interactive water trail of 10 boards about the birds of reedbeds.

The final list of boards approved by EC after the 1st Progress Report:

- I. board: Roller and the LIFE Nature project
- II. board: Natura 2000 and the Alsó-Tisza-völgy SPA
- III. board: Bird friendly grassland management
- IV. board: 10 small boards about birds of reedbeds
- V. board: Birds of alcalic grasslands and conservation of Kentish Plover
- VI. board: The function of aquatic habitats in Alsó-Tisza-völgy SPA
- VII. board: The history of Fehér-tó and bird migration
- VIII. board: Formation and flora of steppe habitats
- IX. board: Bird-friendly insulation of electric powerlines

The educational trail runs about 5 km along the northern shore of Lake Fehér. Along the route the interactive boards present not only the history and nature of the area, but also the current nature conservation problems and the methods that can be used to solve them. On the 5 km long study trail starting from the Szalakóta Visitor Center and ending at the Szatymaz Postakocsi inn, even smaller, 1 km rounds can be made due to the location of the signs. With the help of a smartphone, the content of the information boards is also available in English on site.

The water trail is 200 m long and it crosses one of the largest reed islands on Lake Fehér, ending up at a bird hide the edge of the open water. The information boards of the trail show the characteristic bird species of the reed island. With the help of our smartphone, we can not only access the digital version of the boards in English, but we can also listen to the characteristic songs of the songbirds. At the end of the trail, there is a hide with a so-called detective glass window, to makes that we remain invisible to the waterfowl while observing them up close.

- Quantitative outputs:
 - notice boards:

Beneficiary	Planned	Achieved
MME	18 LIFE project notice boards	18 LIFE project notice boards
APMSM	30 LIFE project notice boards	30 LIFE project notice boards

- educational trails:

Site	Planned	Achieved
HUKN10007	10 boards	8 boards + interactive water trail of 10 small boards about the birds of reedbeds
HUBN10002	10 boards, closed observatory tower and an outdoor educational room	10 boards, closed observatory tower, wind- and rainproof outdoor educational room + refurbished open tower, 3 birdhides.

- publication:

Beneficiary	Planned	Achieved
BNPD	1 monograph about HUBN10002 (1000 pcs)	2 booklets (40-50 pages, A5 format) of project SPAs HUBN10002 and HUBN1005 (1000 pcs both) 1 picture-book of the natural values on the steppes under the umbrella of the European Roller (1000 pcs)

- Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Project boards erected (Milestone)	30/09/2015	-	30/09/2015	Completed, reported in the 1 st Progress Report

- Reactions and feedback:

During fieldwork or educational event several people (farmers, children and locals) indicated that they heard about the project from the information boards or the educational trail and gave positive feedback about our activities.

- Annexes to the current report:

- E4_1 Notice boards in Hungary
- E4_2 Educational trail at KNPD
- E4_3 Educational trail at BNPD
- E4_4 Pictures from the online nest-camera system at BNPD
- E4_5 Publications of BNPD
- E4_6 Notice boards in Romania

E.5 Produce communication materials

- Description of actions:

2 sets of PR materials have been procured in Hungary and in Romania as well.

In Hungary the PR sets contain:

PR set for Roller project	Nr. Of ordered items
mug	200 pc
T-shirt	830 pc
Polar sweater	200 pc
pencil, pen	2000 pc
linen bag	500 pc
backpack	70 pc
baseball hat	140 pc
fridge magnet	2000 pc
pinbadge	2000 pc

leaflet	25000 pc (Hungarian)+ 3000 pc (English)
sticker	50000 pc
roll-up	8 pc
poster	1000 pc
linen bag (2 nd set)	3000 pc
thermos (2 nd set)	40 pc
windshield shade (2 nd set)	200 pc
notebook (2 nd set)	100 pc

In Romania:

The 1st set of PR materials:

Products	pcs
Pin	1500
Stationery	2000
T-shirt	800
Leaflet	1500
Linen bag	1500
A3 poster	1500
Mug	300
Calendar	3000
A7 sticker	1500
Leaflet for children	1500
Magnet	2000

The 2nd set contained:

Product	pcs
mug	200
T-shirt	700
pencil/pen	500
linen bag	1000
fridge magnet	500
office calendar	300
USB 4 GB	300
calendars	250
backpack	50
key ring	300

The above listed materials have been disseminated continuously in the Roller Visitor Centre (E.3), on workshops (C.6, E.2), networking events (F.3) and on specific educational programmes organized for schools and kindergartens (E.2).

In late 2019 APMSM planned to purchase another set of PR materials for the extension period but the pandemic hindered their planned personal events do they cancelled the procurement.

○ Reactions and feedback:

HU: Due to the design of the logo, all PR materials were very popular. The polar sweaters, T-shirts, thermoses, mugs, backpacks and baseball hats were given to selected stakeholders and field staff and thanks to their design and quality, some of these items are still sought after.

Other PR materials, such as the linen bag and the leaflet were also unique, as the linen bag was black and the leaflet was printed on recycled matte paper, which is a bit different from all the other PR materials available, they proved to be successful with the public. Along with the poster, the sticker, and the fridge magnet, they were disseminated on our bigger public events and recently in the Visitor Center as well.

RO: the listed materials have been disseminated for the public, colleagues and different stakeholder groups (farmers, NGOs, students, volunteers etc.) in the frame of actions C.5, C.6, C.9 and E.2 during the organized/participated events, networking trips and fieldwork. As it was very predictable, children very especially enthusiastic about the products, and later the staff spotted children wearing the project t-shirts in the municipalities of the project area.

○ Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
First set of deliverable PR materials produced (Deliverable)	31/12/2015	-	30/09/2015	Completed, reported in the 1 st Progress Report
Second set of deliverable PR materials produced (Deliverable)	31/03/2019	-	31/12/2017	Completed, reported in the 2 nd Mid-term Report

○ Annexes to the current report:

- E5_1 PR materials in Hungary (deliverable)
- E5_2 PR materials in Romania (deliverable)

E.6 Develop and maintain project website, produce Layman’s report

○ Description of actions:

The trilingual project website (rollerproject.eu) has been successfully running since 2014, it is regularly updated with news, project results, downloadable materials, publications and manuals.

In all three languages, there are 257 articles altogether, of which 110 are Hungarian, 88 English and 56 Romanian.

The dedicated facebook site (<https://www.facebook.com/rollerproject>) was also active during the project period.

All beneficiaries prepared one page on their own sites to show their role in the Roller project, for the collection please see the annex.

Layman's Report has been produced and printed in 3 languages (300 pcs English, 2000 pcs Hungarian and 1000 pcs Romanian), it is also available on the website.

o Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Project website online (Milestone)	31/01/2015	-	31/01/2015	Completed, reported in the Inception Report
Layman's report (Deliverable)	31/05/2019	31/05/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/08/2020	Completed

o Annexes to the current report:

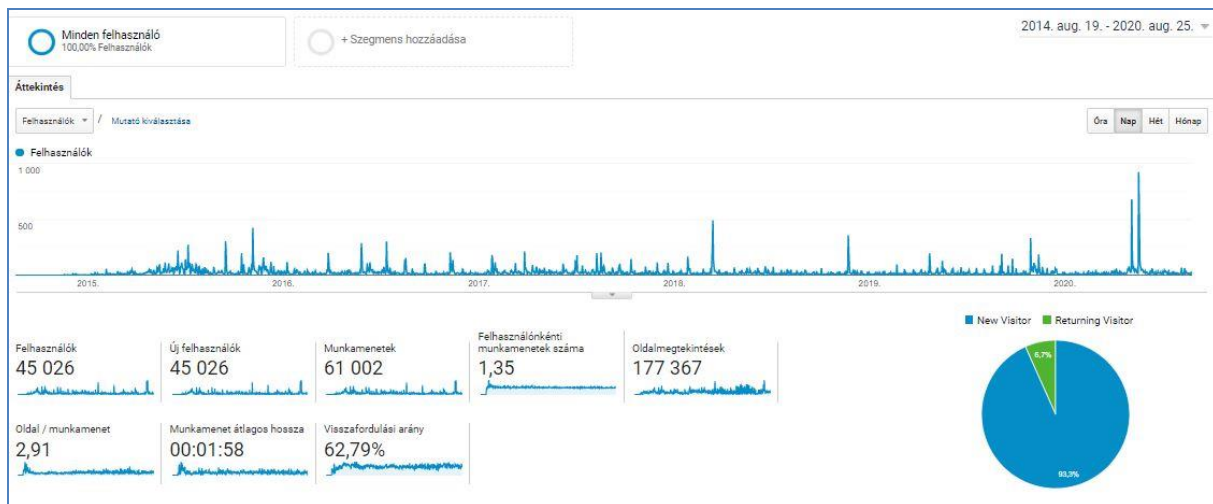
- E6_1 Associated Beneficiaries one-page introduction to the project
- E6_2 Layman's report in English (deliverable)
- E6_3 Layman's report in Hungarian (deliverable)
- E6_4 Layman's report in Romanian (deliverable)

E.7 Ensure continuous media coverage of the project

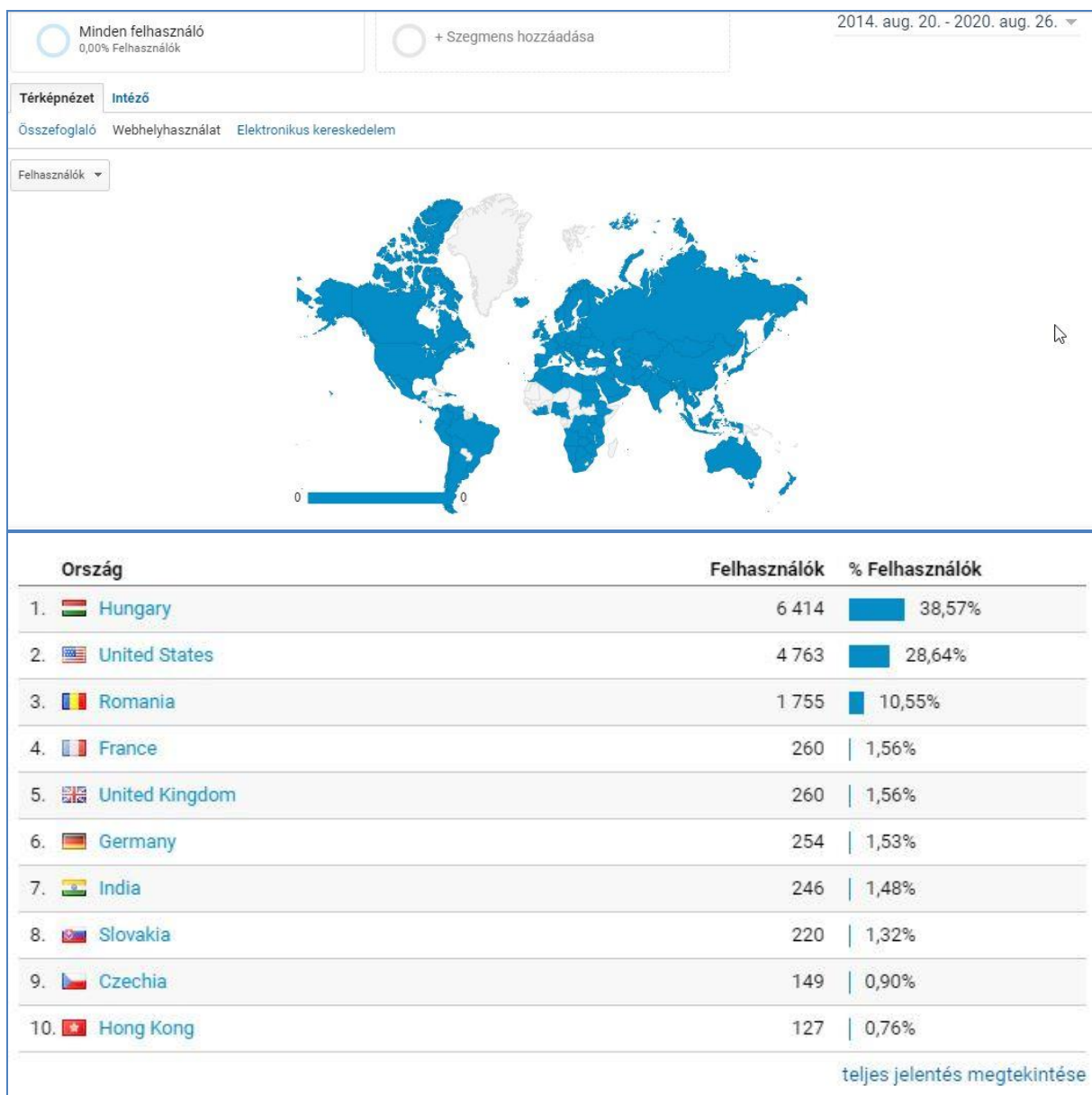
o Description of actions:

Website

45 000 unique users visited the website and there are 177 367 page views. There were 61 002 sessions (A session is a group of user interactions with the website that take place within a given time frame. For example a single session can contain multiple page views, events, social interactions).



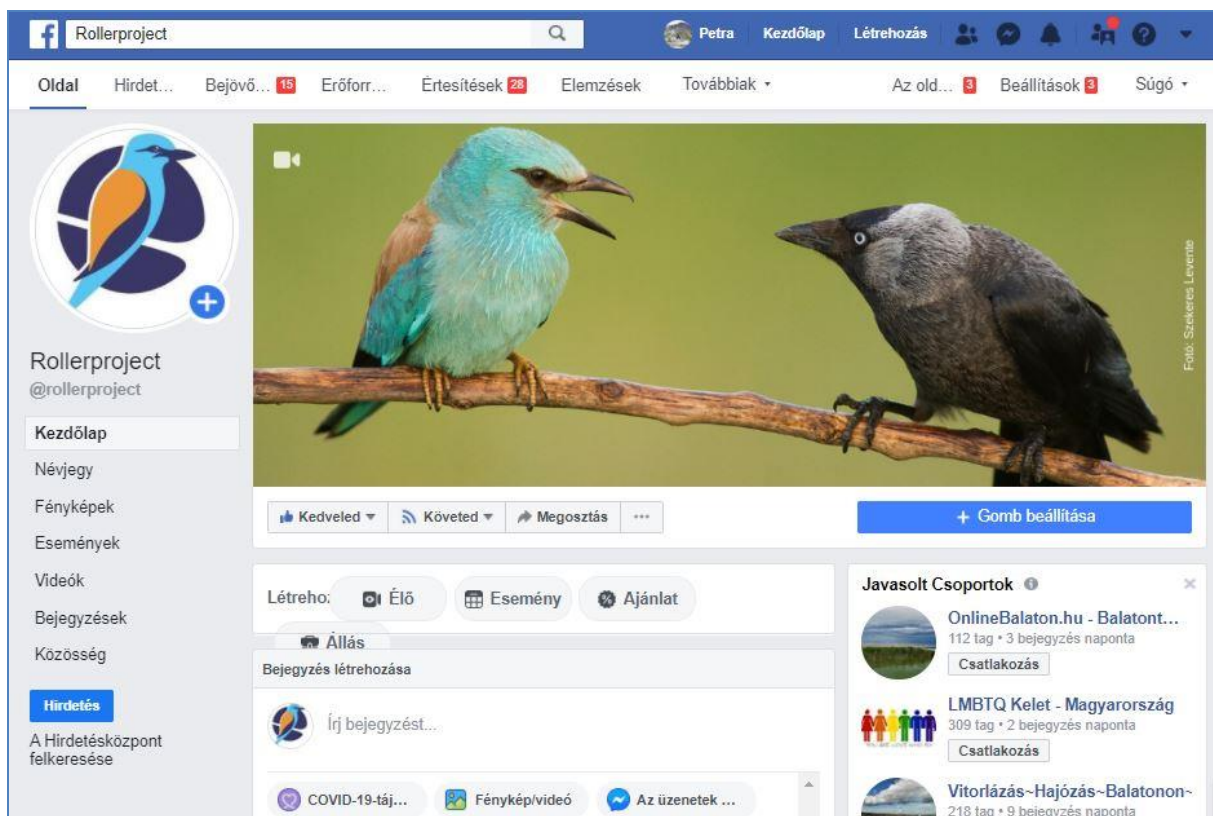
The website managed to reach quite a wide range, there were page views from all over the world (139 countries), the 2nd most views came from the United States.



Facebook

The 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. A detailed analytics excel sheet is available in the Annex, however please note that the data before 2018 March is not complete as Facebook can no longer provide it.



The most popular posts were about the satellite tagged Rollers, the one named „Eleven” in particular. The news about her return to the nesting grounds for the 4th time reached more than 18 000 people.

MME/BirdLife Hungary plans to continue the maintenance and regular update of the webpage on all 3 languages as well as the Facebook site and the map about the remaining active birds on satellitetracking.eu as long as possible, since real-time follow of the migration, the news on the website and the Facebook page is deemed to be the most important communication tool and information source for the public and the interested professionals based on the received feedback.

Apart from the 110 Hungarian articles on the website (which is always shared on MME's main facebook page, which is popular among journalists, so these articles do serve as press releases) to date 12 traditional press releases were also sent out:

1. 2015.04.16: Elindul a terepszezon a hazánkban eddig nem használt eszközet is felvonultató szalakótavédelmi LIFE programban
2. 2015.07.07: Első alkalommal kerülnek műholdas jeladók szalakótákra Magyarországon!
3. 2015.09.15: Tudománytörténeti repülés - az első jeladós magyar szalakóták már Afrikában járnak

4. 2016.05.26: Tudománytörténeti repülés – visszatért Magyarország első jeladós szalakótája
5. 2016.07.12: SAJTÓMEGHÍVÓ ÉS –KÖZLEMÉNY - Webkamerával megfigyelhető szalakóta fiókák gyűrzése
6. 2017.01.25: Huszonhét ország szakértői tanácskoztak Kecskeméten a szalakóta védelmében
7. 2017.06.09: Visszatértek jeladós szalakótáink
8. 2018.05.15: Új műholdas információ a hazai szalakóták vonulásáról
9. 2019.10.30: Sajtómeghívó – Szalakóta Látogatóközpont átadó
10. 2019.11.12: Megnyílt a Szalakóta Látogatóközpont
11. 2020.05.05: Újabb szomorú szalakóta megkerülés a Közel-Keleten
12. 2020.05.18.: 'Eleven', a jeladós szalakóta negyedszer is hazatért Dél-Afrikából

3 press conferences were held by MME:

- Starting the project: Ópusztaszer on the 22th of April
- Opening the visitor centre: 2019/11/08
- Finalizing the project: 2020/09/09.

The production of the project films have been subcontracted to an external company. In spite of the planned 10*2 minutes long shortfilms 5 various length (4-7 min) short films were produced and all the presentations of the international conference has been digitalised, they are available online:

<https://www.youtube.com/watch?v=CAaK2g469AY&list=PLpISPejBNAbw7BJWfue-ueLFSEd-B15j&index=1>

Their combined length is cca 60 min.

An additional film also has been produced to sum up the project, which is 32 minutes long and available online: <https://www.youtube.com/watch?v=IHh3JASCdK0>

The production of 2000 DVD copies were not realised because online availability was judged to be more effective in regard of reaching the interested and the widespread internet use makes CD or DVD hardcopies unnecessary nowadays which was not foreseen when writing the proposal.

- Reactions and feedback: Birds and nature conservation is always good topic as journalists are hungry for colourful news, hence all the news we published ended up in several online mediums. Webpage and facebook visitors are mostly interested in either a success story (e.g. the story of „Eleven”, the tagged Roller,) or dramatic news (e.g. videos of shot Rollers in the Middle-East). These news got the highest reach.
- Quantitative outputs:
 - planned: 100 disseminated press releases, 3 press conferences, 10 x 2 minutes short documentaries, more than 1000 media reports
 - achieved: 122 webpage articles and press releases altogether, 3 press conferences, 5 various length (4-7 min) short films and a 32-min documentary, 1024 media outputs (313 facebook post, 110 project news, 12 press release, 267 media appearance in Hungary, 71 news at the Hungarian Beneficiaries websites, 167 media appearance by APMSM, 84 by Milvus)

- Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
DVD – project film (Deliverable)	31/10/2018	-	30/06/2019	Production of films completed, dvd copies cancelled

- Annexes to the current report:
 - E7_1 Project logos
 - E7_2 Media appearances in Hungary
 - E7_3 Media appearances in Romania
 - E7_4 Media statistics

E.8 Technical communication of project results

- Description of actions:

Conferences have been selected based on the potential professional participants and the expected quality. Another criterion was the logistical availability of the location (by car) and to select topics that are familiar with Roller habitats or Roller conservation problems (eg. migration losses, agro-environmental issues).

The project was presented and the project colleagues visited the following events/articles:

CONFERENCES

- The Kick-off meeting in Budapest, (presentation)
- LIFE projects fair, Prague 04.28.2016 (presentations)
- IX. Magyar Természetvédelmi Biológiai Konferencia, Szeged, 20-23.11.2014 (presentation)
- VI. International Bio-logging Science Symposium, Lake Konstanz, Germany, 22-27.09.2017 (presentations)
- 11th European Ornithologists' Union Conference, Turku, Finland, 18-22.08.2017 (poster)
- VII. Tájökológiai Konferencia, Szeged, 25-27.05.2017 (poster)
- XI. Magyar Természetvédelmi Biológiai Konferencia, Eger 2-5.11.2017 (poster)
- 11. Magyar Ökológus Kongresszus, Nyíregyháza 28.08.2018 (poster)
- Migrant Landbird Study Group Symposium, Cluj-Napoca, August 24th-25th, 2019 (presentation)
- 12th European Ornithologists' Union Conference Cluj-Napoca. August 26-30, 2019. (poster)
- International Conference of Life Sciences, Section „Trends in European Agriculture Development. Timisoara, May 23-24, 2019 (poster)
- XII. MTBK Műhelytalálkozó, Igazságügy és természetvédelem Kecskemét, 2019. április 4-5. (poster)

SCIENTIFIC PUBLICATIONS

- Orsolya Kiss, Béla Tokody (2017) Distribution, population changes and conservation of the European Roller (*Coracias garrulus*) in Hungary, *Aquila* (2017), Vol. 124, p. 75–90
- Orsolya Kiss, Béla Tokody, Tünde Ludnai, Csaba Moskát (2017) The effectiveness of nest-box supplementation for the conservation of European Rollers, *Acta Zoologica Academiae Scientiarum Hungaricae* 63(1), pp. 123–135
- Tom Finch, Jamie Dunning, Orsolya Kiss, Edmunds Račinskis, Timothée Schwartz, Laimonas Sniuksta, Otto Szekeres, Béla Tokody, Aldina Franco, Simon J. Butler (2016) Insights into the migration of the European Roller from ring recoveries, *J Ornithol* DOI 10.1007/s10336-016-1374-y
- Orsolya Kiss, Zoltán Elek, Csaba Moskát (2014) High breeding performance of European Rollers *Coracias garrulus* in heterogeneous farmland habitat in southern Hungary. *BIRD STUDY* 61:(4) pp. 496-505.
- Kiss Orsolya (2014) Evaluating prey preferences of an insectivorous bird species based on different sampling methods. *Review on agriculture and rural development* 3:(1) pp. 303-308.
- Orsolya Kiss, Béla Tokody, Balázs Deák, Csaba Moskát (2016) Increased landscape heterogeneity supports the conservation of European rollers (*Coracias garrulus*) in southern Hungary, *Journal for Nature Conservation* 29 p 97–104
- Tokody B., Butler S.J., Finch T., Folch A., Schneider T.C., Schwartz T., Valera F., Kiss O. (2017): The Flyway Action Plan for the European Roller (*Coracias garrulus*)
- Kiss, Orsolya; Tokody, Béla; Nagy, Károly; Végvári, Zsolt: Potential enlargement of the European roller' breeding range in the Carpathian Basin *JOURNAL FOR NATURE CONSERVATION* 57 p. 125841 Paper: 125841 (2020)
- Kiss, Orsolya; Catry, Ines; Aviles, Jesus M.; Barisic, Sanja; Kuzmenko, Tatiana; Cheshmedzhiev, Svilen; Marques, Ana Teresa; Meschini, Angelo; Schwartz, Timothee; Tokody, Bela et al. Past and future climate-driven shifts in the distribution of a warm-adapted bird species, the European Roller *Coracias garrulus* *BIRD STUDY*, 17 p. (2020)

PRESENTATIONS

Event, location	Date	Estimated no. of participants
MME Szalakótavédelmi Munkacsoport, Szatymaz	11.08.2014	68
Tatai Vadlúdsokadalom	11.19.2014	75
MME Elnökségi Ülés, Budapest	03.13.2015	15
Túrkeve, XIII. Természetvédelmi Szeminárium	03.24.2015	58
Sólyomcsalogató, KMNPI, Szarvas	02.28.2015	74
Országos Gyűrűzótalálkozó, Budapest	03.21.2015	47
MME Békés Megyei Hcs, Orosháza	10.15.2015	11
TT-Ülés, Budapest	11.20.2015	48
Roller Workshop, Jászberény	12.11.2015	29
MME Csongrád Megyei HCS, Szeged	01.22.2016	47
Országos Gyűrűzótalálkozó, Budapest	03.19.2016	39
Kolon Kávéház, Izsák	04.18.2016	35

Természetvédelmi Nap, Csongrád	11.17.2016	42
TT-Ülés, Budapest	11.19.2016	47
KNPI, Kecskemét	11.28.2016	39
International Roller Conference, Kecskemét	01.19.2017	78
MME Beretzk Péter Munkacsoport, Szeged	06.19.2017	25
International Roller Workshop, Ludas, Serbia	10.18.2017	36
Roller Workshop, Felsőtárkány	11.28.2017	28
TIK-SZTE, Klebersberg Kuno Könyvtár, Szeged	10.16.2018	17
JBO (The Nili and David Jerusalem Bird Observatory)–Jerusalem	03.05.2019	11
Vulture Centre Eastern Rhodopes, Madzharovo, Bulgaria	06.26.2019	6
International Roller Workshop, Ludas, Serbia	10.19.2019	34
Kétútköz, Graefl-major, BNPI	11.15.2019	65
Pallavichini Kastély, Sándorfalva	09.08.2020.	34

Unfortunately the events planned in 2020 have been cancelled due to COVID-19 pandemic risks.

- Reactions and feedback:
 - Presentations gained interest mostly by the reason of the species or the overlapping problems with species of these habitats. The most discussed topics were connected to the effects of the agro-environmental changes on species and habitats.
- Quantitative indicators:
 - planned: attendance on 4 EU conferences (European Congress of Conservation Biology, International Ornithological Congress, European Conference on Ecological Restoration 2018, Open Landscapes Conferences), 20 presentations or posters on workshops on national conferences, 5 scientific publications
 - achieved: 11 conferences, 9 scientific publication and 25 presentations or posters
- Annexes to the current report:
 - E8_1 Posters, publications

E.9 Update the International Species Action Plan

- Description of actions:

KNPD and MME held a conference between 19-21st January, 2017 (the documentation was handed in with the 1st Mid-term Report). 68 participants attended from 27 countries and they discussed the primary threatening factors and the international issues of the species. The presentations and their recordings are available online (<http://rollerproject.eu/hu/content/nemzetkozi-fajvedelmi-terv-konferencia-2017-kecskemert>). The same event was used to develop the first draft of the Flyway Action Plan of the species

which is ready and was adapted at the 12th Meeting of the Conference of the Parties (Manila, Philippines, 23-28. October 2017.)

The final work version of the ISAP has been spread for comments among the international experts in May, 2020. The final document has been handed to the Ministry of Agriculture as well and has been sent to the Habitat Committee.

○ Reactions and feedback:

The final document is a product of an international expert group of 80 people from 27 countries who actively participated in every stage of the action. Both the workshop and the final document received positive feedback from the participants.

○ Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Meeting of country representatives (Milestone)	30/09/2018	-	19-21/01/2017	Completed, reported with the 1 st Mid-term Report
International Species Action Plan (Deliverable)	31/12/2018	31/08/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	31/08/2020	Completed

○ Complementary action outside LIFE:

The expert group established under the project action has developed the first Flyway Action Plan of the species with the coordination of MME which was adapted at the 12th Meeting of the Conference of the Parties (Manila, Philippines, 23-28. October 2017.)

○ Annexes to the current report:

- E9_1 Documentation of the ISAP conference
- E9_2 Flyway Action Plan for the European Roller
- E9_3 Updated International Species Action Plan for the European Roller (deliverable)

E.10 Promote bird friendly electric pylon design

○ Description of actions:

After assessing the pylon types and insulation methods MME started to prepare the technical brochure and the presentation materials.

After consultations with the involvement of representative professionals of the national power companies the trainings were re-scheduled between May and June 2019, in Szeged at the regional office to reach as many stakeholders as possible. The first event was held with a delay, in 21st September, 2019 with 9 participants where the presentations were followed by an open discussion.

After submitting the request to the EC about the project extension we agreed with the TDO/TMO to modify the milestone “Workshops and trainings completed” by 30/06/2020. The events were scheduled with the 4 regional offices of NKM between April and May. Unfortunately the COVID-19 pandemic caused further delays in rescheduling these events, since personal meetings have been banned. The staff agreed on preparing an online material for the electric companies that can be spread among their colleagues. The result was a series of online presentations with audible explanation, the 7 episodes can be found here: https://www.youtube.com/playlist?list=PLpISPejBNAbx-Z3s6bSN75IFfDg_r1Lgw. The playlist have been sent out to 3 electricity companies (EON, ELMŰ, NKM) and to KVGY company which is one of the producer of insulators in the country.

Additionally, an online presentation was held on 25th September, 2020 on the week of occupational safety at EON company with 77 participants from 13 different regions.

The staff decided to prepare the planned technical brochure in pdf format to keep it available on the website and update if necessary. We did not produce hardcopies, since we could not hand them out personally in the events.

The conflict maps have been prepared about the studied powerlines, the found Roller and other bird electrocutions.

o Time schedule

Output name	Foreseen deadline	Revised deadline	Achieved by	Status
Monitoring of insulations to get baseline data for the conflict map (Milestone)	31/03/2016	modified to annual monitoring under action D.4		Completed
Conflict map of bird electrocutions (Deliverable)	31/03/2016	31/03/2020 re-planned in the I.MTR	31/08/2020	Completed
Workshops and trainings completed (Milestone)	31/03/2017	30/06/2020 revised with the TDO/TMO when the details of the extension of the project period have been discussed	-	Not achieved

o Annexes to the current report:

- E10_1 Final conflict maps of bird electrocution (deliverable)
- E10_2 Documentation of workshops and trainings
- E10_3 Technical brochure

5.3. Evaluation of Project Implementation

Methodology applied in the project: The technics used are state of the art solutions, most of cases involves the leading experts and the most advanced solutions of the related fields. We had some difficulties with unexpected natural processes eg. woodpeckers seem not to use the natural cavities – see in action action A.1 and C.4. At least in the study site the regional (landscape scale) availability of natural cavities does not directly influence the number of breeding rollers. This fact had to be carefully evaluated in the Action Plans of the species under the threat of conservation dependency. Action C.8: Rollers possess the agility of the famous showman Houdini and can “escape” from the harnesses, if this lateres are not set tightly enough. As captive testing was not an option, one had to be careful when deploying the first devices and give time to observe and evaluate the first harnesses made.

Action C.1/C.2/C.5/E.3: All public beneficiaries have to be very careful when planning actions targeting subcontracted works or procurements over the limit of national public tendering. Regular changes in the legal background, very complicated tendering processes and the change of market environment due to the elapsed time can seriously delay the implementation of the affected actions. We proposed to hire special subcontracted staff for the procurements of such complex activities.

Some not foreseen changes were taken outside the scope of the project (eg. the legal background changes of procurements in both countries). This caused delays in the implementation, but the planned results were still achievable and in harmony with the planned goals and the objectives set up in the proposal.

The effectiveness of the dissemination is judged to be satisfactory, number of participants in project events and the drawbacks of stakeholders indicate.

Please find the achieved milestones and deliverables under the technical actions descriptions where we compare the results achieved until reporting date against the objectives of the proposal.

Task	Foreseen in the revised proposal	Achieved	Evaluation
A1/ Habitat and management guidelines for Roller priority areas in Hungary and Romania	Habitat and forest management guidelines will be elaborated and delivered to the concerning authorities.	Habitat and forest management guideline has been prepared in both countries.	Habitat and forest management guideline were prepared based on 3 study sites monitoring in both countries and includes recommendations for stakeholders. The online availability helps spreading the materials in the future as well.
A2/ Assessment of existing breeding opportunities, handbook of nest	All nestboxes mapped in the first field season, suitable habitats for nestbox mounting identified	Handbook in 3 languages produced, survey of suitable nestbox places,	The objectives are fully achieved and realized.

box-installation methods		study of potential range expansion of the species prepared, baseline data determined.	
A3/ Elaborate National Action Plan for the species	NAP for <i>C. garrulus</i> will be prepared and submitted to the relevant authorities and approved by the end of the project.	A national working group has been set up in 2018 on the 2-days workshop in Felsőtárkány. The NAP was prepared and submitted to the Ministry after consultations In January, 2020. The ministry approved the NAP by the end of the project and will secure its implementation.	The objectives are fully achieved and realized.
A3/ AES review and policy recommendation of Roller habitat management	A complex agri-environmental policy recommendation in favour of the Roller incorporated to and submitted together with the National Action Plan for the species.	The planned document of policy recommendations and review of AES prepared with a slideshow for farmers.	The works have been subcontracted, the subcontractor prepared both documents and the conclusion has been incorporated to the National Action Plan.
A4/ Elaborate monitoring schemes and training of participants	Monitoring plan will be prepared for all SPA project sites and used under action C.4. and D.2, 3 trainings will be organized for project staff and volunteers by MME.	A detailed monitoring plan has been developed and used in the monitoring. Altogether 6 trainings were held for the project participants, 4 in Hungary and 2 in Romania	The objectives are fully achieved and realized.
A5/ Develop the business plan for the Roller Visitor Centre	The business plan and the management study will be prepared by a consultant	The preparation of the business plan of the Visitor Centre has been subcontracted to	The objectives are fully achieved and realized.

	subcontractor hired by MME in the first year of the project.	an external company. After several meetings and consultations the business plan was prepared.	
C1/ Restoration of steppe habitats	Restore 205 ha of steppe habitat owned by the state and maintained by Kiskunság National Park Directorate.	The habitat reconstruction works have been implemented with modification set up in the permission of the local authority. Grazing started as planned in 2016, however the reconstruction ended up only by 23/04/2019.	The total grazed area didn't change according to the planned and the treatment started in time. However the received permission limited the reconstruction works and reduced the length of eliminated dams by 2640 meters. Moreover 2 old closing-water constructions have to be remained in place. Despite the delays and changes the overall goal of the action was fulfilled.
C2/ Restoration of wooded pastures	177 hectares wooded pastures to be established in the favour of Roller and total biodiversity of the sites to be increased.	Elimination of invasive trees on 113 ha, grassland reconstruction on 35 ha, plantations on 0,7 ha	The habitat complex on 177 hectares received the treatments as planned. The 35 ha grassland reconstruction will be involved to the grazing when the vegetation will be fully growth (in 2 years).
C3/ Management of riparian forest	105, 17 ha riparian forest will be transformed to suitable Roller breeding and foraging habitat with the elimination of invasive trees, plantation of native tree species and establishment of meadows.	The elimination of invasive trees and the establishment of meadows were completed as scheduled. Plantation of native tree species was successful, except the area Csanytelek 3B where due to the water level no plantations have been implemented.	The open forest habitat would be suitable as nesting place for roller. Therefore forestry works are judged to be successful. However the long term grazing of the dam area in the whole Tisza river basin would be the suitable solution to enhance the return of roller breeding pairs to this former habitat.
C4/ Create nesting sites in	2280 new artificial nestboxes to be	2320 new artificial	The action was completed as planned. The number

Hungary	installed within project SPA sites. Another 100 artificial cavities will be made by manual method drilling older trees in the Alsó-Tiszavölgy SPA (HUKN10007).	nestboxes installed, 65 woodpecker cavities inspected	of roller breeding pairs outperformed all expectations and previously planned indicators. EC kindly approved to convert the manual drilling to woodpecker monitoring.
C4/ Create nesting sites in Romania	800 nestboxes (wooden-concrete) installed within the Romanian project SPAs on trees, power-lines (isolated first through C.7) and wooden poles erected through action C.5	Altogether 916 nestboxes (776 wooden + 140 wood-concrete) installed within the Romanian project SPAs: wood-concrete nestboxes were placed on thick high-voltage concrete power-lines, medium voltage poles (isolated first through C.7) and decommissioned poles. The timber nestboxes were mounted mainly on trees, thin diameter concrete poles or wooden poles erected through action C.5.	The action was completed as planned. The number of roller breeding pairs outperformed all expectations and previously planned indicators.
C5/ Plantation and maintenance of forest patches in Hungary	Borsodi-sík SPA (HUBN10002): 38300 m long tree lines (that form a total of 80 ha forest patches) will be planted. Hevesi-sík SPA (HUBN10004): 5 new forest patches (altogether 2 hectares) will be planted Alsó-Tisza-völgy SPA (HUKN10007):	BNPD achieved the planned indicator numbers with 38344 m long tree lines on 80,5 ha (HUBN10002), 5 forest patches planted (HUBN10004) KNPD: 5 forest patches planted with the targeted total coverage 4,5 ha	Plantations were finished as planned in BNPD, the survival rate was 42% in case of tree line Borsodi-sík and 57% in case of forest patches in Hevesi sík SPA. KNPD: the plantation finished by 30/04/2020. The delay was caused by procurement and permitting difficulties. The total area of planted forest patches didn't

	7 new forest patches, - altogether 4, 5 ha – and a tree-of line will be planted in the treated project site		change but the number of locations was reduced by 2 places where permits were not available. The success rate of trees in the plantations was 50% on average.
C5/ Plantation and maintenance of forest patches in Romania	3000 solitaire trees to be planted 50 small forest patches (0,04 ha each) to be planted and 200 wooden poles erected	3006 trees in 19 forest patch planted by Milvus 50 small forest patches (0,04 ha each) planted and 200 wooden poles erected by APMSM	The overall performance of the action was as planned. APMSM faced difficulties in the public tendering procedure but this did not affect the implementation significantly. The survival rate of solitaire trees was the lowest in this region with 25%, the trees planted in forest patches had 45% survival rate according to the monitoring data.
C6/ Farmers for Roller Program	HU 15 forums, 60 farmers, RO: 8 meetings, 40 farmers	HU: 106 farmers involved, BNPD 5 forums, MME 7 forums, RO: 40 farmers, 3 forums	The objectives are fully achieved and realized. The direct benefits (planted trees, installed nestbox, T-woods placed) made this action especially useful for the conservation of the species and provided a possible new way to plan sustainable future actions.
C7/ Insulate dangerous pylons	1000 medium voltage pylon will be isolated.	1011 medium voltage pylon isolated.	The objectives are fully achieved and realized. The monitoring data proved the isolation successful in the reduction of bird mortality.
C8/ Reveal threats during migration/wintering	Rollers' migration route and wintering places and stopover sites will be discovered. Maps and regular information provided for the website (E.6), for news in the media (E.7) and	The migratory route, the wintering ground and the general individual pattern were described. The planned conservation output was achieved.	The objectives are achieved and realized. The high mortality of tagged birds (PTTs), the low recapture rate of roller equipped with geolocators reduced the overall availability of data. However this fact is not unusual when

	<p>for scientific basis of the conservation planning (action E.8 and E.9). Threats will be assessed throughout the targeted migratory flyways, first local initiatives against relevant threatening factors will start. Public awareness will be increased significantly.</p>		<p>research methods are used for the first time in the field and this have no impact on the conservation output of the action.</p>
<p>C9/ Control activities to identify and proceed against illegal logging</p>	<p>Map (GIS layout) of all lonely trees, tree-patches and tree-lines which are suitable as nestsite for Roller in the selected areas. Evidences on illegal tree logging activities are gathered for reporting them to authorities.</p>	<p>Standard routes selected in 4 project SPAs from western Romania, all the trees identified and located by GPS.</p>	<p>The objectives are fully achieved and realized. Very few cases were detected and only one police investigation was initiated. This fact underline that human activity is not limiting the availability of trees and further projects shall put all efforts to plantations instead of patrolling.</p>
<p>D1/ Monitoring of habitat reconstruction actions</p>	<p>This action is necessary to evaluate the impact of reconstruction actions (C.1, C.2, and C.3).The results of the monitoring will provide information about the impact of action C.1., C.2. and C.3. The results of evaluation will provide information to the demonstration action under action E.1 and solid scientific information to action E.7.</p>	<p>The botanical and prey taxa monitoring and the individual tracking of rollers in their home-range was performed as planned. Only natural cavities were used for breeding in C3 area, therefore we couldn't catch resident rollers. Due to the delays in treatments the monitoring of C1 sites was performed in 2020. We tagged 27</p>	<p>Usually plants and animals need more time to adapt to changes after habitat reconstructions. Monitoring of such interventions should take place after years, or even one decade. Despite the short time available the results didn't show negative effects and from one year to other the home range of the tagged rollers remained more stable in treated sites, compared to control sites.</p>

		adults with GPS loggers and analysed their home range changes related to the treatments.	
D2/ Monitoring of Roller population	The impact of project actions can be evaluated. The expected occupancy rate and therefore the targeted 120% increase in population sizes will be sufficiently justified by the data collected.	HU: 162 % population growth achieved. RO: The entire roller population size of the targeted areas showing a 326% increase during the project. This population growth is evident for both, birds breed in SPAs (308%) and those breed in the buffer zones (370%) too.	The adaptive power of the species to fill in new habitats with available nest sites is amazing. Results are much better than previously anticipated. The long term carrying capacity of the habitats in the CB will be followed in the next years to evaluate the real effect of the action.
D3/ Assess the socioeconomic impact of the project actions	Study containing an assessment of the socio-economic impact of the project actions on the local economy and population, as well as on the ecosystem functions delivered with the Final Report.	The final study is ready with the evaluation of awareness raising activities and the filled questionnaires.	According to the study the management practices are beneficial to provide better ecosystem services in a sustainable manner. The area supports climate regulation services; cultivated goods and recreation and aesthetic benefits. The multi-annual survey has found that AES is perceived beneficial for nature conservation, employment and economy and there is a positive attitude toward sustaining AES practices.
D4/ Monitoring of the electric pylon insulation	In Hungary: assess mortality caused by electrocution in 2015 and 2019. In Romania: evaluating the effectiveness of powerlines isolated under action C.7.	In Hungary we monitored 6735 pylons and incorporated the data to the digital early warning system (totem). In Romania we insulated 1011 pylons.	The objectives are fully achieved and realized.

<p>E1/ Demonstration of foraging habitat management techniques for stakeholders</p>	<p>Demonstrative workshops: a, Steppe habitat reconstruction 5 events with 400 participant b, Wooded pasture reconstruction: 2 events with 125 participants c, Management of dam, riparian meadows and the following forest: 5 events with 400 participants</p>	<p>Demonstrative workshops: a, Steppe habitat reconstruction 2 events with 66 participant b, Wooded pasture reconstruction: 2 events with 113 participants c, Management of dam, riparian meadows and the following forest: 4 events with 165 participants</p>	<p>Due to the COVID-19 pandemic we couldn't realize the planned number of personal meetings in the final year of the project. Usually demonstration is based on results and the last year of the project is very important to reach the planned indicators. However we made our bests to increase the awareness raising with online solutions (youtube videos, online presentations etc., see later).</p>
<p>E2/ Prevent tree logging on Natura 2000 sites in Hungary</p>	<p>Map (GIS layout) will be prepared of all lonely trees, tree-patches and tree-lines which are suitable as nest-site for Roller in the project sites, 16 meetings will be organized for stakeholders, 2000 brochures will be printed about Natura2000 network.</p>	<p>16 meetings held, brochures prepared (3000 copies)</p>	<p>The objectives are fully achieved and realized.</p>
<p>E2/ Prevent tree logging on Natura 2000 sites in Romania</p>	<p>30 meetings will be organized in Romania. Presentation will be held for the youth in 90 schools. 3000 brochures and 3000 leaflets will be printed and distributed about Natura 2000 and the European Roller.</p>	<p>26 meeting/event + 3 online, presentation in 108 schools, 3000 brochures and 3000 leaflets about Natura 2000 and the European Roller printed and distributed</p>	<p>Despite the serious pandemic situation in Romania in 2020 the reached numbers are comparable or even higher as planned.</p>
<p>E3/ Roller Visitor Center</p>	<p>Opening a Visitor Centre with accommodation, an exhibition and conference room, host more than 5500</p>	<p>Altogether 3862 visitors and 4869 viewers on the dedicated youtube channel.</p>	<p>The delay in the refurbishment works of the infrastructure, the Roller Visitor Center couldn't open until 31st December, 2018.</p>

	visitors till the end of the project.		The pandemic situation forced us to close for the spring and increase the number of visitors with virtual visitors on youtube.
E4/ Produce and erect notice boards and educational trail at project sites	In Hungary: 18 notice boards, 2 educational trails, 1 online camera system In Romania: 30 information boards	In Romania: 30 informational boards erected in 15 SPAs In Hungary: 18 LIFE project notice boards installed in project SPAs, 2 educational trails established. Both educational trails have been improved: trail at HUKN10007 has an extra small-trail about birds of reedbeds, trail at HUBN10002 includes birdhides, watchtowers and an outdoor educational room.	The objectives are fully achieved and realized.
E5/ Produce communication materials	Materials will be disseminated continuously in the Roller Visitor Centre (E.3), on workshops (C.6, E.2), and on specific educational programmes organized for schools and kindergartens. The products will reach minimally 50 000 people, with a special emphasis on children and students.	Based on the number of PR materials produced and disseminated, we reached at least 50 000 people on the different events.	The objectives are fully achieved and realized.
E6/ Develop and maintain project website, produce	Producing and maintaining a regularly updated	The website was developed and updated regularly.	The objectives are fully achieved and realized.

Layman's report	trilingual website, and a Layman's report in both paper and electronic formats in 3 languages (HU: 2000, RO: 1000, ENG: 300)	We also established a page on Facebook to reach further stakeholder groups. The report has been prepared and is available on the website. The proposed numbers were printed on all 3 languages and hardcopies are disseminated.	
E7/ Ensure continuous media coverage of the project	3 press conferences, ca. 100 press releases, appearances in the most relevant TV and radio channels, and printed and online journals (>1000 media reports), producing a 50 min. film and 10x2 min. shortfilms disseminated on DVDs (2000 copies) and on TV channels	122 webpage articles and press releases altogether, 3 press conferences, 5 various length (4-7 min) short films and a 32-min documentary, 1024 media outputs.	The objectives are fully achieved and realized. We cancelled the production of dvd copies of the films, this has been discussed with the TMO on a mission as well.
E8/ Technical communication of project results	3 presentations or posters on international conferences 20 presentations or posters on workshops and national conferences 5 scientific publications	11 conferences, 9 scientific publication and 25 presentations or posters	The objectives are fully achieved and realized.
E9/ Update the International Species Action Plan	Produce the Updated International Species Action Plan of European Roller	International Species Action Plan of European Roller updated.	The objectives are fully achieved and realized.
E10/ Promote bird friendly electric pylon design	4 workshops and 12 trainings, technical brochure, conflict map	We prepared the conflict map. After several delays and 1 presentation in 2019 the pandemic has	The planned objectives were partly achieved or transformed into online materials that can be used in the future as well, which can be further spread among field

		<p>rewritten our plans and the presentations had to be held online. 1 online presentation was held in September, 2020, and by the reason of difficulties in organizing the events a series of online presentations (7 pcs) has been filmed, uploaded to youtube and sent out to the concerned electric companies for further spread.</p>	<p>personnel or other staff at the electric companies.</p>
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5.4. Analysis of long-term benefits

5.4.1. Environmental benefits

- a) Direct / quantitative environmental benefits: The Carpathian Basin holds the core population of European roller in the eastern part of the European Union. The project directly improves 727589 hectares of Natura 2000 key habitat (1530 "Pannonic salt steppes and salt marshes and 6250 "Pannonic loess steppic grasslands") and indirectly the other habitats surrounding. Tree plantations are implemented all over this area and altogether 3236 nestbox were already installed in the project sites. Additional site related specific treatments and habitat reconstructions are to be taken place on altogether 487 hectares (actions C.1, C.2, C.3).
- b) Policy: European rollers are top predators of various invertebrate taxa. The viability of roller population can be used as general indicators of agro-biodiversity of these habitats. Therefore Roller is used as flagship species in the conservation of open lowland habitats of the EU. The development ISAP has primary importance (see action E.10) and we are also committed to help the cross-border conservation of the species. When CMS launched the African-Eurasian Migratory Landbirds Action Plan (AEMLAP) process and Roller has been chosen as flagship species. We are proud to participate to the development of the Flyway Action Plan and host the event in January 2017 together with the scheduled international conference under action E.10. The complex agri-environmental policy recommendation for the protection of European Roller is submitted to the Ministry of Agriculture (MoA) (see action A.3). As MoA is the responsible governmental body for the planning of Common Agricultural Policy Strategic Plan for the 2021-2027 budget period, there is a high

chance to mainstream the recommendations of the project to the zonal agri-environmental measures of High Nature Value Areas.

5.4.2. Long-term benefits and sustainability

- a) Long-term / qualitative environmental benefits: European rollers are easily accepted by citizens and stakeholders as target species of conservation efforts. The migratory behaviour of rollers helps to build the network of conservationists working together in daily basis. This later may have an outmost importance in the future to make further concrete steps on the way designated by international policies, acts and climate mitigation processes.
- b) Long-term / qualitative economic benefits: Natural value of economically less developed regions is usually higher. Rollers inhabit this unfavourable regions where industry, commerce and profit oriented sectors are less active. The restoration of biodiversity function of such habitats and the development of the traditional agriculture through agricultural policies may help to stabilize the economic viability of these regions.
- c) Long-term / qualitative social benefits: The project itself gives work to local workers as subcontractors. We also aim to develop a more nature friendly view of farmers. We are especially proud to give work to a high number of woman, mainly as administrative/office staff.
- d) Continuation of the project actions by the beneficiary or by other stakeholders: The beneficiaries are committed to continue the project actions. To help this goal we built the actions to achieve a self-sustainable stage at the end of the project period. All necessary commitment is provided in the After-LIFE Conservation Plan annexed to the final report of the project.

5.4.3. Replicability, demonstration, transferability, cooperation:

Generally we tried to document all aspects of our conservation efforts. We are in close relation with NGOs and state agencies working in the field of conservation. All our protocols, the regular update of events, the achieved goals (eg. technical reports) are refreshed in 3 languages on our website, rollerproject.eu. We submitted scientific publications to ensure the high quality and the replicability of our work. The Layman's report of the project summarizes also the less specific project actions to allow the dissemination of results also for the wide public.

5.4.4. Best practice lessons learned by the half of the project:

We summarized the best practice of nest site creation methodology and monitoring for the species in action A.2. We proposed guidelines for forest management in Roller key SPAs in action A.1. We compiled the National Action plan in Hungary (action A.4) and the Update of the International Species Action Plan for the Species (action E.10).

5.4.5. Demonstration value of the project:

The project agricultural and forestry treatments, the wide range of habitat restoration methodology were demonstrated to stakeholders (actions C.1, C.2, C.3, C.6, E.1). People are always fascinated by the nature, especially bird migration and new technologies making the demonstration of the results easier (actions C.8, E.6, E.8).

Demonstrative presentations to stakeholders helped to prevent tree-logging in Natura 2000 sites (action E.2), promote bird friendly infrastructure for electric pylons (action E.10). The refurbished Roller Visitor Centre will serve for long after the project period to demonstrate nature conservation projects, methods, goals and results in the region of Szeged, Hungary.

5.4.6. Long term direct indicators of the project success are the number of breeding pairs of European roller in the project area, and the Carpathian Basin. The nearly two fold increase experienced in the project period is exceptional. Due to the large number of wooden concrete artificial nests this result can be maintained with low recurring conservation cost. The After-Life conservation Plan of the project describes in details the tasks, budget and source of each necessary actions. The low number and low cost of such actions, the partnership of national agencies secure the long term sustainability of project results.

6. Comments on the financial report

6.1. Summary of Costs Incurred

As shown in the expenditure summary table, the overall project expenditure from 01/09/2014 to 30/09/2020 is 4 860 590 € which is cca. 96% of the originally planned total budget, consisting both the EC and own contributions. The first, the second and the third pre-financing payments have been received, adding up to 3 027 657 €.

The direct income at Dalerd Ltd. is 37 856 € and MME realized 13 682 € as interest on pre-financing. The received and expected EU contribution of the project Beneficiaries is 3 597 644 €. Thus project income calculated together with the direct income realized by the Associated Beneficiary Dalerd Ltd. is in total 3 649 182 €. Further breakdown: total contribution of the Associated Beneficiaries was 695 570 € (14,3 %), other sources of funding was provided by the Ministry of Agriculture, Hungary (497 745 €, 10,2%), and the contribution of the Coordinating Beneficiary was 17 860 € (0,4%).

By the reason of bureaucratic difficulties some budget items had to be moved from the ABs to the CB in Hungary.

The details of these are the following:

From KNPD:

MME reallocated from KNPD the followings: installation of geolocators 3000 € under action C8, renting bus at the ISAP Conference 300 € under action E9, accommodation and catering at the ISAP Conference 865 € under action E9. This was approved by the EC in e-mail via TMO on 11/04/2017 and 15/02/2017. MME reallocated 2800 € from KNPD to erect notice boards under action E4. This was approved by the EC after the Inception Report in letter Ares(2015)3400017.

In consumables cost category MME reallocated the following items from KNPD: action C4 - purchasing nestboxes 40 000 €, action C6 - purchasing "T" perching poles 1050 €, purchasing Barn Roller nestboxes 3000 €, action C8 – purchasing geolocators 4500 €. The reallocation of nestbox procurements was 43 000 € in total which resulted in the modification of the Partnership Agreement which was handed in with the 1st Mid-term Report.

From BNPD:

Purchasing of geolocators was reallocated also from BNPD, 3000 € under action C8. This was approved by the EC in e-mail via TMO on 15/02/2017.

BNPD moved 1500 € from their budget line C6/Consumables/1000 pieces to MME. MME planned to produce a field bird guide for farmers and the extra amount (approx. 750 pcs) from this 1500 € have been spread among the farmers at BNPD. This was approved by the EC in e-mail via TMO on 25/04/2017.

Budget reallocations between cost categories are presented by action number and by cost categories in the tables inserted to chapter 6.5 of this document. Here we provide the rate of incurred/approved budget.

PROJECT COSTS INCURRED				
Cost category	Budget according to the initial grant agreement	Budget according to the modified grant agreement	Costs incurred within the project duration	%**
1. Personnel	1 393 555 €	1 383 565 €	1 449 593 €	104,7 %
2. Travel	374 950 €	374 950 €	306 612 €	81,7 %
3. External assistance	1 355 395 €	1 109 695 €	938 391 €	83,5 %
4. Durables: total <u>non-depreciated</u> cost	881 735 €	1 257 425 €	1 332 432 €	105,9%
- <i>Infrastructure sub-tot.</i>	181 120 €	581 820 €	692 188 €	118,9 %
- <i>Equipment sub-tot.</i>	700 615 €	675 605 €	640 244 €	94,7 %
- <i>Prototypes sub-tot.</i>	0 €	0 €	0 €	-
5. Consumables	609 630 €	489 630 €	437 066 €	89,2 %
6. Other costs	114 648 €	114 648 €	78 938 €	68,8%
7. Overheads	316 184 €	316 184 €	317 558 €	100,4 %
TOTAL	5 046 097 €	5 046 097 €	4 860 590 €	96,3%

*) If the Commission has officially approved a budget modification indicate the breakdown of the revised budget. Otherwise this should be the budget in the original grant agreement.

***) Calculate the percentages by budget lines: e.g. the % of the budgeted personnel costs of the modified grant agreement that were compared to the actually incurred costs.

As illustrated the 10% rule of major cost categories was mostly respected in the project. The 19% (cca. 110.000 €) increase of sub-category infrastructure derived from two facts. First the Public beneficiaries had to re-categorize expenses between Infrastructure, Equipment and Consumables cost categories to follow the changes in the national accounting rules. The foreseen budget lines have been modified with the Grant Agreement but due to the prolongation of the project end we still had to move some of these in the final stage of the project without reporting. Second, the expenditures related to the additional infrastructure (watchtower, additional guiding tables, playground, pavilion, fence, entrance roof) of the Roller visitor Centre (action E3) increased significantly (with cca. 57000 EUR) due to the extended content and quality. We provide detailed explanation under the budget of KNPD in chapter 6.5 of this document.

The overall incurred cost of C actions (calculated here simply as direct conservation cost) was 2 523 518 €, 52 % of the total incurred direct costs of the project.

The following exchange rates published by the European Central Bank were used to calculate the budget lines of Hungarian Beneficiaries in each year respectively:

Year	Exchange rate
2014	298,63
2015	318,75
2016	315,39
2017	309,45
2018	308,59
2019	322,37
2020	329,98

Public beneficiaries fully respected the 102% rule in case of the calculation of personnel cost and their own contribution.

Budget items	Budget according to the modified grant agreement		Incurred budget		Variation eligible costs	
	Total eligible costs in € [A]	% of total eligible costs [B]	Total eligible costs in € [C]	% of total eligible costs [D]	In € [E=C-A]	In % [F=(E/A)*100]
1. Personnel	1 383 565 €	27,42%	1 449 593 €	29,82%	66 028 €	4,77%
2. Travel and subsistence	374 950 €	7,43%	306 612 €	6,31%	-68 338 €	-18,23%
3. External assistance	1 109 695 €	21,99%	938 391 €	19,31%	-171 304 €	-15,44%
4.1. Infrastructure	581 820 €	11,53%	692 188 €	14,24%	110 368 €	18,97%
4.2. Equipment	675 605 €	13,39%	640 244 €	13,17%	-35 361 €	-5,23%
5. Land/rights purchase/lease	- €	0,00%	- €	0,00%	0 €	0,00%
6. Consumables	489 630 €	9,70%	437 066 €	8,99%	-52 564 €	-10,74%
7. Other	114 648 €	2,27%	78 938 €	1,62%	-35 710 €	-31,15%
8. Overheads	316 184 €	6,27%	317 558 €	6,53%	1 374 €	0,43%
Total	5 046 097 €	100,00%	4 860 590 €	100,00%	-185 507 €	-3,68%

There is an overall 3,68 % underspending in the project which is reasonable for such a long and complex project.

6.2. Accounting system

Project partners have established their own separate system for managing finances exclusively for the project. Every beneficiary used a definite code which ensured that these costs are easily tracked within the accounting system.

The codes are the following:

- APMSM: Personnel: 123, Travel: 128, Invoices: 125, Payments: 124
- Dalerd Ltd: 7170107 (expenses) and 47502 (advance)

- Milvus Group: 112
- BNPD: LI04 (project), sources: LIFE: 105, MoA: 1012, MoA residual: 0041, BNPD: 107, BNPD residual: 0047
- KNPD: LIFE: SZALAKÓTA LIFE+EU, MoA: SZALAKÓTA LIFE+, own source: SZALAKÓTA LIFE +
- MME: Personnel: 81-190001, Travel: 81-190002, External: 81-190003, Equipment: 81-190004, Land purchase: 81-190005, Consumables: 81-190006, Other: 81-190007, Overhead: 81-190008

There was severe emphasis on controlling, as checking wouldn't happen only by the Associated Beneficiary internally, but between the AB and the CB. All relevant documentation has been checked quarterly by the CB's project administrator. It is responsibility of all beneficiaries to store the original financial documentation and send official copies to the CB (except in case of the time sheets, where CB asks for originals). Incurred costs of project partners were approved by CB only if all relevant documents has been provided along with the technical reports or other technical document (deliverables, technical annex etc.) that have been requested by the project management. Financial sources have been distributed in accordance with the Annual Working Plan and budget.

Work time registration systems had also been set up or adjusted to comply with LIFE's regulations. Partners used day-to-day paper-based time-sheets to keep track of worked hours – action codes on which the person was working also needed to be marked on the sheets. Validation of time sheets was done by the program coordinator (or by the direct supervisor in case of the coordinator himself/herself).

All costs connected to the project underwent a 3-steps approval system. The first and second steps were the partner's program coordinator and the responsible person at the financial department. The third step was the control check at the CB.

A Financial Guideline was prepared specifically for this project based on the Common Provision and presented to the ABs at the beginning of the project. The CP was also sent to the ABs.

We emphasized the necessity of the project reference code LIFE13 NAT/HU/000081 on the relevant contracts, invoices etc. Each partner got a project stamp with the ID code that was also applied on the project documents in case the invoice provider should fail to fulfil this requirement for some reason – mainly on low cost invoices.

6.3. Partnership arrangements (if relevant)

Monthly or quarterly financial reports have been revised by the CBs financial administrator, accounting tables were filled by ABs. Financial reports of the Hungarian partners were translated by CBs financial administrator. When the reports and the corroborative documents were correct AB prepared the payment request concerning the accounting period. The administrator of the CB verified the professional and technical fulfilment with the project management team. ABs received LIFE contribution as post-financing in accordance with the

Partnership Agreements and the Financial Guidelines after the reports and the documentations were judged to be proper by the CB.

Amendments to the Partnership Agreements are attached as signed documents, the details of the modification is described in the 4.Administrative part/ 4.1.Description of the management system.

6.4. Auditor's report/declaration

Auditor's data:

Name: Tünde Kolbe

Address: 1131 Budapest, Népfürdő utca 5. C371.

Tax registration number: 10807891-2-41

phone: +36-30/773-9182 and +36-1/270-1042

e-mail: tunde@kolbe.hu

6.5. Summary of costs per action

Action No.	Short name of action	1.Personnel cost	2.Travel cost	3.External assistance	4.1.Infrastructure	4.2.Equipment	6.Consumables	7.Other	TOTAL
A1	Nesting habitat management	36 088	2 040	27 364		1 321			66 813
A2	Nestboxes	74 573	22 905				1 011		98 489
A3	National Action Plan	18 357	2 105	25 098					45 559
A4	Monitoring schemes	8 791	1 154						9 944
A5	Business plan for RVC	73	9	2 917					2 998
C1	Restoration of steppe	839	115	97 284				1 503	99 741
C2	Restoration of wooded pastures	2 597	1 002	32 220	96 279	11 123			143 222
C3	Riparian management	44 490	10 257	199 913		177 143	22 732	460	454 995
C4	Create nesting sites	151 061	62 441	14 630		148 980	115 726	29 287	522 125
C5	Forest patches	89 234	26 223	91 038	323 498	16 757	33 750	5 478	585 977
C6	Farmers for Rollers	95 902	21 819	24 918		39 098	79 575	348	261 661
C7	Insulate pylons	20 370	5 402	13 770			69 028		108 569
C8	Threats during migration/wintering	54 850	20 146	48 402		120 019	22 412	32 910	298 739
C9	Illegal logging	38 787	19 650						58 437
D1	Habitat reconstruction monitoring	210	69	74 335		53 458	160		128 232
D2	Roller monitoring	86 732	33 330			7 296	1 200		128 559
D3	Socioeconomic impact			2 536					2 536
D4	Pylon monitoring	8 624	1 493						10 117
E1	Demo workshops	41	86	6 754			284	384	7 550
E2	Prevent logging	27 896	4 979	429		2 531	5 178	39	41 053
E3	Roller Visitor Center	48 901	4 225	1 504	215 730	40 368	6 212	928	317 868
E4	Boards and trails	9 908	389	18 148	56 681	16 252	19 755		121 133
E5	Communication materials	22 095	74				55 757		77 926
E6	Website, Layman's	31 987		2 121			3 203		37 311
E7	Media	58 457	890	17 203			58		76 608
E8	Conferences	4 659	3 727	20			27	5 057	13 490
E9	International Species Action Plan	10 623	7 371	11 246				410	29 650
E10	Pylon design promotion	37 370	4 764						42 134
F1	Project management	457 634	32 597	212 144		5 897	997	2 132	711 401
F3	Networking	8 443	17 354						25 798
F4	Audit			14 395					14 395
Over-heads									317 558
	TOTAL	1 449 593	306 612	938 391	692 188	640 244	437 066	78 937	4 860 590

Please find the same table in excel format annexed to the report.

Here we give a short budget overview of explanation of two Beneficiaries (MME and KNPD) where any change of the budget category exceeded 30000 EUR and 10% of the specified category.

MME:

MME spent almost exactly the planned project budget (the difference is within 1%). Some personnel changes have occurred since the last progress report, which are shown on the organigramme, too.

Personnel category:

In the personnel expenditure there is a 10% overspending at the CB due to the project extension with 6 months.

- Employment of Szabolcs Solt from May 2020 until September 2020 to help the effective fulfilment of action E10.
- Károly Nagy worked more for the project in 2020 due to the increased data management, processing of final indicators and tables. Previously 5% of his working days were accounted for the project, but from January 2020 to September 2020 we used more his skills therefore 20% of working days were accounted for the project.
- Csaba Lendvai worked more for the project in 2020 with the coordination of action C6 “Farmers for Roller”, providing help to PM Béla Tokody while finalizing project documents. Previously 50% of his working days were accounted for the project, but from January 2020 to September 2020 we used more his skills therefore 60% of working days were accounted for the project in this period.
- Also Gergő Halmos, director of MME had to work more for the project. Previously 10% of his working days were accounted for the project, but the postponement of project end date and the related reformulation and signing process of Partnership Agreements needed more working days and a continuous follow up of the project last year. From January 2020 to September 2020 we had to cover 20% of his working days from the project budget.
- The two more personnel changes until the last reporting didn't needed financial inputs: Dénes Bálint left the project at 30/05/2020, his position was filled by Bence Szántó and Anna Hunor-Kálmánczi is on maternity leave from 31/03/2020, Katalin Kocsis is employed on her position.

KNPD:

KNPI has spent 108,49% of their planned budget, according to the modified grant agreement.

Infrastructure category: if we compare the budget lines of the modified grant agreement to the actually incurred costs there is a significant overspending in this category. The difference comes from key elements of the Roller Visitor Centre (action E3); the additional outdoor furniture and the watchtower, both moved from equipment to infrastructure cost sub-category. The outdoor furniture was planned in the proposal for 3150 EUR, later this amount was increased with 9700 EUR (from actions C1 and E3) to altogether 12.850 EUR with the approval of EC (22/01/2018 TDO/TMO letter). An additional playground was also kindly approved for 13700 EUR within the same budget line (26/01/2018 TDO/TMO letter), therefore the total planned cost finally reached 26.550 EUR. KNPD spent altogether 46720 EUR for the improved outdoor furniture (additional guiding tables to the Visitor Centre, playground, pavilion, fence, entrance roof for the building).

The watchtower was initially planned for an unrealistic 5330 EUR, therefore in the early phase of the project an additional 17686 EUR was approved by the EC to this budget line (25/04/2017 TDO/TMO letter).

We preliminary informed the TMO (via e-mail on 16/01/2020) about the increased cost requirement of building the watchtower (we estimated that the financial requirement of a suitable⁴ watchtower is 58.131 EUR instead of 23016 EUR). However, due to the delays of works preceding this investment (refurbishment of the center and habitat reconstruction in action C1), the changes hasn't been officially sent to the EC in the last phase of the project. The Beneficiary has been informed by the PM company about the potential partial ineligibility of this costs. After careful consideration KNPD decided to build all additional infrastructure elements with the increased content and cost (the final cost incurred for the watchtower was 60131 EUR). The investment phase terminated by 30/08/2020 with the watchtower. The main reason was to finish all works necessary to create a safe, complete Visitor Centre within the project period, to guarantee the complex visitor experience. The visibility of the nearby lake and the aquatic bird species, one of the main attraction of this natural landscape couldn't be secured from the Visitor Center without the higher watchtower, due to the tall reedbed blocking the view from the ground. The playground is also a key element for school groups, hopefully its' enhanced quality and safe, longer lasting toy offer will help to attract more kids. In overall according to the opinion of the Beneficiary the extended infrastructure will increase the number of visitors and thus the education impact of the Roller Visitor Centre.

Modifications:

Modifications sent and preliminarily approved with the Inception Report (reporting date: 08/06/2015, EC letter: Ref. Ares(2015)5999451):

- At Milvus Group 2 full-time project staff had been planned originally. As field work often requires at least 2 persons, the positions have been split among 3 employees. The project coordinator could receive 37.5% of the available personal cost and 2 project assistants (an administrative and a field assistant) got 31.25%-31.25% respectively.
- BNDP has budgeted tree plantation works under external assistance (€ 279 300) and nestboxes under consumables (€ 30 000) in the original proposal. According to the National Park's accountants, these costs should be categorized under infrastructures to comply with current Hungarian accounting rules. Since both procurements have been implemented exactly as planned, these did not alter the original goals, nor the indicated budget of the project.
- One desktop computer and 2 laptops were approved in the proposal, however one more laptop and an additional monitor were necessary for the persons working exclusively for the project. The additional equipment have been procured for Balázs Csibrány who started working as new employee at 01.04.2015. (field assistant and manager of the Roller Visitor Centre).
- Milvus Group: the beneficiary preferred to purchase one field scope instead of the approved two binoculars, as the first served better the planned work (colour ring recovery needs major resolution).

⁴ fire and lightning protection, elevation, capacity (12 person)

- E4: The planning of graphical design and the realization of 70x100 cm posters were moved from each Hungarian Beneficiaries to the CB. This cost effective solution helped us to keep deadlines and uniformity of the project on each project SPA. The minor budget change has been documented accordingly. Beneficiaries ensured the raising of notice boards and provided the necessary wooden poles as planned in the proposal.

Modifications sent and preliminarily approved with the 1st Progress Report (Reporting date: 31/03/2016, EC letter: Ref. Ares(2016)3271363):

- The project website (E1) was developed by MME's own programmer (Zsolt Kecskés) (from External cost we changed to Personnel cost). As he maintains the system side of the website and regularly refreshes the software, we kept accounting a minimal ratio (5%) of his wage on the project.
- As MME is a national organization a local coordinator was needed in the northern region of the country. Flóra Hák was employed in a part-time job, the personnel costs covered her salary.
- As it was indicated and explained in the Inception Report, Assoc. Beneficiary Milvus Group split the 2 field worker positions into 3 part-time jobs. That's why they also required 3 manual GPS instead of the planned 2 (original plan/real cost: € 1200/€ 1321).
- Coord. Beneficiary MME has reported some necessity of additional equipment via the external monitor:
 - Canon EOS 70D + EF-S 18-55 IS camera, Canon EF lenses (€ 2510)
 - KNPD requested to procure 3 field scopes and tripods in spite of the planned 6 (Action C8) for the same total cost of € 9000. These devices are more modern than the planned ones and this modification did not endanger the objectives originally set in the project.
- Coord. Beneficiary MME also identified the need of the following equipment and asked for approval in the Progress Report:
 - HP LaserJet Black printer for employees working in Szeged (Balázs Csibrány/Béla Tokody), necessary for administrative work (€ 104)
 - 3 drill driver for the plantation of trees under action C6 (Farmers for Roller). The plantation of trees originally planned as external assistance was not realistic on several dozen of locations. It seemed more realistic to effectuate the plantations with MME staff and volunteers. To secure the scheduled implementation, at least 3 different teams had to work simultaneously (soil drilling machine approx. €200/each)
 - Samsung Galaxy S4 cell phone (Béla Tokody – replacement for a previous broken phone): the communication of the project manager is the key of the effectiveness of the project (€ 206)
 - Lenovo thinkpad for new employee (Flóra Hák) (€ 191)
 - 2 pc tablets for monitoring (Balázs Csibrány/Béla Tokody) necessary for fluent monitoring (€ 300)
 - Circular saw, jig saw, drill driver for nestbox reparation (included in the original proposal as tools under "Consumables" cost category but their unit costs indicate their reclassification as "Equipment" – action C4) (€ 600)

The above listed items have been preliminary approved by the EC in the letter Ref. Ares(2016)3271363.

Modifications sent and preliminarily approved with the 1st Mid-term Report (Reporting date: 31/05/2017, EC letter: Ref. Ares(2017)4173740):

- Milvus Group procured 2 laptops as planned in their original budget. Since they employed 4 persons on the project at a time they wished to obtain an extra laptop for the remaining cost (900 €) on the budget line.
- Dalerd obtained a new mobile phone for the project coordinator Péter Sütő which was not foreseen (action C3, Consumables, 200 €) in the budget plan.
- Although it was not foreseen in the budget, we found the following services necessary to the successful project implementation:
 - advise on public procurement, Szeo Bt, action F1, 382,75 €
 - translation costs, Zölei Anikó, action E7, 484,48 €
 - translation costs, Teneritas Bt, action E7, 122,32 €
 - translation costs, Teneritas Bt, action E7, 158,64 €

Modifications sent and preliminarily approved with the 2nd Mid-term Report (Reporting date: 24/04/2018, EC letter: Ref. Ares(2018)3636931:

- APMSM reallocated the following Personnel costs:
 - project coordinator: 2,520 € (28 days) from C6 to C5 for public procurement,
 - project coordinator: 4,500 € (50 days) from E2 to F1 for the implementation of action F1,
 - project assistant: 1,350 € (15 days) from E2 to C6 for the implementation of Farmers for Roller Program,
 - project assistant: 1,620 € (18 days) from E2 to F1 for the implementation of action F1,
 - project assistant: 1,800 € (20 days) from E2 to C5 for the contribution to plantation and maintenance of forest patches,
 - project assistant: 1,620 € (18 days) from E7 to F1 for the implementation of action F1.
- Milvus Group reallocated 54 days from E2 to C9 for activities against illegal logging and 600 € for the protection of trees (C5) within Consumables category.
- MME transferred 1,000 € from Personnel cost to External assistance in action E6 to develop a separate website for the Visitor Centre (<http://www.feher-to.hu/>), which fulfils LIFE requirements and clearly linked to the existing project website.
- MME reallocated 9,000 € from action D1 to A3 with the deliverables and deadline proposed in the report as follows: “1. Review and policy recommendation of Roller habitat management in AES by 30/07/2019 developed together Annexed to the National Action Plan in Hungary, 2. PPT slide show for farmers on the review on current AES subsidies and favourable Roller habitat management by 30/09/2018.”
- MME requested to purchase a total of 15 satellite transmitters for 500-700 € per transmitter and 150 € annual transmission service fee per tag from Icarus company. Finally the procurement couldn't be realized due to the general delay of Icarus service.
- MME requested to purchase 12 binoculars instead of the foreseen 10 for the Visitor Centre within the foreseen cost.

Modifications sent and preliminarily approved with the 2nd Progress Report (Reporting date: 25/04/2019, EC letter: Ref. Ares (2019)4456118:

- Milvus Group reallocated Travel costs (D2, € 1200) from their budget remaining to purchase a pole-mounted camera for monitoring (D2/Equipment).
- MME requested the employment of Ms. Katalin Lukács (€ 13,000) until the end of the project period.

The modifications listed below were sent to the monitor in the monthly reports with details and justification and were approved by the EC in e-mails on the indicated dates.

Milvus Group requested to continue action C4 (the maintenance of the nestboxes was continuous), C6 (communication with farmers and the widening of the stakeholder network was continuous) and C9 (tree logging was deemed to be a crucial danger in regard of the species) until the end of the project regarding that some of the actions were already in delay. This was approved by the EC in e-mail via TMO on 15/02/2017.

APMSM requested to continue action C9 until the end of the project with the rearrangement of 2370 € (personnel and travel cost) left at action A4. This was approved by the EC in e-mail via TMO on 15/02/2017.

Personnel:

Changes in the **management system**: from 01/12/2018 project management was elaborated only by Zsófia Nyerjék-Sümege / Consulex Ltd. (who has been in the management team from the beginning of the project, her name changed because of marriage), she became responsible for reporting as well.

APMSM reallocated 1620 € from action A4/Personnel to action C9/Personnel. This was approved by the EC in e-mail via TMO on 15/02/2017.

They requested to reallocate 810 € from action E2/Personnel to action C8/Personnel to reach the goals of action C8 (PTT and geolocator placement). This was reported to TMO in the monthly report of July, 2017.

Milvus Group required to employ 4 persons for their originally planned personnel budget. This was reasonable for the fieldworks running parallel under actions C4, C5, C6, C7, C8, C9 D2, D4 in a huge area. The new employee was Attila Nagy. This was approved by the EC in e-mail via TMO on 15/02/2017.

From **MME** Ottó Veszelinov left the project, Zoltán Görögh was employed in his position from 01/03/2017 without budget changes. This was approved by the EC in e-mail via TMO on 25/04/2017.

Lilla Barabás left the project, Anna Hunor-Kálmánczi has been employed in her position from 01/10/2016 without budget changes. Anna Hunor-Kálmánczi is on maternity leave from 31/03/2020, Katalin Kocsis was employed on her position afterwards.

For the fieldworks in 2017 MME contracted an additional person (Zsolt Ampovics) in the time period 01/02/2017 – 30/09/2017. This modification did not require the increase of

personnel costs. This was approved by the EC in e-mail via TMO on 15/02/2017. Later the employment of Zsolt Ampovics was requested to continue on actions A3, E2, E10. This was approved by the EC in e-mail via TMO on 22/01/2018. Zsolt Ampovics left the project at 30/04/2018, his position was filled by Dénes Bálint until 18/10/2018 when Balázs Csibrány also left the project. From 18/10/2018 Dénes Bálint has been responsible for the works connected to the Visitor Centre. Dénes Bálint left the project at 30/05/2020, his position was filled by Bence Szántó.

The employment of Zsolt Kecskés was also requested to continue on action E6 (~1 day / month) on the budget of the personnel cost of the communication officer. This was approved by the EC in e-mail via TMO on 22/01/2018.

MME also reallocated 1100 € from action E7/Personnel to action E4/Equipment to prepare a more effective educational trail with English translation and additional web content available by reading the QR codes. This was approved by the EC in e-mail via TMO on 22/01/2018.

The same time they reallocated 35 000 € from action C4/Personnel to action C8/Personnel to geolocator and PTT placement and blood sampling. This was approved by the EC in e-mail via TMO on 22/01/2018.

Flóra Hák is on maternity leave from 01/10/2018, Katalin Tóth has been employed on her position. Communication officer Gabriella Göcző is also on maternity leave since 08/2018, Petra Vásony has been employed on her position since 07/2018.

From **BNPD** Róbert Enyedi left the project, Dóra Kecskés has been employed as project coordinator after him since July, 2017. Hunor Török quit his job at BNPD and left the project, his job was done by Gábor Soós since January, 2019.

KNPD requested to move the tasks of Dr. Csaba Vadász to Sarolta Erdős, the tasks of Miklós Lóránt to István Gyurita and the tasks of Péter Kurmai to Ádám Tamás without budget changes. The originally employed persons are employed in most of their working hours in other projects (eg. Great Bustard LIFE+) therefore the change is reasonable. This was approved by the EC in e-mail via TMO on 15/02/2017 and 25/04/2017.

Travel and subsistence:

APMSM requested to continue action C9 until the end of the project with the rearrangement of 2370 € (personnel and travel cost) left at action A4 to the budget of action C9. This was approved by the EC in e-mail via TMO on 15/02/2017.

APMSM also reallocated 750 € from action A4/Travel to action C9/Travel. This was approved by the EC in e-mail via TMO on 15/02/2017.

They also reallocated 675 € from action C5/Travel to action C8/Travel to reach the goals of action C8 (PTT and geolocator placement). This was reported to TMO in the monthly report of July, 2017.

Milvus Group requested to move the unused 12 000 € from travel cost category from the successfully closed A1, A2, A4 actions to action C7 external assistance cost category (new budget line). This additional subcontracted expert with his experience helped the efficient implementation of the electric pylon insulation works. This was approved by the EC in e-mail via TMO on 25/04/2017.

They also requested to move the unused 6 000 € travel cost category from the successfully closed A1, A2, A4 actions to increase the approved “Other” costs (car maintenance and road

tax) in action C4 (13 000 € from which 12 000 € are already spent). This was approved by the EC in e-mail via TMO on 25/04/2017.

In order to reach to goal of the ISAP Conference under action E9 (an international meeting where all the problems could be discussed of the species among the specialists from all over the breeding and wintering area and the migration route to create an effective International Action Plan) MME overspent the budget allocated to organizing the conference with approximately 4900 €, therefore the following changes were reasonable in the budget of travel costs:

MME reallocated 1300 € from action C4 Equipment to action E9 Travel and 2460 € from action C8 Equipment to action E9 Travel. Additionally 2 budget items were reallocated from KNPD to the action, please find it below, under External assistance category. This was approved by the EC in e-mail via TMO on 11/04/2017 and 15/02/2017.

Moreover MME was represented by Orsolya Kiss at the EOU 2017 conference in Turku, Finland. This was approved by the EC in e-mail via TMO on 25/04/2017.

MME reallocated 11 500 € to action F1/Travel from action A2/ Travel 1800 €, A3/Travel 2600 €, C4/Travel 4100 €, C6/Travel 3000 €. MME also reallocated 7000 € to action C8/Travel from action C6/ Travel. The reason of these requests was that the originally planned budget could not cover the expenses. This was approved by the EC in e-mail via TMO on 22/01/2018.

External assistance:

APMSM rearranged in total 5000 € under action C6 from catering to public procurement consultant for 3000 € to prepare the tender of tree plantations in the project and non-planned but necessary field **equipment** (ladder with a roof rack for its transport) and minor quantity of **consumables** (Hilti ribbon, screw, clue, hammer) in total for 2000 €. This was approved by the EC in e-mail via TMO on 15/02/2017.

MILVUS reallocated 12 000 EUR from Travel A1, A2, A4 to External C7. This additional subcontracted expert helped the fluent implementation of the electric pylon insulation works. This was approved by the EC in e-mail via TMO on 25/04/2017.

MME reallocated from **KNPD** the followings: installation of geolocators 3000 € under action C8, renting bus at the ISAP Conference 300 € under action E9, accommodation and catering at the ISAP Conference 865 € under action E9. This was approved by the EC in e-mail via TMO on 11/04/2017 and 15/02/2017.

MME reallocated another 2000 € for geolocator installation from **BNPD** under action C8. This was approved by the EC in e-mail via TMO on 15/02/2017.

Equipment:

APMSM reallocated 1000 € from C6/External to C6/Equipment to purchase a ladder with roof track for transport. This was approved by the EC in e-mail via TMO on 15/02/2017 and 17/02/2017 with detailed budget.

In the proposal **BNPD** planned altogether 4 PDAs for fieldwork: 2 pcs under action C2 and 2 pcs under action C4 for 4800 €. Meanwhile a better solution was found for data recording therefore they purchased 6 tablets for fieldworkers (Hunor Török, Nándor Seres, László Tóth, András Kleszó, János Sasvári, Attila Ferenc) for 3193 € which was preliminary approved by the EC after the monitor visit in 2017.

Milvus Group purchased a driller for the tree plantations with reallocating 2500 € travel cost to equipment under action C5. This was approved by the EC in e-mail via TMO on 25/04/2017.

In action C4 **MME** rearranged the planned 2200 € for the drill-driver to purchase equipment for climbing (400 €) and an endoscope (500 €) for monitoring of the breeding species. This was approved by the EC in e-mail via TMO on 15/02/2017.

MME reallocated 2800 € from **KNPD** to erect notice boards under action E4. This was approved by the EC after the Inception Report in letter Ares(2015)3400017.

A mobile phone has been purchased for 210 € under action E5 because of amortisation of the device of the communication officer. This was approved by the EC in e-mail via TMO on 22/01/2018.

MME reallocated 1100 € from action E7/Personnel to action E4/Equipment to prepare a more effective educational trail with English translation and additional web content available by reading the QR codes. This was approved by the EC in e-mail via TMO on 22/01/2018.

KNPD requested to use the budget line (17 686 EUR external assistance) approved and not used for the elimination of invasive trees under action C1 for action E3. For the watchtower 5 330 EUR has been approved by the EC in e-mail via TMO on 25/04/2017. For details please see the explanation of infrastructure cost earlier in this document.

Consumables:

In this cost category **MME** reallocated the following items from **KNPD**: action C4 - purchasing nestboxes 40 000 €, action C6 - purchasing “T” perching poles 1050 €, purchasing Barn Roller nestboxes 3000 €, action C8 – purchasing geolocators 4500 €. The reallocation of nestbox procurements was 43 000 € in total which resulted in the modification of the Partnership Agreement, which was handed in with the 1st Mid-term Report.

Purchasing of geolocators was reallocated also from **BNPD**, 3000 € under action C8. This was approved by the EC in e-mail via TMO on 15/02/2017.

BNPD moved 1500 € from their budget line C6/Consumables/1000 pieces to **MME**. **MME** produced a field bird guide for farmers and the extra amount (approx. 750 pcs) from this 1500 € were spread among the farmers at **BNPD**. This was approved by the EC in e-mail via TMO on 25/04/2017.

In the Inception Report we asked the EC to allow us to recategorise 30 000 € (nestboxes) from Consumables to Infrastructure. Meanwhile the accounting rules of **BNPD** changed, and they accounted the costs as Consumables according to the new rules and the original budget plan.

Infrastructure:

KNPD reallocated 15 300 € from E3/Infrastructure to E3/Equipment for furnishing and 9 700 € from E3/Infrastructure to E3/Equipment for outdoor furniture. This was approved by the EC in e-mail via TMO on 22/01/2018.

Other costs:

Milvus Group reallocated 6000 EUR from Travel A1, A2, A4, to Other C4. This was necessary for the maintenance of the car in the field period. This was approved by the EC in e-mail via TMO on 25/04/2017.

7. Annexes

7.1 Administrative annexes

- 4.3 Organigramme
- 4.3 List of all employees in the whole project period
- F1:
 - F1_1 Signed Partnership Agreements (deliverable)
 - F1_2 Documentation of the 2-days workshop
 - F1_3 Documentation of partner meetings
- F2 After-Life Conservation Plan (deliverable)
- F3:
 - F3_1 Documentation of networkings by MME
 - F3_2 Trip report by BNPD
- F4 External audit report (deliverable)

7.2 Technical annexes

- A1:
 - A1_1 Habitat and management guidelines in Hungary (deliverable)
 - A1_2 Habitat maps of the study sites in Hungary
 - A1_3 Letter for the forestry companies by MME
 - A1_4 Habitat and management guidelines in Romania (deliverable)
 - A1_5 Habitat maps of the study sites in Romania
- A2:
 - A2_1 Handbook of nest box-installation methods in English (deliverable)
 - A2_2 Handbook of nest box-installation methods in Hungarian (deliverable)
 - A2_3 Handbook of nest box-installation methods in Romanian (deliverable)
 - A2_4 Study on the potential range expansion of the species in Hungary (deliverable)
 - A2_5 Database about suitable habitats for nestbox mounting and existing cavities for breeding in western Romania
- A3:
 - A3_1 NAP workshop invitation, list of participants, pictures
 - A3_2 Draft table of identified and evaluated threats and the suggested measures
 - A3_3 National Action Plan (deliverable)
 - A3_4 NAP approval letter from the Ministry
 - A3_5 Review and policy recommendation of Roller habitat management in AES (deliverable)
 - A3_6 PPT slide show for farmers
 - A3_7 Background studies for the NAP at BNPD
 - A3_8 Improvement of data processing, methods and evaluation of breeding data at BNPD
- A4:
 - A4_1 Monitoring plan (deliverable)

- A4_2 Documentation of the monitoring training held in Budapest, Hungary
- A4_3 Documentation of the monitoring training held in Eger, Hungary
- A4_4 Documentation of the monitoring training held in Debrecen, Hungary
- A4_5 Documentation of the monitoring training held in Kecskemét, Hungary
- A4_6 Documentation of the monitoring trainings held in Târgu Mureş and Oradea, Romania
- A5:
 - A5_1 Business plan for the Roller Visitor Centre (deliverable)
- C1:
 - C1_1 Table of the earthworks
 - C1_2 Map of the habitat reconstruction area
 - C1_3 Final permission for the earthworks
 - C1_4 Pictures
- C2:
 - C2_1 Pictures about the elimination works, locations, plantations and reconstruction works
 - C2_2 Maps about the wooded pasture reconstruction
- C3:
 - C3_1 Table of finished works
 - C3_2 Detailed table of planted saplings
 - C3_3 Maps in pdf
 - C3_4 Photos of the treated areas
 - C3_5 Photos of the treatments
- C4:
 - C4_1 Report of the woodpecker monitoring in Hungary
 - C4_2 Maps and pictures of nestbox installations by MME (maps include nestboxes of Dalerd, too)
 - C4_3 Maps and pictures of nestbox installations by BNPD
 - C4_4 Maps and pictures of nestbox installations by Milvus Group
- C5:
 - C5_1 Pictures and maps about the plantations by BNPD
 - C5_2 Pictures and maps about the plantations by KNPD
 - C5_3 Pictures and maps about the plantations by APMSM
 - C5_4 Pictures and maps about the plantations by Milvus Group
- C6:
 - C6_1 Maps of the involved farmers plantations
 - C6_2 Documentation of the workshops: photos, list of participants
 - C6_3 Bird guide for farmers
 - C6_4 Booklet about the Grasslands of South-Heves
 - C6_5 Photos
- C7:
 - C7_1 Database of dangerous poles
 - C7_2 Final report of the insulation expert
 - C7_3 Photos about the insulation works
 - C7_4 Maps of the insulated powerlines
- C8:
 - C8_1 1st assessment of threats by partner NGOs (deliverable)
 - C8_2 2nd assessment of threats by partner NGOs (deliverable)

- C8_3 Results of PTT and geolocator data analysis
- C8_4 Results of ringing activities in Hungary
- C9:
 - C9_1 Report about illegal logging in Romania
 - C9_2 Filled monitoring booklets
- D1:
 - D1_1 Final monitoring report (deliverable)
- D2:
 - D2_1 Monitoring report for Hungary (deliverable)
 - D2_2 Monitoring report for Romania (deliverable)
 - D2_3 Distribution maps
- D3:
 - D3_1 Assessment of the direct impact of the project
 - D3_2 Final socio-economic report in Hungary (deliverable)
 - D3_3 Final socio-economic report in Romania (deliverable)
- D4:
 - D4_1 Final monitoring report of Hungary (deliverable)
 - D4_2 Final monitoring report of Romania (deliverable)

7.3 Dissemination annexes

- E1:
 - E1_1 Documentation of events held by BNPD
 - E1_2 Documentation of events held by Dalerd
 - E1_3 Documentation of events held by KNPD
 - E1_4 Pictures from events where MME participated and demonstrated the project
- E2:
 - E2_1 Design of the brochure in Hungary
 - E2_2 List of participants at the meetings held in Hungary
 - E2_3 Report on mapping of forest-patches, solitude old trees and tree-lines in Hungary (deliverable)
 - E2_4 Design of the brochure in Romania
 - E2_5 Design of the leaflet in Romania
 - E2_6 Documentation of educational events in Romania
 - E2_7 Documentation of meetings in Romania
- E3:
 - E3_1 Pictures about the building and the environment of the Roller Visitor Centre
 - E3_2 Contract of operation
 - E3_3 Photos of the official opening event
- E4:
 - E4_1 Notice boards in Hungary
 - E4_2 Educational trail at KNPD
 - E4_3 Educational trail at BNPD
 - E4_4 Pictures from the online nest-camera system at BNPD

- E4_5 Publications of BNPD
- E4_6 Notice boards in Romania
- E5:
 - E5_1 PR materials in Hungary (deliverable)
 - E5_2 PR materials in Romania (deliverable)
- E6
 - E6_1 Associated Beneficiaries one-page introduction to the project
 - E6_2 Layman's report in English (deliverable)
 - E6_3 Layman's report in Hungarian (deliverable)
 - E6_4 Layman's report in Romanian (deliverable)
- E7:
 - E7_1 Project logos
 - E7_2 Media appearances in Hungary
 - E7_3 Media appearances in Romania
 - E7_4 Media statistics
- E8:
 - E8_1 Posters, publications
- E9:
 - E9_1 Documentation of the ISAP conference
 - E9_2 Flyway Action Plan for the European Roller
 - E9_3 Updated International Species Action Plan for the European Roller (deliverable)
- E10
 - E10_1 Final conflict maps of bird electrocution (deliverable)
 - E10_2 Documentation of workshops and trainings
 - E10_3 Technical brochure

7.4 Final table of indicators

7.5 Gantt chart

8. Financial annexes

- Beneficiaries Certificates
- Financial Statements
- Consolidated Cost Statement
- Standard Payment Request
- Summary of costs per action