



LIFE Project Number  
**LIFE14NAT/NL/901**

**Final Report**  
**Covering the project activities from 01/01/2016 to 30/06/2021**

Reporting Date  
**31/09/2021**

LIFE PROJECT NAME or Acronym  
**LIFE RE-Vultures**

Data Project

<b>Project location:</b>	Bulgaria/Greece
<b>Project start date:</b>	01/01/2016
<b>Project end date:</b>	30/06/2021
<b>Total budget:</b>	€ 2.198.572
<b>EU contribution:</b>	€ 1.648.015
<b>(%) of eligible costs:</b>	74,96%

Data Beneficiary

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## 2. List of key-words and abbreviations

BSPB	Bulgarian Society for the Protection of Birds
CMS	Multi-species Action Plan to conserve African-Eurasian Vultures
DAMT	Decentralized Administration of Macedonia-Thrace
EVN	Hungarian Ornithological and Nature Conservation Society
HOS	Hellenic Ornithological Society
IREC	Instituto de Investigación en Recursos Cinegéticos, Spain
MME	Hungarian Ornithological and Nature Conservation Society
MTR	Mid Term Report
PR	Progress Report
RE	Rewilding Europe
RRF	Rewilding Rodopi Foundation
VCF	Vulture Conservation Foundation
WWF GR	WWF Greece

### 3. Executive Summary

The overall aim of the LIFE RE-Vulture Project was to reduce acute threats to the populations of Griffon and Black vultures, in order to enable the conservation and recovery of these species in the Bulgarian/Greek cross border area of Eastern Rhodope Mountains. According to recent data for the EU only 2,536 - 2,838 breeding pairs of Black vultures were still remaining in four EU countries (FR, GR, PT&ES), of which 97% are confined to Spain and only one colony was left in the whole of Balkans. This project aimed to enhance and support the decades-long efforts to protect and increase this last breeding colony in Rhodope mountains. Similarly, the project aimed to contribute to the conservation of the Griffon vulture in the same area.

The objectives of the project were:

- To increase knowledge of mortality factors and threats as well as of dispersal and wanderings of the target species
- To reduce disturbance, poisoning, direct persecution and lead poisoning of Black and Griffon vultures
- To increase availability of food for Black and Griffon vultures
- To reduce the mortality risk to Black and Griffon vultures from electricity infrastructure
- To gain support from key stakeholders
- To increase awareness of vulture conservation
- To facilitate networking with other conservation organizations

The project has been developed as expected.

The proposal foresaw 16 deliverables, mainly related to the implementation of the C actions. A number of technical reports and scientific papers outlining concrete policy, veterinary, mitigation and concrete biological issues ensured the proper planning and international continuity of the conducted activities. Most deliverables were completed as scheduled, only few were slightly delayed, and they all were used onwards in committing the implementation of the C actions until the end of the project.

In action A3 in only two seasons the project team met the expected results and revealed the frequency of presence of black vultures in Bulgaria, their main flyway corridors and also the roosting sites they use. Thus, the project team reached the expected results and also supported Action A4, in the frame of which after an initial delay 49 Griffon vultures were finally marked with wing-tags and rings and important data were achieved about the population size and structure. Also as projected the Griffon vulture population was monitored on an annual base and nearly 100% of the breeding population was mapped and followed. Additionally, Griffon vulture roosting sites were identified as proposed in the project. In Action A5 the project team succeeded to tag 34 griffon vultures and 27 black vultures thus fulfilling the indicator as planned and obtaining more than 2 million positions from the tagged birds. Thanks to the in-depth and large experience in electrocution and collision topic, the team obtained and structured a database on the hazardous powerlines in the Rhodopes and additionally mapped 409 poles to fulfill the projected results as initially planned (Action A6). In the frame of Action A7 sampling protocols to control the health status and possible poisoning events on vultures have been produced by the VCF and coordinated with the other Vultures LIFE project active in Bulgaria. These have been used in the field.

In Action A8, 33 Griffon vultures and 45 Cinereous vultures were sampled and analyzed for the presence of Antibiotics, NSAIDs, metals and viruses. The major findings were published in a proceedings booklet from an international conference held in Dublin.

GIS analyses on the suitable breeding habitat for the Black Vultures has been produced, which includes data from all the up-mentioned activities (A11).

In the meantime, an *ex-ante* Human Dimension study has been made to identify the crucial stakeholders, the existing conflicts and their expectations (A9) and analysis of the current sanitary-veterinary regulations has set the basis for the implementation of the C actions (A12). After this preparatory phase the concrete conservation activities started. In Greece the permits for the construction of artificial feeding sites have been obtained, and the feeding points were successfully constructed (C1). In Bulgaria, after a preliminary GIS and spatial analysis, 15 artificial nesting platforms for Black vultures have been installed in Krumovitsa and Byala reka SPAs (C3). After a study phase and the selection of hunting unions with which to cooperate (A10) the 50 Red deer and 398 Fallow deer have been translocated (C2).

Significant progress was made in Action C4, where the expected dog facility, trained dog and handler were available by the end of the first year. The dog unit has completed 153 anti-poison patrols in the frame of the project. The total number of all findings was 310 with 40 of them being illegally poisoned animals, 7 were animal remains and 10 were poisoned baits. The average number of victims found per poisoning incident is  $2.86 \pm 3.5$ . The anti-poisoning dog unit found poisoned 11 animal species. Vultures comprised 17.5% (n=7) of all victims found. Also, 5 workshops were held as planned initially. However, the team decided to work with only one dog instead of two (see description part). Additional promotion and training of state authorities were organized instead. Moreover, a national anti-poisoning plan was developed, submitted and endorsed by the Ministry of environment and waters in Bulgaria. Along with that, special guidelines for poisoning cases investigation were developed and printed to be used by the police authorities. An active communication with the Bulgarian National Police was started to initiate the foundation of anti-poison canine units in the Police. A special action to secure safe breeding of the griffon vultures (C5) projected a nest risk assessment report and management of the breeding success of the griffons above 0,65 fledglings/breeding pair that were fulfilled as planned and also 4 camera traps were installed to give information on the threats. After the hazardous power lines were identified, a total of 197 pylons of two types were insulated and 2,5 km of it were additionally secured with diverters. Moreover, 4 more pylons of type 1 variation were insulated in Madzharovo SPA under RRF budget (<https://www.youtube.com/watch?v=-GvdAKekqDA>) (C6).

Action D1 has started at the beginning of 2018, and the foreseen monitoring of black and griffon vultures was implemented yearly to record the number of occupied territories, the breeding rates of the population and the major mortality factors. GPS tagging and marking of vultures were continued to trace major threats to vultures. 8 scientific papers were published in peer-reviewed journals as a result of the research activities implemented in the frame of the project (D1). In the frame of the enterprise development activities three local businesses have been identified and the development of three of them has already well progressed (A13, E14).

Action E4 was launched with the start of the project and the team started following the expected results. Initially a youth vulture education program was developed, 25 schools have been visited and 10 planned schools visited the Vulture center. Also four youth camps were successfully organized and held with more than 180 participants whereas only 40 per camp were projected. All these activities have been accompanied by an intense effort of production of information materials (E1, E2), the running of media activities (E3, E5) and local and national events (E6, E8) and the production of a youth vulture education program at the Vulture center in Madzharovo (E4).

During the reporting period networking has been developed with the several LIFE projects, (LIFE14/NAT/PT/000855, LIFE14 NAT/BG/000649, LIFE14 NAT/FR/000050, LIFE10 NAT/HU/019, LIFE 10 NAT/BG/000152, LIFE 16 NAT/BG/00874, LIFE 18 NAT/BG/001051, LIFE19 GIE/NL/001016) (E10) and an important technical workshop on supplementary feeding strategies for vultures (E12) was organized.

The current LIFE project was part of the Europe-wide vulture conservation efforts taking place to protect, restore and enhance vulture populations, and there is also close coordination with the Vultures back to LIFE project (LIFE14 NAT/BG/000649) in Bulgaria.

Finally, this project happened in tandem with the development of two key actions plans for the black vulture, the European species action plan, developed by the VCF to the EU as part of LIFE EuroSAP (LIFE14 PRE/UK/002), the global black vulture flyway action plan, developed by the VCF to the CMS. This project thus contributed and is linked to both these two actions plans.

Almost no changes were made in the foreseen actions, mostly only minor adaptations have been made.

As is explained in Action C4 it was decided that only one dog would be purchased for the Anti-poison dog team. For a number of technical and behavioural reasons for a rather inexperienced dog leader it is not recommended to have two dogs. Also, during the first two years of the project only three cases of poisoning have occurred, and the dog that was in the dog unit managed to handle that without any problem. It was therefore considered that it was more reasonable to stick to the one dog, which has then worked very effectively throughout the whole project. The remaining funds have been used for additional training of the handler of the anti-poison dog, for the development of training workshops, promotion of the work of the anti-poisoning dog unit, development and endorsement of a National anti-poisoning plan and development of a Guidelines for investigating poisoning accidents to be disseminated and promoted among Police and development of indebt relationships with the National Police to secure the operation of more dog units in Bulgaria. This did not affect the positive outcome of the project, on the contrary, the funds were used in the most effective manner.

## 4. Introduction

The overall aim of the LIFE RE-Vulture Project was to reduce acute threats to enable the maintenance and recovery of Black and Griffon vultures in the Bulgarian/Greek cross border area of Eastern Rhodope Mountains. Efforts are made to protect the last Black vulture colony in the whole of Balkans. Similarly, the project contributed to the conservation of the Griffon vulture in the same area. It addressed the threats and facilitated recovery of the only native Griffon vulture population in Bulgaria.

The objectives were the following:

- To increase knowledge of mortality factors and threats as well as of dispersal and wanderings of the target species
- To reduce disturbance, poisoning, direct persecution and lead poisoning of Black and Griffon vultures
- To increase availability of food for Black and Griffon vultures
- To reduce the mortality risk to Black and Griffon vultures from electricity infrastructure
- To gain support from key stakeholder including by promoting local business related to vultures and wildlife
- To increase awareness of vulture conservation
- To facilitate networking with other conservation organizations

The project was implemented by 6 beneficiaries mainly in 7 SPAs in Bulgaria and 5 in Greece, in the transboundary Rodopi mountains: Krumovitsa (BG0002012), Studen Kladenets

(BG0002013), Madzharovo (BG0002014), Byala Reka (BG0002019), Most Arda (BG0002071), Dobrostan (BG0002073), Yazovir Ivaylovgrad (BG0002106), Dasos Dadias – Soufli (Gr1110002), Treis Vryses (Gr1110003), Vouna Evrou (Gr1110005), Notio Dasiko Symplegma Evrou (Gr1110009), Koilada Filiouri (Gr1130011), Koilada Kompsatou (Gr1130012), Oreinos Evros - Koilada Dereiou (Gr1110010),

The main expected results were the following:

- Toxicology study of 30 Griffon vultures and 30 Black vultures in different ages
- 20 Black vultures and 20 Griffon vultures tagged with GPS transmitters
- Detailed information on Griffon and Black vulture's movements and dispersion patterns is collected
- Home ranges and key feeding areas of adult Griffon and Black vultures identified
- First Anti-poison dog team established in Bulgaria
- 6 training seminars involving relevant authorities held
- 2 Representatives from the relevant authorities visit the other EU country for exchange of experience
- First study on the lead poisoning in Bulgaria
- First campaign for promotion of lead-free ammunition in Bulgaria carried out
- Reintroduce 50 Red deer and 200 Fallow deer in at least three SPAs,
- 6 small locally-operated feeding places created
- All potentially dangerous electricity poles in the project SPAs in Bulgaria identified
- At least 120 dangerous power poles insulated and bird diverters mounted on 2,5 km of power lines
- Reintroduce deer on the territory of at least 3 local hunting clubs and involve them in the action
- Organizing visit for local stakeholders to vulture-watching sites
- Support at least 3 entrepreneurs to improve their vulture-based business
- Build/ repair 3 vulture photo hides
- Intensive media campaign
- A Youth Education Program is established at the Vulture Centre in Madzharovo
- International Workshop on vulture supplementary feeding and transposition of the relevant EU directives on carcass disposal
- Organization of international workshop on threats posed by NSAIDs/Antibiotics

This project (LIFE RE-Vulture) took place in the frame of a wider initiative, Rewilding Europe, which aims at the development of a range of conservation activities in 10 areas across Europe of which the selected site is part. The work fitted into a larger programmatic and management framework designed to optimise the synergy of individual activities and investments.

In line with this approach the project also included, besides an intensive communication campaign, an effort to identify relevant involved interest groups and to understand their needs and expectations. Moreover, in order to gain the support of the crucial stakeholders the project included an important section for the development of enterprise possibilities for small local businesses.



## 5. Administrative part

The Coordinating Beneficiary of the project was Stichting Rewilding Europe (RE), and the Associated Beneficiaries were the Bulgarian Society for the Protection of Birds (BSPB), the Hellenic Ornithological Society (HOS), Rewilding Rhodopes Foundation (RRF), The Vulture Conservation Foundation (VCF) and the World Wide Fund For Nature Greece (WWF GR).

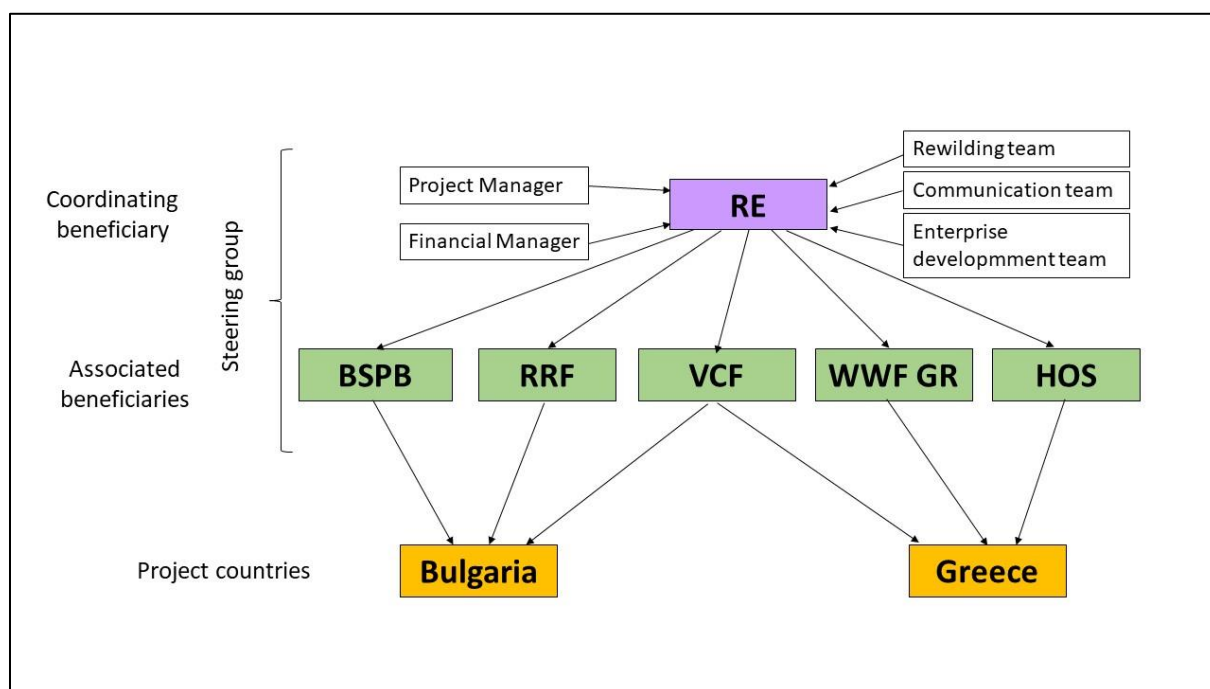


Figure 1. Organigram of the LIFE RE-Vultures Project

## 6. Technical part

### 6.1. Technical progress, per Action

#### **Action A.1. Preparation of the administrative basis of the project**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/03/2021	Actual (or anticipated) end date:	31/03/2021

##### *Objective of the action*

Action aimed at guaranteeing the positive development of the project.

##### *Progress*

In the frame of this action all the administrative procedures were carried out, which were supposed to guarantee the positive development of the project.

In particular, the following steps have been taken:

- Hiring dedicated project staff: Rewilding Europe -project manager, financial manager; BSPB- project coordinator, conservation officer, anti-poisoning officer (dog keeper), administrator; RRF team leader, conservation officer, administrative and technical assistant, communication officer. Part of the staff, namely team leader (RRF), biodiversity officer (RRF), local enterprise officer (RRF), accountant (RRF) is contracted through their LTDs. This approach was agreed during the project evaluation phase as they were permanent staff contracted this way by RRF before the project start. This was also accepted by the EASME in the letter of 20.07.2016.
- Development and signature of partnership agreements
- Development of project team and production of a list of the project team members by each beneficiary.
- Development/collection of internal rules about procurement and reporting of travel costs for those beneficiaries that have such regulations: RE: both; WWF GR: both; RRF: both; BSPB: only for procurements, it follows national regulations about reporting travel costs; VCF: has no official internal rules; HOS: both.
- Production of VAT exempt status declarations from all partners.
- Production of a "Financial Monitoring Tool", which was used to monitor the status of expenses per action and the budget changes.
- Production of an internal cash flow model and of a file for the monitoring of budget shifts.

#### **Action A.2. Kick-off meeting and training of regional project leaders about General Conditions and project management**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/03/2016	Actual (or anticipated) end date:	28/02/2016

##### *Objective of the action*

The action aimed at briefing the staff of the main project management and implementation rules and at planning the first year of activities in detail. These objectives have been achieved as foreseen.

##### *Progress*

The kick-off meeting was held on the 16-17 February 2016 in Haskovo, Bulgaria.

It was held partially in common with the kick-off meeting of the LIFE RE-Bison Project (LIFE14NAT/NL/987).

The entire technical and administrative staff of all beneficiaries has been present.

On the first day all the A, C and D actions were discussed in order to agree on detailed timing, to analyse potential problems or delay and come up with solutions, and to coordinate the activities among the different beneficiaries. A time plan for the first year was also produced.

On the second day the communication (E) and management (F) actions were discussed, and a briefing of the technical and administrative rules for LIFE Projects has been made.

Moreover, the tools for project management and monitoring have been presented (e.g. monthly reports, Financial Monitoring Tool etc.)

### **Action A.3. Study of the pattern of presence of Black vulture in the Rhodopes and search for possible breeding pairs outside the known colony**

Foreseen start date: 01/01/2016      Actual start date: 01/01/2016

Foreseen end date: 31/12/2017      Actual (or anticipated) end date: 31/12/2017

#### *Objective of the action*

To obtain comprehensive information of the number and pattern of presence of Black vultures visiting/inhabiting Bulgaria. Important information has been obtained that also helped as a guidance for the project implementation and also to monitor the success of the project activities.

#### *Progress*

The action was started with the development of a monitoring methodology. Subsequently, observations from a total of 19 stationary viewpoints in all 7 SPAs in the Bulgarian part of the Eastern Rhodopes were conducted twice per month for the periods March – May 2016 and December 2016 – May 2017. To increase the effectiveness of this task in the winter season 6 more vantage points were selected in some of the project sites to be used if harsh winter conditions and limited access to the selected observatories occur (Figure 2). As a result, a detailed information about the Black vulture presence in Bulgaria was obtained and filled in the project database. In total 47 Black Vultures were observed during the observation from vantage points. The age ratio of the identified individuals was defined. The percentage of the observed immature vultures was a bit higher than the adult birds, being 47,1%. The observed adult birds on the other hand accounted for 38,2% of the cases and 8,8% of the registered Black vultures were identified as subadult birds (Figure 3). Frequency of presence and the main corridor for the Black vultures coming to forage in Bulgaria were identified. During the study period 5 marked individuals were registered and some of the individuals were observed on several occasions. One of them, an adult bird wearing wingtag 47, was observed four times, while an immature bird with wingtag 91 was registered 15 times in the area. The work on this action was continued under Action D1.

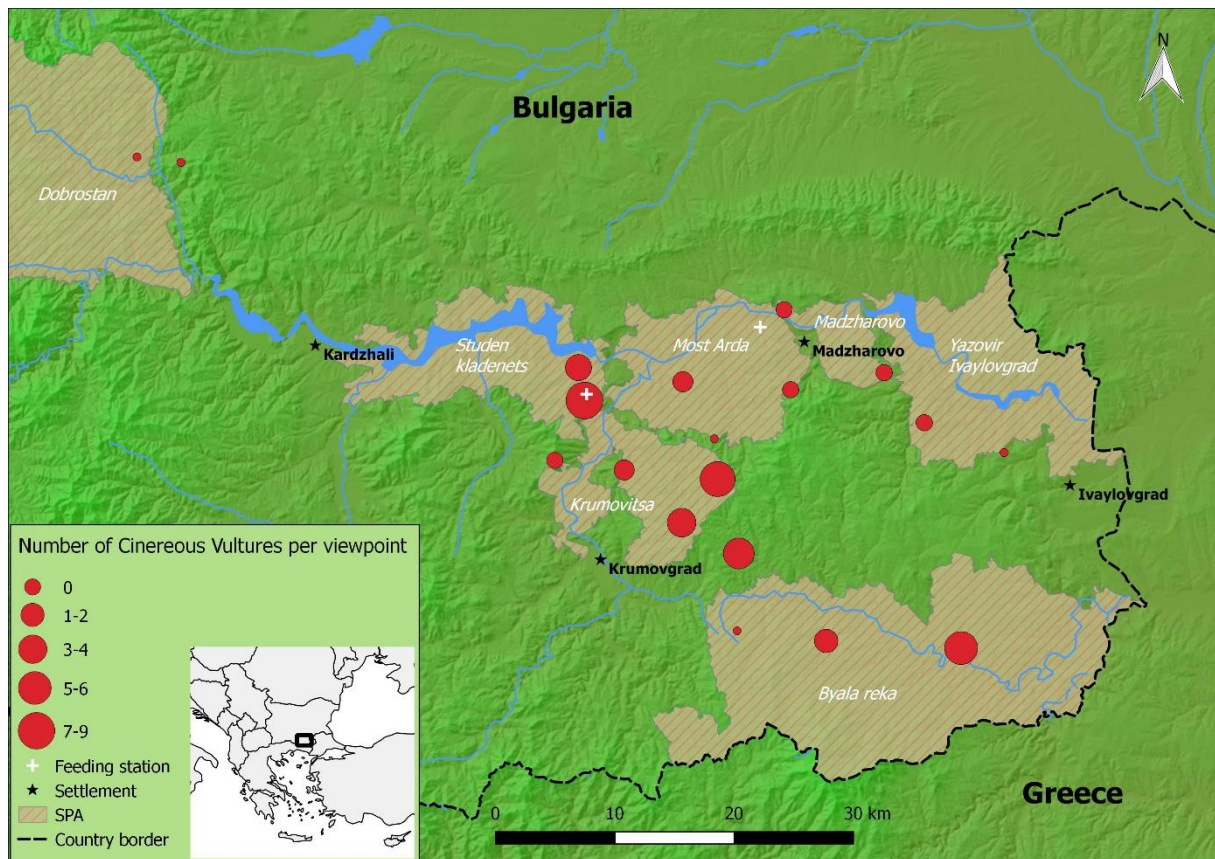


Figure 2. Location of the viewpoints used in the frame of the study on Black vulture presence

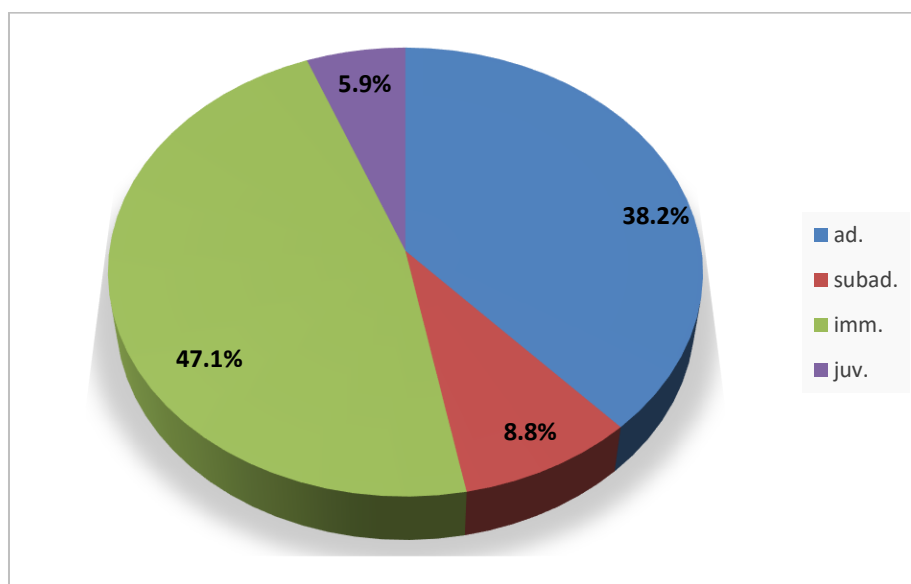


Figure 3. Distribution of age classes among the observed Black vultures. ad = adult; subad = subadult; imm = immature; juv - juvenile

In addition to the vantage points, observations for recording Black Vulture presence were conducted also during specially organized feedings. In total 211 specially organized feedings for Black vultures were carried out in two priority areas – Madzharovo SPA and Studen kladenets SPA. About 46,200 kg of carcass were provided, mainly cows, ungulates and offal material from the slaughterhouses in the region (Figure 4). The most abundant carcass by number was the cow with 110 animals supplied for the vultures, with a total contribution of 25.600 kg of meat. On 59 occasions 97 Black vultures were observed to take advantage of these feedings. In order to register the marked birds and confirm their age four camera traps were installed for regular monitoring of the feeding places. In total 18 marked Black Vultures were detected during the feedings. Vulture with wingtag 91 was observed 14 times at the feeding station in SPA Studen kladenets. All the data from the camera traps was archived in BSPB database and some of the data in the project dropbox to be used for the audio-visual archive of the project (Action E1). The team worked after receiving special permits to handle protected species.



*Figure 4. Transportation of carcass to in order to ensure monitoring at the feeding sites*

The obtained results, together with the telemetry data (A5) revealed most of the roosting sites of the species in Bulgaria. The majority of them were situated in SPA “Studen kladenets”, close to the feeding place, maintained by the project team and the rest of the roosts were scattered in other project sites like Byala reka SPA and Krumovitsa SPA along the main flyway corridor of the species towards Bulgaria.

The results of this monitoring were summarized in a scientific paper.

#### **Action A.4. Mapping nests, identify population number, age structure and pattern of movement and survival of the Griffon vulture in Bulgaria and Greece**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	30/06/2018

##### *Objective of the action*

To collect information on breeding biology and success as an essential tool for identifying effective conservation measures.

## *Progress*

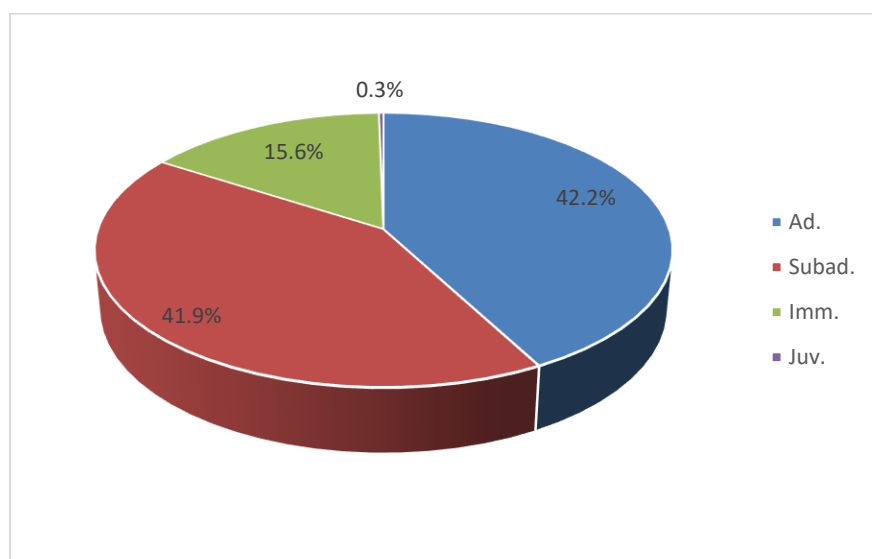
### Bulgaria:

A detailed methodology for counting Griffon Vultures at the breeding sites was developed and compiled under this project action. All known breeding and historical breeding sites of the species in the Eastern Rhodopes were visited and mapped yearly to register the breeding pairs, their age structure and breeding performance. Basically, the monitoring was implemented in the period January – August of each year with three to four visits to every cliff in order to cover the whole breeding cycle of the species. The field data were collected with the application SmartBirds Pro and uploaded to BSPB's database at the end of each day. This allowed easy management of the data and prioritization of the field work.

As a result of the action the breeding and fledgling success of the Griffon Vulture population in the Rhodopes was established. In 2016 the number of registered pairs was 81, which is 6 pairs more than in the previous year, 64 of them were incubating. The number of successful pairs was 50 and 50 juveniles successfully fledged. The breeding success of the Griffon Vultures in 2016 was 0.78 which is higher in comparison to the average breeding success for the area established in the last 20 years. In 2017 the number of registered pairs was 89 of which 66 started incubation. In total 53 chicks hatched, but two died and 51 fledged successfully. The breeding success of the population in 2017 was 0.77. A technical report on Griffon Vulture population trend and age structure was developed.

A colour vulture marking scheme (via usage of standard PVC rings, metal rings and wing tags) for Griffon and Black Vultures in Bulgaria was applied. In total 49 Griffon Vultures (see also Action D1) were tagged and ringed, 18 adults, 16 juveniles and 15 young vultures of different age classes (subadults – 4 birds; immatures – 11 birds). Juveniles were ringed in their nests before fledging. However, 6 juveniles were rescued and then released while the rest were marked in their nests. The remaining 33 Griffon Vultures from various ages were ringed after being trapped with a walk-in trap installed at one of the feeding stations.

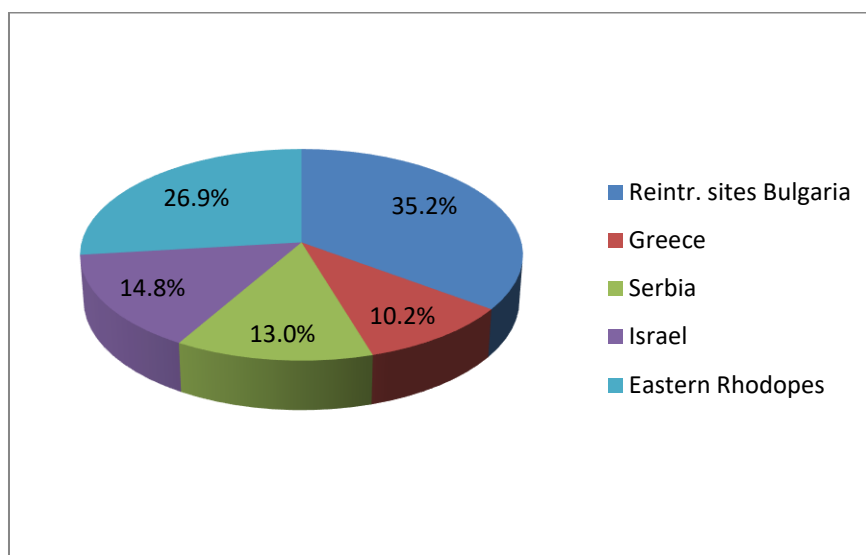
To register the presence of marked birds and their age structure and the population demography, 81 observations during specially organized feedings (Action A3) were carried out in the reporting period (Figure 5). The highest number of Griffon Vultures per one feeding is 128 birds together. The average number of Griffon Vultures per feeding is 54.



*Figure 5. Percentage of different age classes established for the Griffon vultures*



During the observations 108 marked Griffon vultures with different origin were identified of which 11 were with Serbian origin, 14 were tagged in Greece, 16 were tagged in Israel, 38 were released or tagged at the reintroduction sites in Balkan Mountain and Kresna gorge and 29 were tagged in the frame of the current project (Figure 6). A detailed study on the pattern of presence and the origin of the Griffon vultures inhabiting the Eastern Rhodopes was published in a separate scientific paper.



*Figure 6. Percentage of marked Griffon Vultures observed in Eastern Rhodopes in accordance to their origin*

A Griffon vulture roosting site census was conducted in November 2016 and 2017 to establish the age structure (Figure 7) and the population numbers (Figure 8) in the pre-laying period. More than 35 volunteers and field experts were simultaneously counting on all roosting cliffs in Eastern Rhodopes to determine the exact number of the roosting vultures (Figure 9). Simultaneous counts were conducted in the reintroduction sites in Balkan Mountain and Kresna Gorge but also in other Balkan countries – Greece, Macedonia and Serbia. BSPB has coordinated the process and summarized the data. In 2016 in total 184 Griffon Vultures were registered roosting on the Bulgarian side of the Eastern Rhodopes and 12 on the Greek side of the mountain. Due to bad weather and low visibility the numbers in 2017 were slightly lower in Eastern Rhodopes: 145 in Bulgaria and 17 in Greece. Adult birds comprised 61% of all individuals, followed by immatures (13%), subadults (7%) and juveniles (5%). See Action D1 for full details.

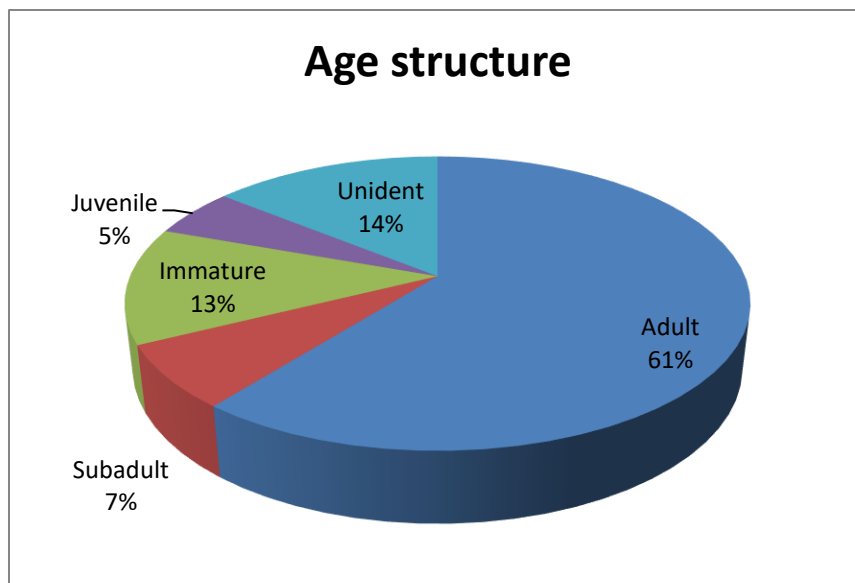


Figure 7. Age structure of the Griffon Vulture population in Eastern Rhodopes

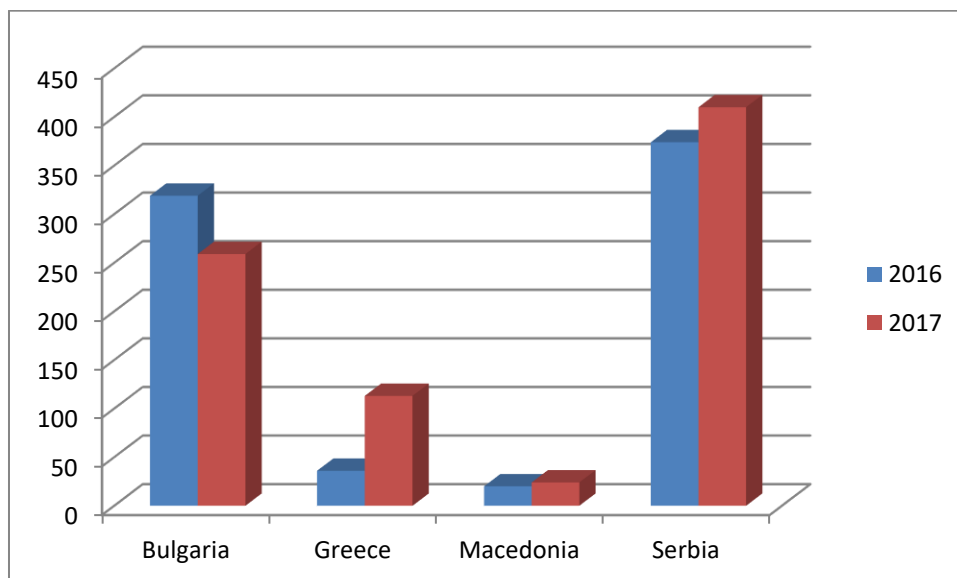


Figure 8. Numbers of recorded Griffon Vultures during the annual roosting censuses by countries





*Figure 9. Group photo of volunteers participating in Griffon vulture roost counting in Bulgaria*

#### Greece:

In the period 2016-2017, WWF conducted a monitoring of the breeding parameters and roosting activities of Griffon vultures in 3 SPAs of the Greek part of Rhodopes (Notio Dasiko Symplegma, Koilada Filiouri and Koilada Kompsatou). Field protocols, maps, photos from nesting rocks, guidelines for field work and database have been organized. During January-July, some visits for the breeding monitoring were carried out late afternoon and they were combined with the roosting monitoring. During August-December, the roosting monitoring was carried out in the late afternoon, 3 hours before dark.

In 2016, 7 pairs occupied nests, 6 pairs incubated and successfully hatched and fledged a chick. The maximum number of roosting Griffon vultures was 20 individuals in Kompsatos valley in October. In total, roosting Griffon vultures were recorded in 3 sites (Avantas, Ag, Theodoroi in Notio Dasiko Symplegma and Thracian Meteora in Kompsatos valley) where about 5-10 individuals occurred.

In 2017, 2 pairs occupied nests in one site (Avantas in Notio Dasiko Symplegma) and both hatched and fledged a chick. The max number of roosting Griffon vultures was 26 individuals in Kompsatos valley in September. This year, Dadia National Park was included in roosting sites where the max number was 22 individuals in October.

WWF GR participated in the common Griffon vulture roosting monitoring, which was organized by BSPB in November 2016 & 2017. The Management Body of Dadia National Park joined at the same common monitoring.



*Figure 10. Building a vulture walk in cage-trap*

**Action A.5. Identify threats, mortality factors, temporary settlement areas, dispersal patterns of Black and Griffon vulture using GPS based telemetry**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	30/06/2018

*Objective of the action*

To determine threats, home range, temporary settlement areas and dispersal of Black and Griffon vultures as well as the species wandering patterns through the use of satellite telemetry in order to inform the correct location of a series of necessary conservation actions in the Bulgarian and Greek project area.

*Progress*

BSPB held a special meeting with the Dadia National Park Management (Greece) body and WWF Greece for discussing the trapping, sampling and tagging of vultures in Greece and Bulgaria. As a consequence the BSPB staff was trained and prepared for implementing this action in Bulgaria. A relevant permit for trapping and tagging in accordance with the Ordinance No 8 was obtained on time from the Ministry of Environment and Waters of Bulgaria. Consequently, a walk-in trap (cage) for vultures was built in SPA “Studen kladenets” in April 2016 (Figure 10) and sampling and tagging protocols were prepared.

Trapping of Griffon vultures in Bulgaria

The trapping and tagging of Griffon Vultures started as scheduled. However, due to some delays with transmitters production and shipment delayed meeting the milestones on time and the action was prolonged until summer 2018. After the slow start in 2016, very successful trapping and tagging was initiated in the years that followed with 34 Griffon vultures tagged until the end of the project (Figure 24). Although the action was officially completed in 2018, the team re-mounted some of the transmitters that were lost by several birds due to mortality or other reasons. 11 of the marked birds were reported dead and different mortality factors were revealed. For details, see Table 1.

Trapping of Black vultures in Greece

The trapping efforts for Black Vultures in Greece started in October 2016. Until December that year 11 Black Vultures were tagged with transmitters of which 5 were tagged with GPS Argos transmitters and 6 were tagged with GPS-GSM transmitters.

In 2017 the trapping efforts started in October. Until December 12 Black Vultures from various ages were tagged with GPS-GSM transmitters. Fallen transmitters or transmitters from dead Black Vultures, were fitted in other individuals during trappings in 2018-2019. Altogether, 27 Black vultures were tagged in the frame of the project. 8 out of the marked birds were reported dead and different mortality factors were revealed. For details, see Table 1.

*Table 1. Number of Griffon and Black vultures tagged with the two types of transmitters per years*

Species	Year	GPS-GSM	GPS-Argos	TOTAL	Mortalities
Griffon Vulture	2016	3	3	6	1
Griffon Vulture	2017	10	3	13	4
Griffon Vulture	2018	6	2	8	2
Griffon Vulture	2019	4	0	4	2
Griffon Vulture	2020	2	0	2	2
Griffon Vulture	2021	1	0	1	0
Black Vulture	2016	6	5	11	1
Black Vulture	2017	12	0	12	1
Black Vulture	2018	3	0	3	2
Black Vulture	2019	0	1	1	1
Black Vulture	2020				1
Black Vulture	2021				2

As a result of this action a detailed information and knowledge on the target species movements, dispersion pattern, home range size and mortality factors were obtained. All the data from the transmitters was set to be automatically uploaded at [www.movebank.com](http://www.movebank.com). Until the end of the reporting period 1 870.000 GPS records from Griffon Vultures and 185.000 records from Black Vultures has been received from the transmitters. Based on the data collected so far some preliminary analyses were made on the home range of both species and the main flight corridors between Bulgaria and Greece (Figures 11,12). The effect from this action was monitored in the frame of Action D1.



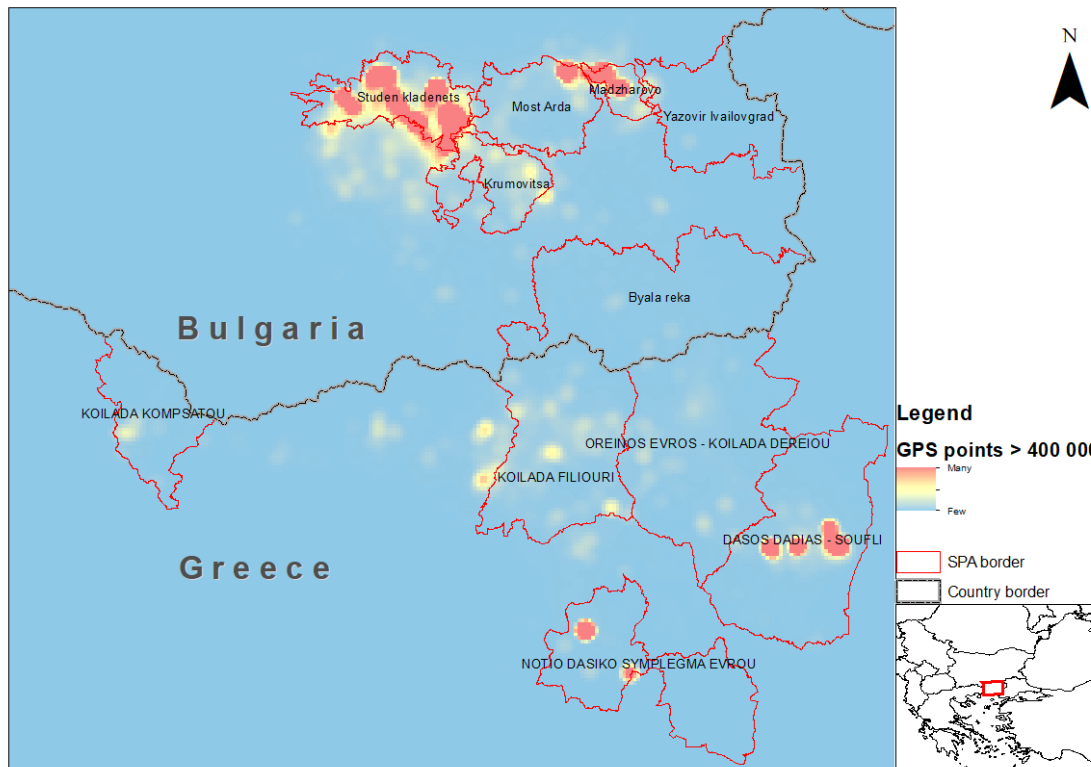


Figure 11. Griffon vulture home range maps presented with a hot spot analysis

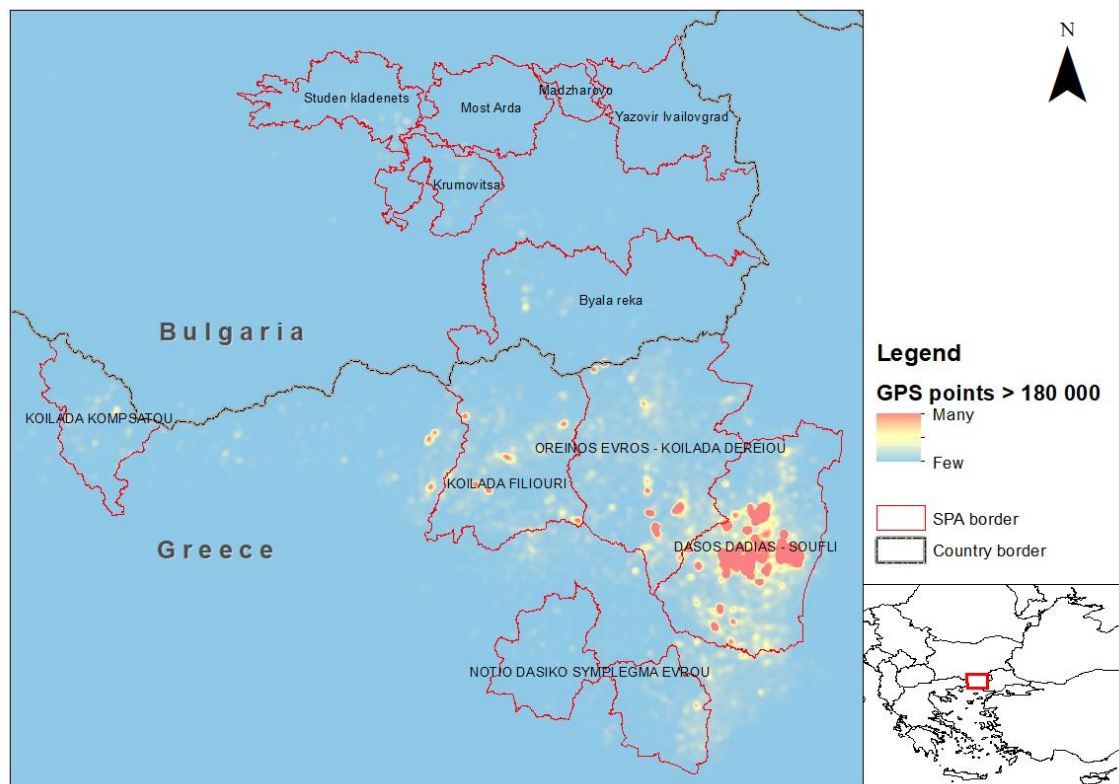


Figure 12. Black Vulture home range map presented with a hot spot analysis

The telemetry data obtained in the frame of the project revealed the used corridors and wintering areas of the juvenile Griffon Vultures, some of them reaching as far as South Sudan and Iran.

The data also threw light over some unknown wintering sites and mortality factors. Three Griffon Vultures and seven Black vultures were found immediately after their death with the help of the transmitters, which made it possible to analyse the reasons of death and to recover the transmitters, while another one, fitted on a Griffon vulture, was lost due to the inaccessibility of the area.

The data from the transmitters revealed also unknown roosting sites for both species in Bulgaria. Some frequently visited places were checked by ground team resulting in discovery of water reservoirs used for bathing in both Bulgaria and Greece and a new breeding cliff in Bulgaria. Therefore, detailed information on the space use and diet of the Griffon vulture was obtained and summarized in 2 scientific publications.

In Greece, regarding the identification of mortality causes of vultures (A5) and the improvement of collaboration between institutions responsible to prevent poisoning and other mortality causes (Action C4), the team of WWF Greece was alert in participating in every incident that put in risk the survival of vultures. So, whenever an information about injured or dead vulture or other poisoning incident in important vulture areas was provided by a particular authority or a citizen, the WWF GR staff visited the relevant site together with the anti-poison dog and searched for vultures, other dead poisoned animals and poisoned baits. By using the dog, the field research was more effective in detecting any risky substances for vultures and in some cases the vultures that got killed.

In this framework, during 2016-2021, 51 patrols with the use of specially trained dog in poison bait and animal detection were carried out. In 74% of patrols a relevant authority (Forest service, Management Body of National Parks or/and Hunting Federation) was present, which demonstrates a good cooperation and will in tackling the problem in Thrace. Six different poison events were investigated. The results of each patrol were reported in official letters that were sent to the relevant authorities. In total, 26 poisoned baits and 29 poisoned animals (11 black vultures, 1 griffon vulture, 1 spotted eagle, 3 ravens, 1 wild cat, 5 foxes and 7 dogs) were detected. In some patrols other findings not associated to poison events were detected (mostly while seeking for dead or injured vultures – transmitters or citizen info):

1 dropped transmitter of black vulture, 2 black vultures and 1 griffon vulture – collision with power lines, 1 black vulture and 1 griffon vulture (a wing) – collision with a WT, 1 griffon vulture - unknown reason and 1 black vulture with a broken transmitter – unknown reason.

Moreover, three informative presentations in hunting clubs of Evros and Rodopi Regional Units were conducted. The hunters, besides meeting with the Anti-poison team, had a chance to get acquainted with the problem of the use of poison baits, by which they might get damaged as well. The purpose of such meetings was to enlarge the anti-poison network, get as much valid information of incidents in order to make more effective the work of the team. An anti-poison workshop was organized by the Management Body of Rodopi Mountainous Range National Park where the WWF team was invited with a lecture as expert helping in the establishment of new local task force in the Xanthi-Kavala Regional Units.



*Picture 13. Tagging of Griffon vulture*

**Action A.6. Identification and prioritisation of major electricity lines in the project area posing the risk of collision and electrocution**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	31/12/2017

*Objective of the action*

The action aimed to minimize the risk of electrocution and collision with power lines of Black vultures, but also other birds of prey and Black and White storks.

*Progress*

The hazardous power lines issue was discussed at a joint meeting between the LIFE RE-Vultures project and Vultures Back to LIFE (LIFE14 NAT/BG/649) teams in April 2016. Following the discussion, data from previous study realized within the LIFE project “Return of the Neophron” (LIFE10 NAT/BG/000152) was obtained to be used as a proxy to this current research on the issue.

As a result, in July and August 2017 ground surveys for mapping hazardous power lines were conducted in 4 project SPAs (Byala reka, Krumovitsa, Studen kladenets and Most Arda). These power lines were selected by considering the main foraging areas of the Griffon and Black vultures revealed by the satellite transmitters (Actions A3, A5). Only power lines that have not been mapped in the frame of the project “Return of the Neophron” were visited. During the field work the methodology and field protocols developed under the project “Return of the Neophron” were followed. An experienced ground team walked along the power lines taking GPS coordinates and recording the electricity pole design. Information on bird mortality was

collected as well. In total 409 poles were mapped. Ground teams found 13 corpses of dead birds under hazardous power poles. All of them died due to electrocution. Ten of the victims were from genus *Corvus* (Ravens and Crows), 1 was White stork, 1 Common buzzard and 1 unidentified bird. A report outlining power lines priority for mitigation measures was developed.

#### **Action A.7. Evaluation of the legal-operations approach regarding poisoning**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	31/12/2017

##### *Objective of the action*

To evaluate and integrate into one planning and reference document the different operational-practical actions and contexts operating in the project area regarding poison, in order to define a baseline situation upon which more streamlined actions plans can be developed.

##### *Progress*

A draft report regarding the poisoning incidents in Bulgaria has been made.

This action and Action A5 of the “Vultures Back To Life” project were similar. In order to avoid overlap a joint meeting between the two projects was made in 2016. There it was decided that A5 of “Vultures Back To LIFE” would refer to the national situation in Bulgaria regarding the poisoning problem and A7 would be developed specifically for the Rhodope Mountains. However, in the beginning of the process both projects teams (BSPB, Green Balkans and WWF) provided information to VCF regarding the poisoning cases, the legal operation and the anti-poison activities in Bulgaria. At the end, two separate reports were produced by the two projects, and the report of “Vultures Back To Life” has very much contributed to the preparation of the A7 report, e.g. for the development of recommendations.

VCF together with BSPB (LIFE RE-vultures) and Green Balkans (LIFE Vultures Back To Life) have cooperatively worked on this study. Great contribution came from the Anti-poison Workshop organized by VCF under A5 from the Vultures Back To Life Project on 25<sup>th</sup> of April 2017 in Sofia, where the dog unit officer presented the poisoning cases history and BSPB work on it in the Eastern Rhodopes Mountains. One of the main outcomes of this Workshop was the uncertainty in the interpretation of the relevant national legislation. Therefore, VCF requested support from a Bulgarian lawyer who helped to interpret the Bulgarian legislation regarding wildlife poisoning and responsibilities of national public bodies. Although these activities were under a different LIFE Project (Vultures Back To Life) they were extremely relevant for the compilation of the report of the present action, especially for the policy operational recommendations.

BSPB hired an expert to develop and report the case studying such crimes and to create guidelines for the relevant institutions and NGOs working on the topic.

#### **Action A.8. Study the health status of large vultures with focus on lead poisoning and veterinary drugs as threats for the Black and Griffon vultures in Bulgaria and Greece**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	30/06/2021

### *Objective of the action*

To have a good knowledge on the level of antibiotics, pesticides, heavy metals and inbreeding for Griffon and Black vulture populations and at the same time to know the causes of mortality of all Griffon and Black vultures found dead during the project implementation.

### *Progress*

Sampling protocols produced by the VCF within the “Vultures Back To Life” project were obtained and used for this project as well. The protocols were strictly followed by the field team when taking and storing samples.

Samples collection was done along with the marking and tagging of the vultures in Actions A4 and A5. Samples for bacteriological and microbiological analyses were collected from the eye, throat and the cloaca of each vulture. Blood samples were obtained for toxicological analyses (NSAID, antibiotics and heavy metals). Feathers were also collected from each bird for DNA analyses. Juvenile griffon vultures were sampled in their nests or after rehabilitation, while adults and immature birds were sampled after being trapped in the built cage. Black vultures were sampled after being trapped in a cage and some of the juveniles in their nests in Dadia NP, Greece. In order to proceed with this action in 2017 BSPB initiated a search for a suitable laboratory together with VCF. A laboratory for the toxicological and microbiological analyses was identified and contacted in Spain – IREC.

As a result **33** samples from Griffon vultures and **45** samples from Cinereous vultures were analyzed in IREC/Spain for antibiotics, NSAIDs, heavy metals, Chlamydia and West Nile virus. The results showed that the health condition of the vultures is very good and the concentration of the pollutants in the blood is at very low levels in comparison to Spain. The findings have been summarized in a report by the lab.

The results of this action were presented and published in a scientific conference held in Dublin. Separately, a DNA study of 33 feather samples from Griffon vultures and 45 feather samples from Cinereous vultures was conducted by Dr. Helsen from Antwerp Zoo Centre for Research and Conservation. The genetic study was conducted separately of the toxicological and microbiological analyses because of its specificity. The same number of samples was used though because they were obtained during Action A8. The study found that the population of the Griffon vulture has a diverse genetic fund and also revealed some traces of Spanish blood within the genes of the Black vultures. More details are provided in the report.

Moreover, in 2021, samples (bones, feathers and soft tissues) from 29 Cinereous vultures were sent to the University of Murcia, Area of Toxicology, Department of Sociosanitary Sciences to be analyzed for heavy metals (Pb) and veterinary medicine (NSAIDs). The samples were collected from stored dead birds by WWF GR and the Management Body of Dadia National Park. The aim of the study was to explore the possible negative effect of heavy metals and veterinary medicine (NSAIDs) to the Cinereous vultures population in Greece. The results revealed that all the livers and feathers samples had lead concentration below the threshold for background exposure; however, two livers had concentration closed to the threshold established for elevated lead exposure. Also, in liver samples NSAIDs were detected; specifically, flunixin meglumine and phenyl butazone, both components toxic for vultures. These results are very important as for the 1st time lead and NSAIDs were detected in this population. The overall results suggested a real need for establishment of a long-term biomonitoring program for lead and NSAIDs in the future, as this intoxication could have a negative impact to the Cinereous vulture population in Greece.



### **Action A.9. Human dimension study on attitudes and impact**

Foreseen start date: 01/01/2016      Actual start date: 01/01/2016  
Foreseen end date: 31/03/2017      Actual (or anticipated) end date: 31/03/2017

#### *Objective of the action*

To understand what were the most important stakeholder groups and what were their concerns and needs, as a base to involve them directly in management decisions and project implementation.

#### *Progress*

In a first step an expert for the stakeholder analysis was selected and contracted. Initial data on stakeholders have been collected, including a data base of livestock owners in the project areas. Initially a brainstorming was made between the project team and the consultant on methods and questions of the studies. The subcontractor then did the questioning and focus groups as planned.

The study revealed that vulture conservation is well accepted and supported by the large majority of the representatives of the stakeholders – more than 70%. Vultures are considered as assets for developing eco-tourism. Deer restoration is supported by more 90 % of the population. However, the report revealed some issues worth addressing:

- There is a difference in the level of awareness on vulture conservation. It is much higher in Madzharovo where the previous work was more intensive comparing to other municipalities such as Krumovgrad.
- Some of the respondents think that vulture conservation is not helping enough local people and it is in favor of strangers (non-locals) and NGOs only. In this regard the actions planed in the project to support local entrepreneurs by repairing their hides and other materials would be very useful to overcome those concerns.

### **Action A.10. Preparatory actions for the reinforcement/reintroduction of wild prey species in the project areas**

Foreseen start date: 01/01/2016      Actual start date: 01/01/2016  
Foreseen end date: 31/12/2017      Actual (or anticipated) end date: 31/12/2017

#### *Objective of the action*

To be certain that all economic, biological and geographical variables were favorable to the released individuals, to have enough information to decide on the best releasing sites and to improve the fallow deer catching facilities.

#### *Progress*

At the beginning of the action the quality of the available habitats for the species was evaluated by the project biodiversity expert and the locations for the pre-release enclosures were selected according to the local conditions. The selected sites for deer releasing were at significant distance from arable agricultural areas, with year-round available water resources and with typical mosaic landscape of open grasslands and broad-leaf forests, which are the best habitats for these species.

Four sites were selected for the Fallow Deer restoration:

- Chernoochene area (SPA Dobrostan BG BG0002073). The Fallow deer restoration in this area was in collaboration with the Hunting Society of Kardzhali, which manages

the hunting rights in the majority of the territories of municipalities of Kardzhali and Chernoochene.

- Tintyava area (SPA Byala reka BG0002019). The Fallow deer restoration in this area was in collaboration with the Tintyava hunting group, part of Krumovgrad Hunting Society, which manages the hunting rights in the Krumovgrad municipality.
- Madzharovo area (SPA Madzharovo BG0002014 / SPA Yazovir Ivaylovgrad BG0002106). The Fallow deer restoration in this area was in collaboration with the Hunting Society of Harmanli, which manages the hunting rights in the territories of municipalities of Madzharovo and Harmanli.
- Byal kladenets area (SPA Studen kladenets BG0002013). The Fallow deer restoration in this area was in collaboration with the Hunting Society of Haskovo, which manages the hunting rights in the territories of municipalities of Haskovo and Stambolovo.

As it was described in the project proposal in two of these sites – Chernoochene and Tintyava, the Fallow deer restoration was initiated in collaboration with local hunting societies in the framework of the previous work before LIFE RE-Vultures project start. In these two sites there were already deer release infrastructures, which needed some upgrade or maintenance. In Chernoochene area the existing enclosure was maintained and in Tintyava area the enclosure was upgraded with additional electro fence against carnivores.

Other two release sites – Madzharovo and Byal kladenets were selected within the project

Two sites for Red deer release were selected:

- Hunting reserve Studen kladenets (SPA Studen kladenets BG0002013). The Red Deer restoration in the area of Studen kladenets was carried out with the cooperation of the Studen kladenets Hunting reserve at National Hunting Union, which is responsible for the hunting management of this territory. In this area the Red deer release was initiated before the project start.
- Tintyava area (SPA Byala reka BG0002019). The Fallow deer restoration in this area was in collaboration with the Tintyava hunting group. This is new selected Red deer release site and for Red deer adaptation an additional enclosure with feeding troughs and water source inside the fenced area was built.

Contracts for cooperation on Fallow Deer restoration were signed with Kardzhali and Harmanli Hunting Societies. Contracts for cooperation on Red Deer restoration were signed with the Studen kladenets Hunting Reserve and a contract for cooperation on Fallow and Red Deer restoration was signed with Tintyava Hunting group.

On 6 -7 September 2016 in the Studen kladenets Hunting reserve special training on deer trapping and handling was carried out by a British deer expert. On the first day of the training the deer expert together with project team and the management of Hunting reserve Studen kladenets visited the existing live deer traps in the hunting reserve and potential places for new traps and discussed the possibilities for improving of the deer trapping. On 7 September 2016 a training on deer handling was made. 21 representatives of hunting reserves, game breeding stations, forestry administration and project team members participated. The best practices for handling and trapping were presented and the possibilities for their implementation in Bulgarian hunting reserves were discussed.



*Figure 14. Field visit during the training on deer trapping*

The existing trapping facilities in the hunting reserve Studen kladenets were improved by mounting cameras for internet live view and remote controls for closing the trapping systems. This allowed the project team to react quickly in case of deer presence. This improved significantly the effectiveness of the trapping and also reduced the cases of mortality during the trapping taking more care for animal welfare.

#### **Action A.11. Development of GIS database for the project areas**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	31/12/2020

##### *Objective of the action*

To organize the geographical information of the project and be able to use it for plan interventions and creation of thematic maps for communication.

##### *Progress*

The collection of data and transfer to the GIS expert occurred as follows:

##### *For Bulgaria*

The general data was provided as shapefiles (.shp format) which were clipped to the study area extent and uploaded to the database.

The vulture GPS-tracks (tracks only) derived from exports from the Movebank database to which the transmitters store the track points and sensor data in real-time.

The deer GPS-tracks (points and tracks) were downloaded from the Ecotone data portal as .csv and .kmz and then converted to .shp files to be uploaded to the database.

The data off the different actions was provided by the person responsible/ corresponding to the specific action. Deer release data were put together in 1 .shp file for areas (polygons) and 1 .shp file for points before uploading to the database.

Data on feeding stations, artificial nests and powerlines was provided (BSPB) as .gpx, .txt and .xlsx respectively which were all converted to .shp before uploading.

For Greece

The general data was provided by WWF GR as .shp files which were only converted to the project coordinate system (WGS\_1984\_UTM\_Zone\_35N).

The data for the different actions was provided by WWF as .shp as well.

Specifically for the poison incidents a field application and data form was created to store attributes and data points while on patrol in the field (with dog). This data is fed in directly into the online database. This was the case only for the Greek part.

#### GSM-GPRS data

The data that was collected from the GPS tags was stored using a live-feed in an online database ([movebank.org](http://movebank.org)) to which access and download of the data is granted to the appropriate team members.

#### Project data

Available spatial data for the LIFE-Vultures project areas was shared among the LIFE RE-Vultures team members (beneficiaries) and stored in an online geodatabase (<https://rewildingeurope.maps.arcgis.com/home/item.html?id=7e9ebb133d374ba0830e05d87d13235a>). The data that was subject to regular changes (such as field data) was updated bimonthly.

The spatial data layers were (where necessary) reprojected to the project's coordinate system (WGS 1984 UTM Zone 35N) and clipped to the project's data extent (N 4640000, S 4520000, W 330000, E 450000).

12 Thematic maps were created to display the available data layers. These maps were shared through an online gallery through ESRI's ArcGIS Online platform to which all GIS related beneficiaries have access.

Apart from the 12 thematic online maps, several map outputs were created for communication purposes to the general public.

These included:

- Overview maps of GPS tracks of griffon and black vultures in the project area
- Information map off the LIFE-vultures project for the use in a local documentary
- Story map of individual vulture track on the migratory behavior of a young black vulture.
- Animation of 2 young griffon vultures migrating South

#### **Action A.12. Evaluation of the current veterinary and sanitary regulations and vulture feeding practices in both countries and preparation of recommendations for necessary modifications**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	15/01/2018

### *Objective of the action*

To understand and promote the EU regulations that promote both natural and artificial feeding of vultures and look for legal ways to speed and facilitate the whole process.

### *Progress*

#### Greece:

In a first phase a collection was made of the relevant EU legal provisions (mostly Regulations) and national Greek legislation (Laws, Presidential Decrees and (Joint) Ministerial Decisions) concerning veterinary and sanitary regulations and vulture feeding practices. The collected information was reviewed and evaluated, in order to compile a detailed report. The main goal was to explore the compatibility of the Greek legislation with the relevant EU legislation, and whether the Greek legislator succeeded, or not, to fulfill the obligations arising from the relevant EU legislation.

The report aimed to recommend necessary modifications that needed to be adopted by the national authorities, in order for the vulture feeding practices status quo to be aligned with the one imposed by the EU and the vulture conservation practices, in terms of technical feeding. For the completion of the report the necessary meetings and interviews with the competent authorities, officers and private companies took place in order to clarify matters concerning the collection, management and disposal of carcass livestock for purposes of vultures feeding.

On 3 May 2017 the team of HOS in charge for the development of the Action participated in a prearranged meeting with the Animal Byproducts Department of the Ministry of Rural Development and Food. The Department manager informed the HOS delegates on the legal framework regarding the animal byproducts and the operation of vulture restaurants, referring to both the EU Regulations and the national legislation. Emphasis was put on the problem of the lack of technical qualification for the establishment and operation of vulture restaurants, and the matter of the free disposal of animal carcasses. The parties agreed on further future collaboration.

The HOS team has had a very fruitful cooperation with Mrs. Dora Skartsi, leader of the Evros project at WWF Greece. Mrs. Skartsi is very experienced on matters related to the establishment and operation of vulture restaurants. The practical experience gained in Evros was of crucial importance for the feeding practices standards in Greece and in Europe.

Furthermore, the HOS team performed several phone interviews involving experts from the Natural History Museum of Crete, SFS managers, Foresters, Biologists and other scientists, all of them very experienced on the relevant matters related to the establishment and operation of vulture restaurants, and the ecology of vultures as well. A peer to peer review of the draft of the report followed, enriching the final result of the deliverable.

Communication and collaboration with the BSPB colleagues throughout the project was of crucial importance. Also, participation in the International Workshop on Supplementary Feeding Strategies for Vultures and the Anti-poison Workshop, which were held in Bulgaria in the frame of Action E12 boosted and enriched the knowledge on the subject.

The HOS team concluded, among others, that the current practices of transposition and incineration of dead animals and animal by-products lead to important carbon footprint and emissions of tons of dioxide gas. A collateral yet very significant benefit resulting from the review of the current situation and the use of animal by-products for purposes of technical feeding, would constitute a shift to a more climate-friendly regime.

The final version of the report has been delivered to the partners of the LIFE project as well as to the competent national authorities (Ministries, Decentralized Administrations, Protected Areas Management Bodies etc.) so that they were able to take the proposals set out in the report into account and conduct the necessary modifications in the national legislation.

Upon communication with the competent Animal Byproducts Department of the Ministry of Rural Development and Food, it has been decided that the report should be posted on the official site of the Ministry for Animal By-products for purposes of information and education, ensuring this way the access to and dissemination of the relevant information in an active way.

The report has been presented at the Panhellenic Veterinary Conference in May 2018 and at the Balkan Vulture Symposium in Messolonghi, December 2018.

#### Bulgaria:

BSPB hired a legal expert who developed and wrote an extensive report including the EU and Bulgarian regulations that were in charge in Bulgaria and created a set of recommendations and guidelines towards carcass collection, disposal, transport and operating a feeding site. The report was exchanged with the team of HOS. In this regard BSPB obtained permits for carcass disposal and transport that were needed in order to implement activities under Action A3 and also adapted the feeding site according to the vet recommendations.

#### **Action A.13. Business opportunity identification and planning**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2017	Actual (or anticipated) end date:	31/12/2017

#### *Objective of the action*

To identify and select for support the three most promising businesses which were going to provide targeted support to the vulture conservation objectives and were going to be commercially successful and sustainable. Although there has been a slight initial delay, it was then fully recovered in the following months and therefore the action was successfully completed.

#### *Progress*

A local enterprise officer was identified and contracted for this action, who was responsible mainly for supporting the business planning. After discussions with the project members on the requirements, regarding the support of the 3 local tourist businesses in the framework of the project activities, the local enterprise officer conducted research (on-line and on-spot) of the tourism business environment in the project area.

A series of meetings were also conducted with representatives of local businesses with potential to develop sustainable tourism services with focus on vultures.

A questionnaire was developed to assess the performance of the local tourism providers and filled by tourism business representatives. The collected information was summarized by the Local enterprise officer and used as a base for the development of an overview of business opportunities in support of vulture conservation in Eastern Rhodopes. The document recommended 3 promising local businesses.





*Figure 15. Rewilding Europe officer meeting local entrepreneur at wildlife photography site*

Three businesses have been identified in an initial step: 1) the tour operating company “Natura Madzharovo”, located in in Madzharovo, owned and managed by Albena and Marin Kurtevi; 2) The hunting reserve “Studen kladenets”, located in Nanovitsa village, director eng. Georgi Sheremetiev; 3) tour operating company “Gabi tour” Ltd., located in Kardzhali, owned by Mihaela Kircheva.

Using the preliminarily developed criteria for the assessment of the vitality of the businesses, three tourist providers from the area were approached and invited to a personal meeting with the Local enterprise officer. During those meeting practical aspects of the businesses were discussed as well as the understanding of the link between the nature conservation and sustainable business development in the designated area and the potential for further development of vulture related tourist services. All three businesses responded to the maximum of the requirements: to be a local sustainable tourist business providers working in the project area, to be actively involved in nature protection initiatives, and to already have experience in the construction/exploitation of hide for birds/wildlife watch in the area. All candidates have demonstrated their willingness to diversify their products and possess entrepreneurial spirit and positive reputation amongst local tourist professionals/providers. All three expressed their strong will to invest efforts in this initiative.

Following the identification of the three business in 2017, the Local enterprise officer supported the development of the business plans by providing additional information regarding the one of the identified businesses.

*Problems/changes/delays:*

There has been a slight delay in the development of the third business plan. It took more time than foreseen to find a third active local business who could on the one hand have been suitable

for carrying on a business and on the other hand to provide benefit for vulture conservation in the project area. However, the third business plan developed in the first half of 2018.

### **Action C.1. Improve the feeding conditions for vultures involving local communities in a specific SPA in Greece**

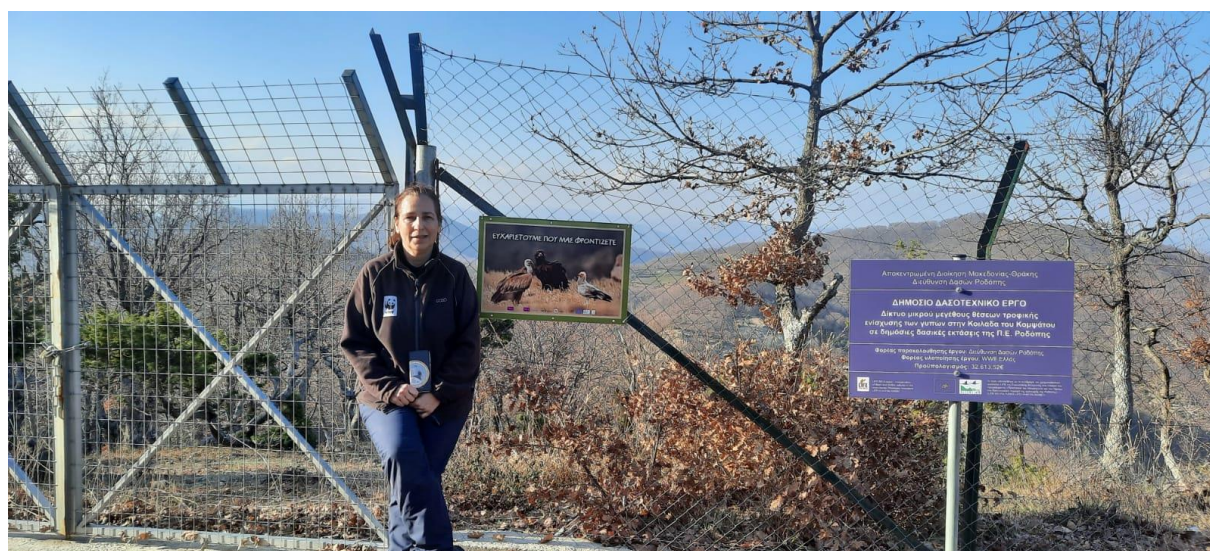
Foreseen start date:	01/04/2016	Actual start date:	01/04/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

#### *Objective of the action*

To improve the feeding conditions for vultures in Kompsatos valley, boosting the numbers of Griffon vultures' pairs, maybe even creating a new colony, and helping Black vultures which forage regularly in the area. This action matched the foreseen timing and was successfully completed.

#### *Progress*

During 2016-2017 the permission process for the creation of the network of the feeding sites was developed. In the 1<sup>st</sup> semester of 2018, the technical study was prepared and approved and in the 2nd semester, market research/selection of contractor and construction of the feeding sites were implemented. In February 2019 the operation of feeding sites started. The Rodopi Vet Directorate organized a registry for livestock breeders to sign their affirmation that they support the operation of the FS. In total 21 livestock breeders signed the affirmation. 13 out of the 21 livestock breeders placed dead animals (goats, calves) in the fences. Once per week, WWF also delivered food. In total, 118 feedings were carried out and 7860 kg of food was placed. 19 out of the 118 feedings were made by livestock breeders placing 22 dead animals. WWF collaborated with 6 butchers collecting every week 70-100kgr.



*Figure 16. Entrance of one feeding site with relative signs*





Figure 17. WWF provides food at the Kompsatos feeding sites

20 binoculars were donated as present to the livestock breeders and 10 electric fences were donated mainly on sheep/goat owners to protect their farms from wolf attack. We cleaned the feeding sites from bone/skin remains (five times) and carrying them to the incinerator in Xanthi. Finally, 3 official letters were sent to national/regional authorities with information on the operation of the network of FS.

We recorded the presence of max 23 Griffon vultures and 12 Black vultures. Egyptian vulture was a daily visitor from end March till September. We also recorded Golden Eagle, White-tailed Eagle, Steppe Eagle, Black kite, Booted Eagle, Marsh harrier, Common buzzard, ravens and hooded crows.

### Action C.2. Release of wild prey species to increase the natural food base for vultures

Foreseen start date: 01/04/2016 Actual start date: 01/04/2016  
Foreseen end date: 31/12/2020 Actual (or anticipated) end date: 30/06/2021

#### Objective of the action

To improve Griffon and Black vulture food resource through the restoration of populations of wild herbivores, at least 200 Fallow deer and 50 Red Deer.

#### Progress

Total 50 Red deer and 398 Fallow deer have been translocated to the project area.

Table 2. Deer translocated, lost and released within LIFE RE-Vultures project

	TRANSLOCATED	LOST/DIED	RELEASED
RED DEER	50	3	47
FALLOW DEER	398	3	395
TOTAL	448	6	442

Possible sources for purchasing of Fallow and Red Deer were investigated in whole Bulgaria and negotiations were made with Palamara, Eledzhik, Ropotamo, Vitinja, Voden, Studen kladenets and Iskar hunting reserves to explore possible supply of Red deer and Fallow deer.

#### Red deer:

Contracts for collaboration on Red Deer restoration were signed with the Studen kladenets Hunting reserve and the Tintyava Hunting group.

The Red deer were purchased and transported from Hunting reserves Palamara and Vitinya. Until the end of February 2018 totally 49 animals were purchased and transported from Hunting reserve Palamara. One animal was delivered from Hunting reserve Vitinya. Due to a lack of capacity this hunting reserve was not able to trap and deliver more animals.



*Figure 18. Red deer in Studen kladenets*

**In Studen kladenets** release site total 40 Red deer (28 adult females, 10 juvenile females and 2 juvenile males) were transported in 2016, 2017 and 2018. All transported animals were released successfully.

**In Tintyava** release site totally 10 Red deer (1 adult male, 5 adult, 3 sub adult and 1 juvenile females) were translocated in 2017 from Palamara Hunting reserve. 3 animals died (in the enclosure (adaptation fence) during the adaptation and 7 animals were released on 6.03.2017. So totally 47 Red deer were released out of 50 translocated.

#### Fallow deer:

Contracts for collaboration in Fallow Deer restoration were signed with Kardzhali and Harmanli Hunting Societies and Tintyava hunting group. The animals were purchased and transported from four hunting reserves – Eledzhik, Studen kladenets, Krichim and Iskar.

#### **Tintyava release area/Tintyava hunting group**

Total 52 Fallow deer were translocated (26 hinds, 19 female fawns and 7 male fawns) from Studen kladenets (27) and Eledzhik (25) hunting reserves. In 2016 one animal died during the transport and two died in the enclosure. Total 49 were released.

*Table 3. Translocated, lost and released Fallow deer in Tintyava released site per year*

	2016	2017	2018	2019	2020	total
translocated	15	0	0	12	25	52
lost/died	3	0	0	0	0	3
released	0	12	0	12	25	49



*Figure 19. Fallow deer release in Tintyava area*

#### **Madzharovo release area/Harmanli Hunting Society**

In the Madzharovo area at the beginning of the project there was no deer population at all (in other two locations in the previous years several Fallow deer releases were made) and that's why in this area the soft release was chosen – the animals were kept for longer time in the enclosure – to ensure the successful adaptation and socialization of the animals.

Total 157 Fallow deer (38 hinds, 1 adult stag, 82 female fawns and 34 male fawns) were translocated from Studen kladenets (41), Eledzhik (43), Iskar (29) and Krichim (44) hunting reserve and released with their offspring which were born inside.

*Table 4. Translocated, lost and released Fallow deer in Madzharovo released site per year*

	2016	2017	2018	2019	2020	total
translocated	14	36	14	93	0	157
lost/died	0	0	0	0	0	0
released	0	0	64	49	44	157

#### **Kardzhali release area/Kardzhali Hunting Society**

Total 189 Fallow deer (27 hinds, 1 semi adult male, 94 female fawns and 67 male fawns) were translocated and released in Kardzhali release site. All Fallow Deer translocated to Kardzhali Hunting society were from Studen kladenets Hunting reserve. The animals were released in area of Chernoochene, Cheganci and in the vicinity of Kardzhali reservoir.

*Table 5. Translocated, lost and released Fallow deer in Kardzhali released site per year*

	2016	2017	2018	2019	2020	total
translocated	12	21	40	60	56	189
lost/died	0	0	0	0	0	0
released	12	21	40	60	56	189

To increase the number reintroduced of the deer in the frame of the project the opportunities of national game restocking program of National hunting union were used. The program foresaw that one additional deer was provided for every deer purchased and released by local hunting societies. Therefore, we have made efforts to convince local hunting societies to participate in the scheme so that additional animals are received for free and release on their territory. Only Kardzhali Hunting Society participated in national game restocking program. As result in 2016-2019 the costs for 133 translocated and released animals 50 % were covered by the project and 50% by the game restocking program of National hunting union. In 2020 the cost of 56 released animals were covered 50 % by national game restocking program, 25% by the project and 25% by Kardzhali Hunting union. For the other reintroduction sites, we were not able to ensure participation of the hunting societies in the national game program. So, we directly purchased all Red Deer for Studen kladenets and Tintyava and the Fallow Deer for Tintyava and Madzharovo restoration areas and those animals were not doubled. The reason that some Hunting society refused to participate in the national game program was mainly the huge paperwork involved.

Contracts for collaboration with the hunters for all release sites were signed and they took the engagement not to hunt the deer in these areas in the next five years after the last release. They respect this obligation and support the deer restoration in all possible ways. The restored deer became source of local hunting pride.

### **Action C.3. Promote establishment of Black vulture in new areas by building artificial nests**

Foreseen start date: 01/07/2016      Actual start date: 01/04/2016  
Foreseen end date: 30/09/2020      Actual (or anticipated) end date: 30/09/2020

#### *Objective of the action*

To attract the Black vultures roosting or foraging in the Bulgarian part of Eastern Rhodopes and to stimulate them nesting in the area. This action matched the foreseen timing and its objectives were achieved.

#### *Progress*

At the beginning of the project a GIS analysis on the suitable breeding habitat for the Black Vultures in the Bulgarian part of the Eastern Rhodopes was produced. Different variables such as relief, exposition, age of the forest etc. were included in the model and the most suitable sites for artificial nests were selected. These sites were visited by the ground team to validate the model and choose the best trees for the platforms. A Spanish Black vulture expert visited the area in June 2016 for 20 days and provided advice and recommendations for the evaluation process of the pre-selected sites. He also supported the work of the field team in selecting suitable trees in these sites in Bulgaria (Figure 20).





*Figure 20. Preparing to climb the selected tree where an artificial nest will be built*

After this, five main sites in 3 SPAs (Krumovitsa, Most Arda and Byala reka) were chosen for building the artificial nests. All the sites were along the main flight corridor from Greece to Bulgaria as revealed by the satellite telemetry data (Action A5) and the visual observations from stationary viewpoints (Action A3). The team received promising data by one Black vulture with satellite transmitter that was roosting near one of the selected sites in Byala reka SPA. The data showed that the area was attracting the birds and might have been suitable as breeding habitat for the species as well. In total 15 artificial nests were installed (Figure 21) – 5 in SPA Krumovitsa and 10 in SPA Byala reka.



*Figure 21. Building artificial nest*



#### **Action C.4. Reduce the local threat of poisoning and illegal killing in order to reduce the mortality of vultures**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	31/05/2021

##### *Objective of the action*

To establish an anti-poison dog team for the Bulgarian project sites, as reliable method for searching poisonous baits tested already in different European countries. The described change to the development of the action assured that the effectiveness of this action was optimized in order to achieve the best possible results.

##### *Progress*

A dog kennel was built in Haskovo at the beginning of the project as a host facility for the dog unit. As a second step BSPB started collecting offers to find the most appropriate dog training institution, and it bought a special “dog unit” car for reaching the field areas and easier transportation between the training centre and the established headquarters in Haskovo, in agreement with to Art.32 of the Animal Welfare Act and Art. 161 (1) of the Veterinary Act (transposing EU Regulation 1066/2009). The handler was initially selected among the previous BSPB staff as the most experienced person who has had and has trained a dog before. Afterwards this person passed an evaluation by the Hungarian dog leader who approved this person by evaluating his communication skills, relationship build, approach to the dog and his ability to work in team (Figure 22).

After this, a professional police dog centre was identified in Hungary, which could provide the training of a dog and a dog handler. Between 24<sup>th</sup> July and 17<sup>th</sup> September 2016, the BSPB dog handler held a specialized two-month training led by The Hungarian dog leader in Jaszbereny and Dunakeszi, Hungary. The dog and the handler passed through several evaluation and selection procedures so that the proper dog was selected to work with the handler. The dog was trained on a daily basis in different obedience, socialisation and working habits. The training also included the development of capacities to search poisonous substances and dead birds, and the working regime was adapted to the concrete working needs of the C4 action. Another 10 days secondary training was held again in Hungary for 10 days during the summer of 2017 for improving the capacity of the anti-poison team.

The dog unit operated more than 4 years (October 2016 – December 2020) in the frame of the current project. During that time 153 searches and patrols were conducted. The majority of the patrols were executed in the Eastern Rhodopes (80%) which is the core area of the vulture populations in Bulgaria. The total number of all findings is 310 with 40 of them being illegally poisoned animals, 7 were animal remains and 10 were poisoned baits. The average number of victims found per poisoning incident is  $2.86 \pm 3.5$ . The anti-poisoning dog unit found poisoned 11 animal species. Vultures comprise 17.5% (n=7) of all victims found. In all these cases vultures were unintentional victims. The main cause of poison use were human-predator and human-human conflicts. Wolves and domestic dogs were the most common victims comprising 22.5% and 20% respectively of all poisoned animals found. Carbofuran and Methomyl were identified as the main poison substances used in the investigated cases.

As was mentioned in the “changes” section in this action only one dog instead of two were bought and trained. The savings were used for the following activities, also to increase the added value of the action.

Workshops and dog unit and promotion of anti-poisoning work activities organized in the frame of the project.

#### FORESEEN ACTIVITIES:

- ✖ Workshop to improve communication with the local state authorities and officials (state representatives, court and prosecution members, police, hunters, village mayors, veterinarians, local hunting parties) in 2016 (13.12.2016) in Krumovgrad in response to the severe poisoning case registered in Byala reka SPA. After mass media campaign the institutions got involved more seriously with the case. As a result, 14 representatives of the court, police, prosecution, vet service, municipality and environmental officer participated in the workshop. The issue was discussed widely and a set of recommendations was produced to be used as guidelines towards other similar cases if needed. Also, the police started an investigation to reveal the perpetrator.
- ✖ Workshop held on 26-27.10.2017 in Dolno Cherkovishte (Most Arda SPA) with representatives of the police, environmental authorities, forestry authorities, hunting associations, hunting enterprises from the project region to discuss the game management and wildlife crimes and illegal use of poisons specifically. 31 participants participated in the event. BSPB dog handler presented the work under LIFE 14 NAT/NL/901 project and the problems for vulture species.
- ✖ An Anti-poison Workshop was organized by VCF under A5 from the Vultures Back To Life Project on 25<sup>th</sup> of April 2017 in Sofia. One of the main outcomes of this Workshop was the uncertainty in the interpretation of the relevant national legislation, and the unclear scope of competences of the different national agencies involved in this issue. Therefore, the VCF requested support from a Bulgarian lawyer to interpret the Bulgarian legislation regarding wildlife poisoning and identifying the responsibilities and competences of national public bodies. BSPB took part in the workshop where the dog unit officer presented the poisoning cases history and BSPB work on it in the Eastern Rhodopes Mountains.
- ✖ In March 2018 a common workshop with LIFE 16 NAT/BG/000874 on poisonous substances and veterinary drugs usage was organized and held in Stara Zagora. In total 41 participants from different state authorities (Regional environmental inspectorates in Haskovo, Burgas and Plovdiv, Bulgarian food safety agency representatives, prosecutors and NGOs) participated and discussed the illegal use of veterinary drugs and poisons. The already established protocol was improved and developed.
- ✖ A brief workshop with the police in Haskovo and Kardzhali districts was organized, and the officials were invited to discuss the poisoning issues in Haskovo on 30.11.2018

#### ADDITIONAL ACTIVITIES:

- ✖ At the beginning of December 2019 the work of the antipoisoning dog unit was promoted among partners from other Balkan countries – North Macedonia and Albania during a joint meeting effort with another life project from Bulgaria – Egyptian vulture new Life, held.
- ✖ A workshop with national authorities and NGOs (Ministry of Environment and Waters, Bulgarian Food Safety Agency, Executive Forestry Agency, National Police, Bulgarian Academy of Sciences, other NGOs) was organized and held in Sofia in November 2019 in cooperation with the Egyptian Vulture New Life project (LIFE 16 NAT/BG/874). The objective was to develop a National antipoisoning plan. This document was developed and discussed among different focus groups and experts. Additionally, BSPB organized a 1-month open public discussion of the plan in May 2020. The document was finally submitted for endorsement to the Ministry of Environment and Waters in September 2020.

- ✎ In collaboration with another Life project in Bulgaria - LIFE18 NAT/BG/001051, the project team participated in the development of a guidelines for monitoring and control checks by the Executive Forestry Agency experts and poaching counteracting. The guidelines were presented on an online meeting with representatives of LIFE18 NAT/BG/001051 project in December 2020. The issue includes the antipoisoning investigation protocol developed in the frame of the National antipoisoning plan that was transferred for adoption by this Life project.
- ✎ In 2021 after intensive communication with the Ministry of Environment and waters the plan was reviewed in a special national Biodiversity Council by the Bulgarian Ministry of Environment and Waters and was finally endorsed by the Minister.
- ✎ A workshop on the wildlife poisoning with the National police in Bulgaria has been organized and conducted on-line in the end of 2020.
- ✎ An online working meeting with the National police was held once more on 11 February 2021 where the establishment of dog units under the National police, international cooperation on dog units training and a project concept were discussed.
- ✎ An online workshop meeting for building capacity and collaboration between BSPB and National Police was organized on 18.2.2021. Representatives from different Police departments took part in the meeting where a common Life project, establishing of more antipoisoning dog units and cooperation with other state authorities in investigating poisoning cases were discussed. The field visit and training for the Police in Berkovitsa were set.
- ✎ A field visit and demonstration training by the dog unit were organized and performed to the National police in their dog training centre in Berkovitsa in cooperation with Egyptian vulture New Life on 23 February 2021. At this meeting future prospects for work were outlined and common initiatives were discussed. The common work and communication with this authority is still running intensively.
- ✎ A guidelines manual for poisoning cases investigation was developed in cooperation with Egyptian Vulture New Life project to be promoted among relevant state authorities. The issue is currently in print and will be promoted additionally among Police and Prosecution.
- ✎ BSPB with the collaboration of VCF identified two representatives from Bulgaria (a BSPB staff member and a representative from the Police) and trained them in a "WILDLIFE CRIME AND INVESTIGATION - TECHNIQUES AND PROCEDURES" training course held in Spain in May 2019.
- ✎ In June 2021 the project with the collaboration of the Egyptian Vulture New Life project (LIFE 16 NAT/BG/874) identified and send two representatives from the Bulgarian Police and The Veterinary University in Stara Zagora to take part and initiate their training in a Wildlife crime academy in Andalucia, Spain. The training will consist of several courses during the upcoming years and aims to build capacity in investigating poisoning and wildlife crime cases.

An animated video to inform about the anti-poisoning dog units has been produced and can be viewed at the following link: <https://www.youtube.com/watch?v=UkbaeRiyjRg>

VCF tried to organize an international meeting together with the Spanish ministry and WWF Spain, to gather anti-poisoning dog experts across Europe so they can share experience and compare dog training methodologies. Unfortunately, this meeting was not organized due to the pandemic, so part of these funds were redirected for production of an animated video to promote the effectiveness of these dogs in the fight against poisoning.

### *Changes*

One dog instead of the foreseen two were bought and trained. Considering that the training of only one dog handler was planned, and taking into account the lack of previous experience with anti-poison dogs, the Hungarian experts with whom the project cooperated strongly recommended the project to proceed with only one dog instead of two. The main reasons for this decision were:

- The operational power of the dog unit is strongly dependent on the training process and on the proper build of a long-term relationship among the animal and the dog handler.
- In the process of training, it became clear that one dog handler can work with only one dog at a time.
- Bearing in mind the local terrain and conditions in the Eastern Rhodopes (steep slopes, sub-Mediterranean bush, the summer heat) leading one dog through the field and then taking it back to start the second one from the very beginning is useless, too tiring and with no effect if carried out by one person only.
- When planning the action, the team lacked detailed information how big was the problem with the poison baits in Bulgaria (as this is the first dog unit in the country) and how intensively the new dog had to be exploited.

Therefore only one dog was trained and in fact, throughout the project all the poisoning incidents have been successfully managed from the anti-poison team.



*Figure 22. Anti-poisoning dog unit*

### **Action C.5. Create and test mechanisms to secure safe nesting grounds of large vulture**

Foreseen start date:	01/07/2016	Actual start date:	01/07/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	31/05/2021

### *Objective of the action*

To assess the vulnerability of all known Griffon vulture nests at the beginning of each breeding season and prioritize concrete conservation actions for all nests. This action matched the foreseen timing and the planned activities were developed.

### *Progress*

Nests of large raptors, such as the Griffon vulture are extremely vulnerable to disturbance from various human activities. About 30% of the Griffon vulture pairs are breeding on cliffs which are close to human settlements, touristic paths etc. and are exposed to human disturbance. Some cliff complexes where Griffon Vultures are breeding very near to the Studen kladenets reservoir and drowning of chicks in the water during their first flights is of serious concern. The regular monitoring of the Griffon vulture breeding colonies in Eastern Rhodopes is crucial for informing our conservation priorities and avoiding the human induced disturbance.

This assessment aimed to evaluate the main threats for the Griffon vultures at all breeding cliffs in the Bulgarian part of Eastern Rhodopes and thus to inform the conservation strategy for the species. For each breeding cliff the possible threats were identified, and their magnitude was evaluated in four categories – unknown, low, medium and high. On this basis concrete actions (measures) were planned to mitigate the main threats. All the measures were prioritized in terms of their importance and in terms of implementation.

Nest vulnerability risk assessment reports were produced for 2016-2020 on the basis of data collected on the ground during the implementation of the A actions and based on data on historical disturbance or poaching incidents. Reports describe in detail the characteristics of each breeding cliff, the threats and the consequent conservation measures.

In total 6 juvenile Griffon vultures were rescued - in 2016 one fledgling was saved from drowning after it was found in the reservoir of Studen kladenets by local fishermen who informed the project team (Figure 25). The same year another juvenile was found stranded in Kardzhali town. Both birds were successfully recovered, tagged and released. In 2019 another two juveniles were rescued from the dam of Studen kladenets – one was almost drowned and the other one was found on ground. Both vultures were rehabilitated and released in the wild. In 2020 two more birds were rescued – one juvenile fell down after fledging in Madzharovo and the other one was found next to a main road near Haskovo, unable to fly. Both birds were rehabilitated and released.

In June - July 2017 daylight nest guarding was organized near both main breeding colonies in the Eastern Rhodopes. This is the most critical period when the juveniles are fledging. The field assistant observed the behavior of the fledglings and tried to spot as early as possible if any fledgling drops in the water. No incidents were recorded, and all juveniles fledged successfully.





*Figure 23. Marked vultures after trapping at Studen kladenets feeding site. Marked vultures are important source of information for identification of cliff specific threats.*

During the breeding seasons in 2016, 2017 and 2018 four photo traps were installed on main paths leading to four main breeding cliffs in 2 SPAs (Madzharovo and Studen kladenets) in order to monitor the human presence in these areas. One of the photo traps was installed near a path used by a professional nest robber who had been proved to have robbed the egg from a Griffon Vulture nest in 2011. No incidents were recorded.

In the assessment we conducted during the years, the 2 most common threats to Griffon vulture nests were: the disturbance caused by tourists and treasure hunters and the drowning of chicks. However, the disturbance caused by tourist and treasure hunters was believed to be mostly of low significance to the breeding parameters since it occurs not regularly in time and because of the lack of awareness among the main groups. At the same time the drowning of fledglings was supposed to affect the reproductive success of the colony to a greater extent since the birds that fell into the Studen kladenets reservoir were most of the times juveniles exploring their flight abilities for the first time. Nest-guarding was implemented in the period of fledging near most of the cliffs where this threat was considered of high importance. Overall, most of the established threats were with low and medium magnitude. Nevertheless, due to the small and fragile population of the species in the Eastern Rhodopes it was still of vital importance to bring most of the known threats to their minimum influence in long term perspective so to ensure the better breeding parameters of the Eastern Rhodopes metapopulation.

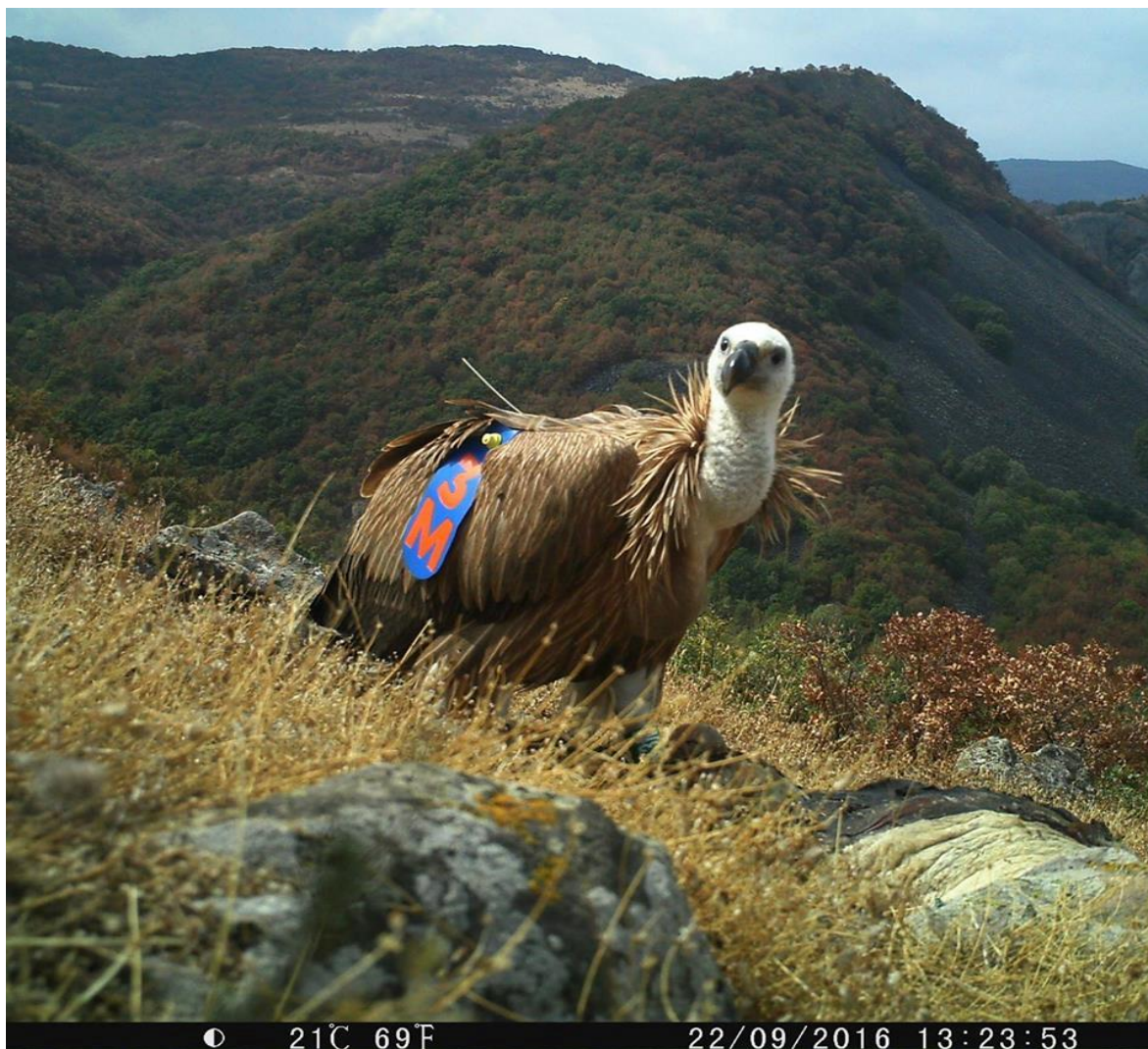


Figure 24. One of the rescued and rehabilitated chicks after falling in Studen kladenets reservoir in 2016

**Action C.6. Install insulators to prevent electrocution and bird diverters to prevent collisions of vultures with power lines in key areas**

Foreseen start date: 01/07/2017 Actual start date: 01/07/2017

Foreseen end date: 31/12/2019 Actual (or anticipated) end date: 31/12/2020

*Objective of the action*

Reduction of the risks of electrocution or collision with power lines for vulture and other species. This action aimed at reducing the risk of electrocution on power lines for vultures by insulating 120 power poles, thus securing 2,5 km in a high-risk area.

*Progress:*

In Eastern Rhodopes until 2011 it was estimated that 13.16% of the mortality cases involving Griffon vultures are caused by electrocution or collision with power lines. In 2013 two Griffon vultures died in the Eastern Rhodopes due to collision with power lines as well. Considering the size of the Griffon Vulture population in the Eastern Rhodopes this threat might have a serious impact. Electrocution is amongst the main threats for the Egyptian Vulture in the area which is harboring 70% of the species' national population. This area is of a great importance



also for the protection of the Black vultures, which intensively use the area for foraging and feeding (Vasilakis et al., 2008). Consequently, Eastern Rhodopes are identified as area with high importance for future minimisation.

All data gathered from surveys on the hazardous power lines in Eastern Rhodopes was analyzed together and used to decide which were the most hazardous and urgent pylons to be insulated (Figure 26). A special scoring algorithm has been developed under the project “Return of the Neophron” which was used to identify the priority pylons for insulation. The algorithm ranked the pylons according to the threat they posed to the vultures. The electrocution risk for each pylon was assessed based on six criteria (a) pylon type, (b) accidents recorded, (c) proximity to vulture foraging areas, (d) habitat, (e) proximity to vulture nests, (f) proximity to nearest asphalt road. More on the methods used for computing this information can be found in Dobrev et al. (2016). Some of the pylons identified as priority for mitigation had already been insulated in the frame of the project “Return of the Neophron”.



*Figure 25. The proper identification of the most hazardous powerlines is an important preparatory part before the start of insulation process*

The action started in January 2017 with a communication between BSPB and the grid operator Elektrorazpredelenie (EVN) asking whether it would be possible to put underground part of the dangerous powerline instead of mounting diverters. However, the answer from Elektrorazpredelenie (EVN) was negative and BSPB continued as planned. As a result of further clarifications with the Electric Grid company (Er Yug – EVN elektrorazpredelenie Bularia), we insulated a total of 197 pylons and installed divertors to 2.5 km of powelines (152 divertors) in 4 project SPA sites – Madzharovo, Most Arda, Krumovitsa and Studen kladenets (Figure 27). We succeeded to insulate 153 pylons of the most hazardous type – pylons of type 1. The majority of the mitigation measures were applied within the main flight corridor of the



Griffon and Black Vultures – around Krumovitsa river valley, bordering the latter 3 sites. Moreover, 4 more pylons of type 1 variation were insulated in Madzharovo SPA under RRF budget.



Figure 26. Mounting of insulators

### **Action C.7. Promote lead-free hunting ammunition**

Foreseen start date:	01/07/2016	Actual start date:	01/07/2016
Foreseen end date:	30/06/2020	Actual (or anticipated) end date:	30/06/2021

#### *Objective of the action*

To promote the lead-free ammunition among hunters as environmental friendly replacement of the normal lead ammunition and that similar hunting results can be obtained. The final aim was to reduce the risk of lead poisoning of the vultures.

#### *Progress*

This was one of several similar pilot initiatives taking place across Europe, trying to engage hunters to test and adopt lead-free ammunition, which is part of a wider program to try to ban lead-free ammunition in the EU. Some of the other pilot initiatives were also part of LIFE projects (e.g. LIFE13 NAT/FR/000093 - LIFE GypHelp, GypConnect LIFE14 NAT/FR/000050).

Within LIFE RE-Vultures project 1760 lead-free cartridges were purchased and distributed for promotion of lead-free ammunition.

500 cartridges were provided to leading hunter expert and influencer who was involved in lead-free ammunition promotion and published two articles on the excellent quality of the lead free cartridges in the magazine „Bulgarian Hunter“.

The rest of the cartridges were distributed mainly among the members of Kardzhali and Harmanli hunting societies and Studen kladenets game breeding station. In promotion of lead-free ammunition were involved respected and experienced hunters, who, after positive results in the test, could influence the opinion of the hunting community. Less hunters were involved, but more cartridges were given to each for a more accurate test. Parallel with the distribution, we held numerous meetings with hunters for promotion and to gather information on how lead-free cartridges for rifled rifles are perceived.

At the end of the project, hunters who received lead-free cartridges were surveyed for satisfaction with their quality and effectiveness. 53 inquiries with hunters testing the ammunition were collected.

51% of the hunters had tested the lead-free ammunitions on shooting range target and all of them were very pleased with them and note the excellent grouping of hits on the target.

49% of the hunters had shot and hit different game species – mainly wild boar but also foxes and jackals. All of them are satisfied with the quality of the bullets.

All interviewed hunters stated that they were ready to continue to use lead-free ammunition if somebody provided them for free. The higher price of lead-free ammunition was mentioned as main disadvantage. 17% of the hunters who shot an animal already purchased by themselves lead-free ammunition in the last two years. One hunter mentioned that as advantage that the meat is clean of lead after hunting with lead-free bullets.



**Action D.1. Monitoring the effect of the conservation actions on the target species (Black vulture and Griffon vulture)**

Foreseen start date:	01/01/2018	Actual start date:	01/01/2018
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

*Objective of the action*

To understand the effectiveness of the conservation actions implemented, as a basis to potentially adapt them in case the expected effects were not met.

*Progress*

This action was based on actions A3, A4 and A5, which provided baseline information on Griffon vulture population status, distribution and breeding output. Additionally, intensive monitoring of Cinereous vultures was initiated and information on species presence was collected and used consequently to feed actions C3, C4 and C6. Information on the vulture presence and space use was recorded with the help of the marked birds and GPS telemetry.

In Bulgaria in total 49 Griffon vultures were marked where 34 of them were equipped with GPS tags. Meantime 51 Cinereous vultures were marked and 27 of them were equipped with GPS tags (see *Table 1. Number of Griffon and Cinereous vultures tagged with the two types of transmitters per years in Action A5*). This information supported collection of the data at the feeding and breeding sites and helped to assess the effect of the conservation actions. Action D1 was the main action to support actions C4 and C6, following the initial phase of the project. Basically, in Bulgaria, the population of the Griffon vulture increased significantly – 81 pairs in 2016 versus 111 pairs in 2021. We further recorded a significant increase in the number of incubating pairs in the period – 64 in the beginning of the project versus 88 in 2021 (Figure 28). Breeding success of the population remained very high – 0.78 chicks on average or 378 fledglings successfully left their nests. The Griffon vulture population in the Eastern Rhodopes (Bulgaria and Greece) increased as well – 88 pairs in 2016 versus 117 in 2021. However, the majority of the pairs are breeding along Arda river, in the Bulgarian part of the mountain (Figure 29).

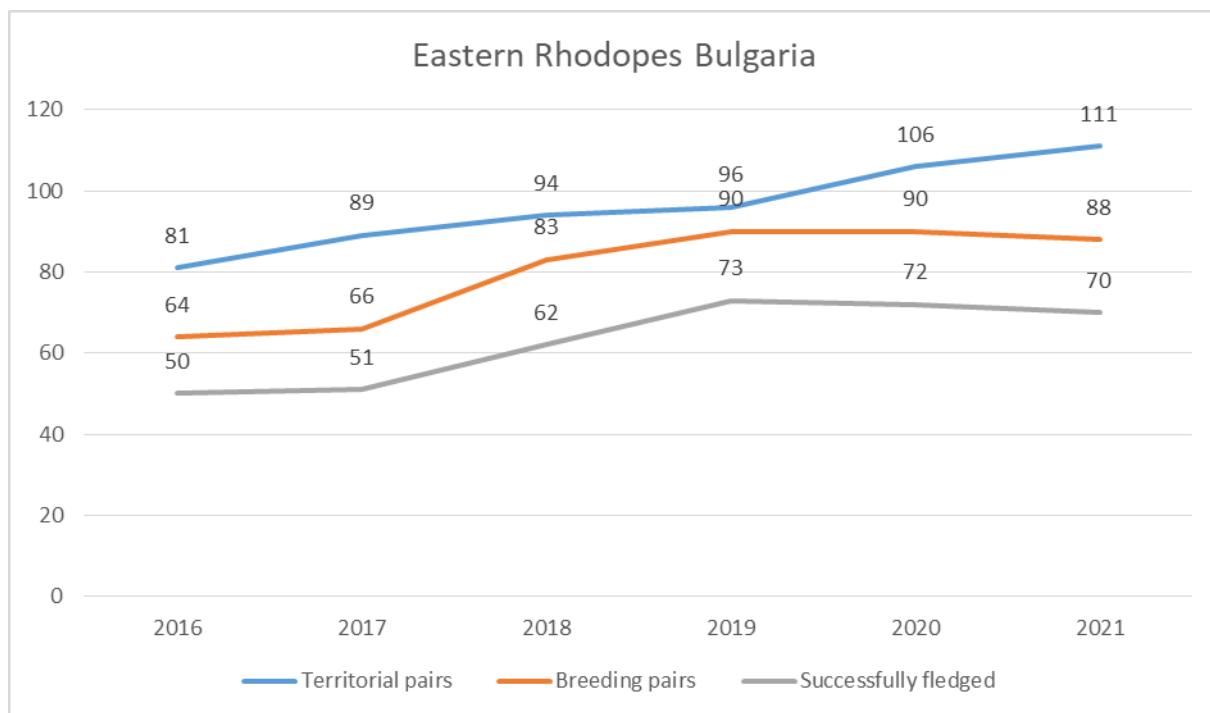


Figure 27. Griffon vultures population in Bulgaria

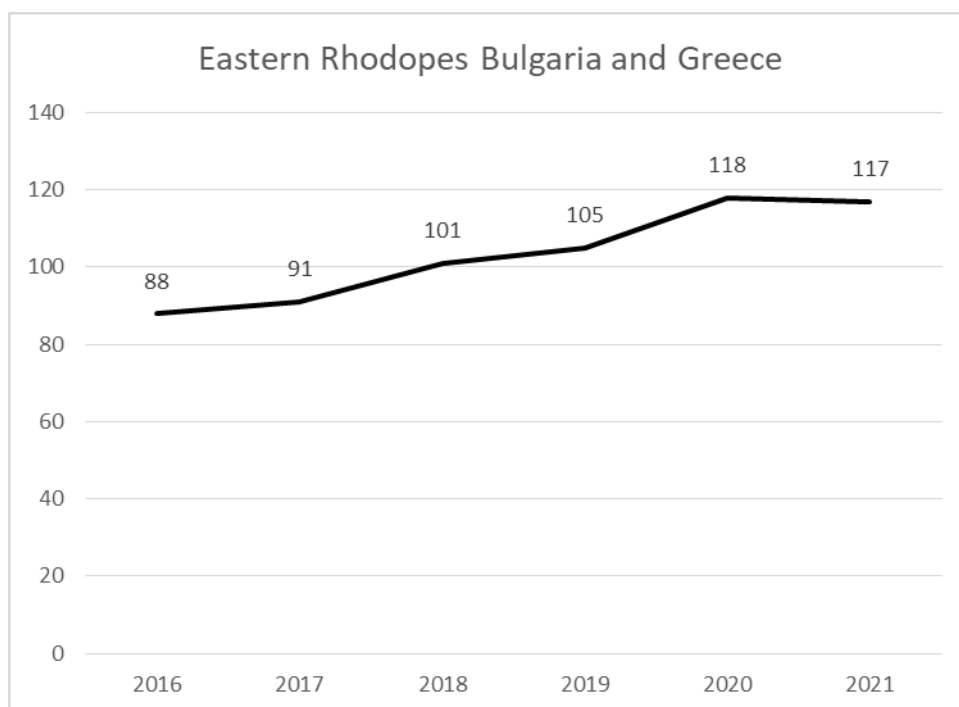


Figure 28. Total Griffon vulture population (pairs) in the Eastern Rhodopes



*Figure 29. Image from the feeding site Studen Kladenets SPA, Bulgaria taken by camera*

In total 446 feedings were carried out between 2016 and 2021 at three feeding stations in SPAs Madzharovo and Studen kladenets (Figure 30), providing about 118,000 kg of carcasses (Figure 31). More than half of this quantity was supplied by local farmers and livestock breeders from the area and the rest was supplied by slaughterhouses. Over 50% of the food supplies were accompanied by visual observations in order to identify the number, age structure and social behaviour of the vultures at the feeding sites. This action was supplemented with the operation of trail cameras and a CCTV camera installed at Studen kladenets feeding site. The highest number of simultaneously recorded Griffon vultures in one feeding is 192 birds.

Over 4,600 wing tags and rings sightings were registered in the project area in between 2016 and 2021. During the observations, 198 marked Griffon vultures with different origin were identified and 37 marked Black vultures (Figure 24, 25). Finally, a review paper describing the development of the Griffon vulture Balkan population, main mortality factors and suggesting concrete conservation measures was developed as a cooperation of 27 experts from the Balkans. A Griffon vultures roosting sites census was organized yearly by the project. The population of the Griffon vulture in the pre-breeding season increased between 2016 and 2020. The first year 184 birds were counted, while the last year the population of the Griffon vulture in the Bulgarian part of the Eastern Rhodopes grew to 245 vultures (Figure 32). Around 40% of the counted birds were either juveniles and immatures that suggests good age structure of the population (Figure 33). The major roosting cliffs were identified and studied in relation to species selection (Figure 34). A scientific paper describing the selection and use of roosting cliffs, the process of formation and significance of the pre-breeding congregations was published as a result.

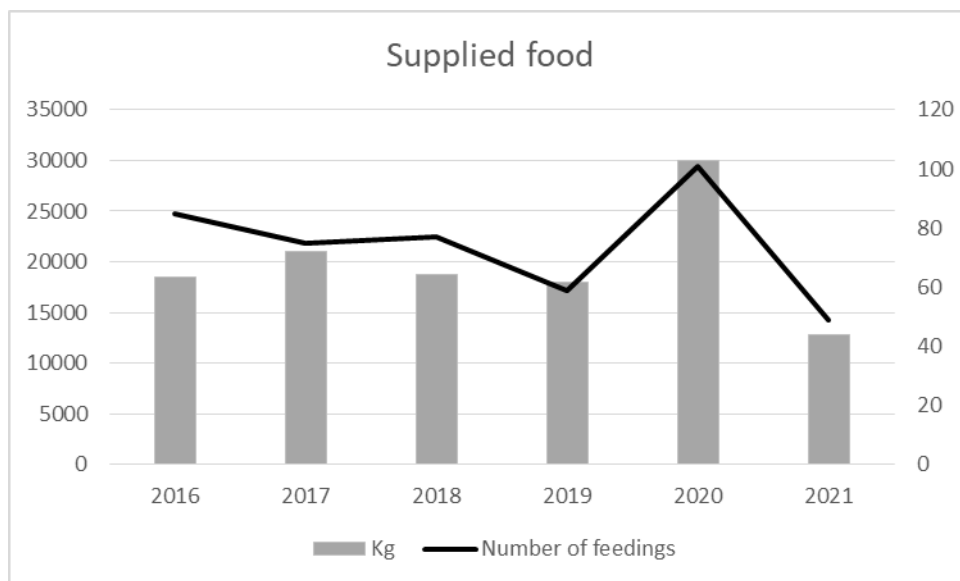


Figure 30. Feedings made carried out between 2016 and 2021 at three feeding stations in SPAs Madzharovo and Studen kladenets

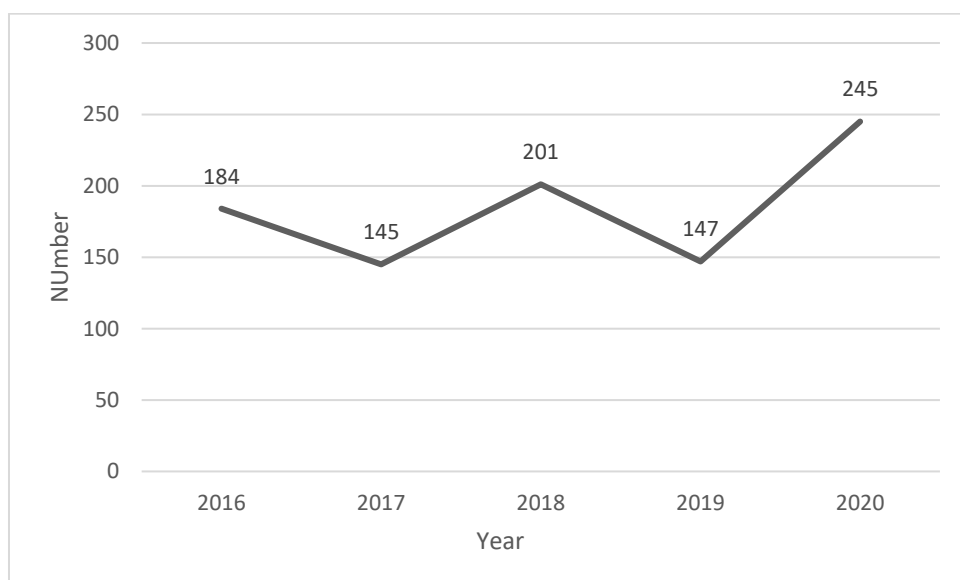


Figure 31. Numbers of Griffon vultures counted

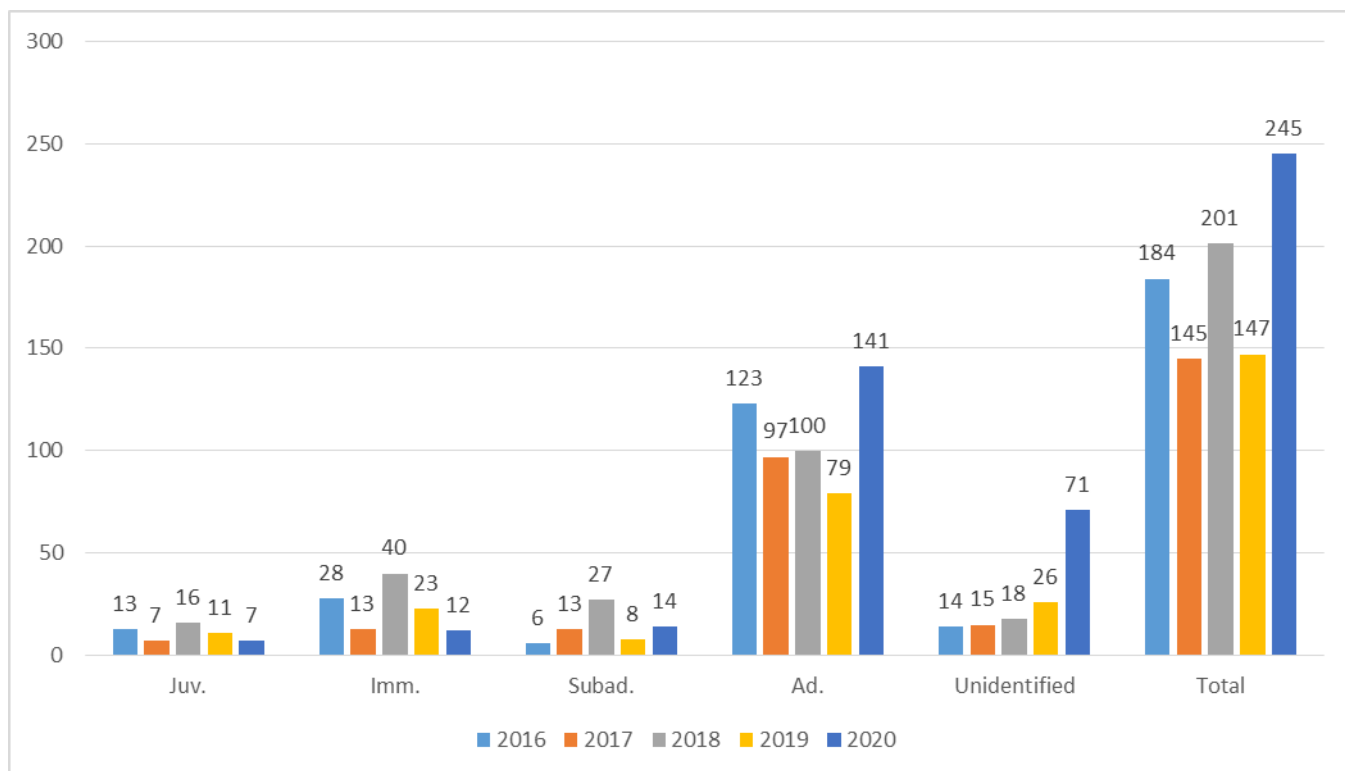


Figure 32. Numbers of roosting Griffon vultures in Bulgaria in each year

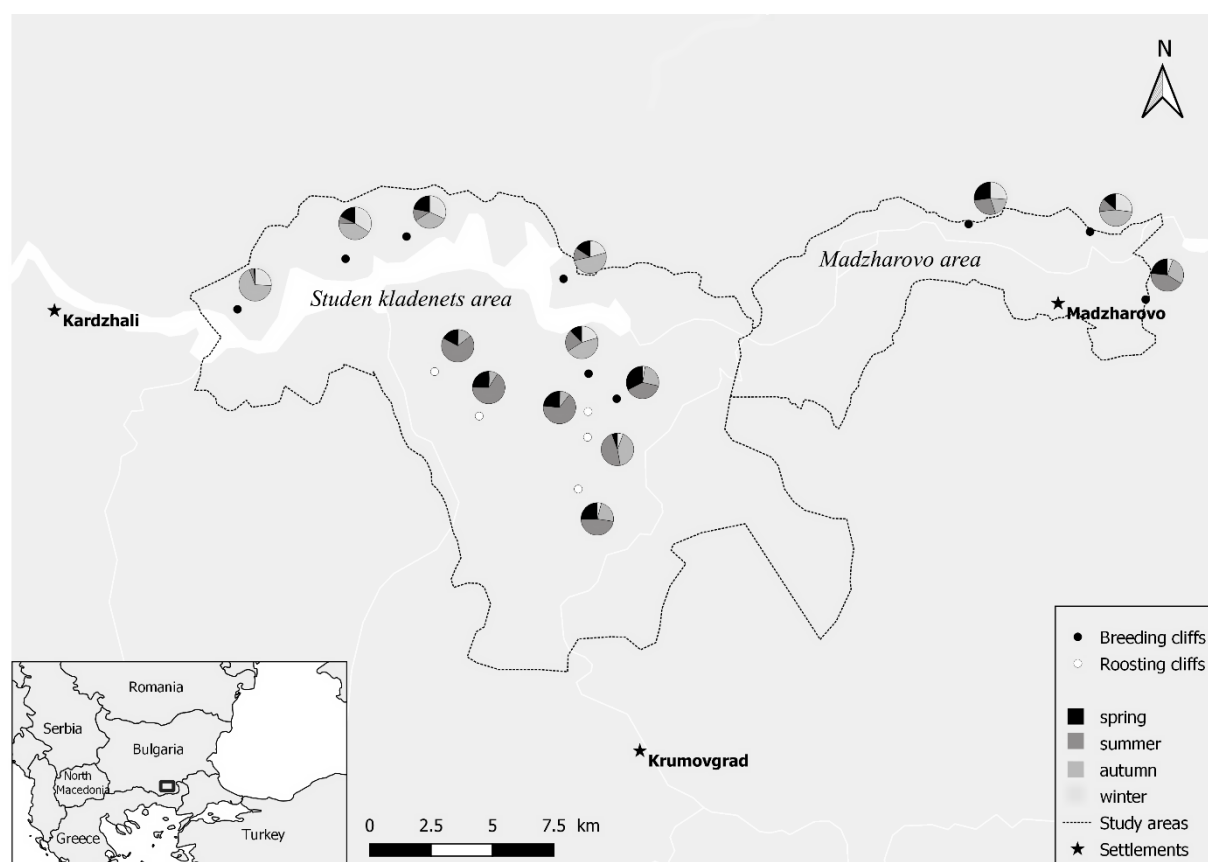


Figure 33. Distribution of the identified roosting cliffs



In Greece, during 2016-2021, the number of active pairs fluctuated between 2-12. This was an important percentage of the continental Greek population, which has slightly increased from 20 pairs in 2016 to 30 pairs in 2021.

The telemetry data were widely used during the monitoring of permission process of wind farms in Thrace. The development of new wind farms in important for vultures sites is a threat with a severe impact on their survival. Moreover, WWF and the Management Body of the Dadia National Park were able to produce risk maps based on the vultures telemetry data. In total, during 2018-2021, WWF produced maps and tables demonstrating the use of wind-farms sites by both vultures species in official letters for: 1) answering in 13 requests by consultants offices in the frame of the EIAs or the preliminary evaluation of new wind farms, ii) answering in 16 requests by the authorities in the frame of their opinion, iii) answering in 2 requests by companies in the frame of the preliminary evaluation of new wind farms, iv) in writing 10 WWF's opinions to authorities for new wind farms or writing 6 WWF's opinions during public consultation process and v) writing 12 policy documents related to the legal process of environmental permission, results on vulture's collision and review letters on the impact of wind farms on vultures and raptors.

#### **Action D.2. Monitoring the success of the release of wild prey species in order to increase the natural food base for vultures**

Foreseen start date:	01/07/2017	Actual start date:	01/02/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

##### *Objective of the action*

To monitor the success of the field monitoring and to prove the hypothesis that the Fallow and Red Deer restoration has long-term positive effect on vultures' populations.

##### *Progress*

The monitoring of released deer was made with camera traps, GPS-GSM collars and by direct monitoring of released animals in all areas and collection of information about the deer presence from local people. The results of deer monitoring are summarized in the report.

##### Camera trapping

Twenty camera traps were purchased in the framework of this project and mounted in the restoration areas of Studen kladenets, Kardzhali and Tintyava during the project implementation. We also used in our monitoring activities 8 additional camera traps purchased outside Life project and were used in the monitoring activities.

Initially the camera traps were mounted in front of saltlicks. This worked very well in the beginning, and many pictures of the translocated deer were collected. Later the saltlicks were discovered by the local cattle, and this forced us to change the methodology. We started to place the cameras along animal trails (avoiding trails used by external people to avoid thefts) and other places frequented by the Red and Fallow deer. The camera traps were monitored every month and replaced on better places if the present place was not very successful.

The data from the GPS GSM transmitters were used to guide the camera traps mounting. Camera traps were mounted in areas where Red and Fallow deer frequented to collect more data about the new populations.

All camera traps were mounted in collaboration with the representatives of the local hunting society. They were very interested by the results of the monitoring and took care for the protection of the camera traps. Only a few camera traps were stolen by external forest workers and treasure hunters.



*Figure 34. New established Fallow Deer herd in the restoration area of Kardzhali*

We succeeded to collect more than 500 000 pictures as follow:

2016 – 112 330 picture and video files;

2017 – 138 068 picture and video files;

2018 – 66 911 picture and video files;

2019 – 82 881 picture and video files;

2020 – 78 902 picture and video files;

2021 – 49 435 picture and video files.

The camera traps showed clear occupation of all monitored release area with Fallow and Red deer.



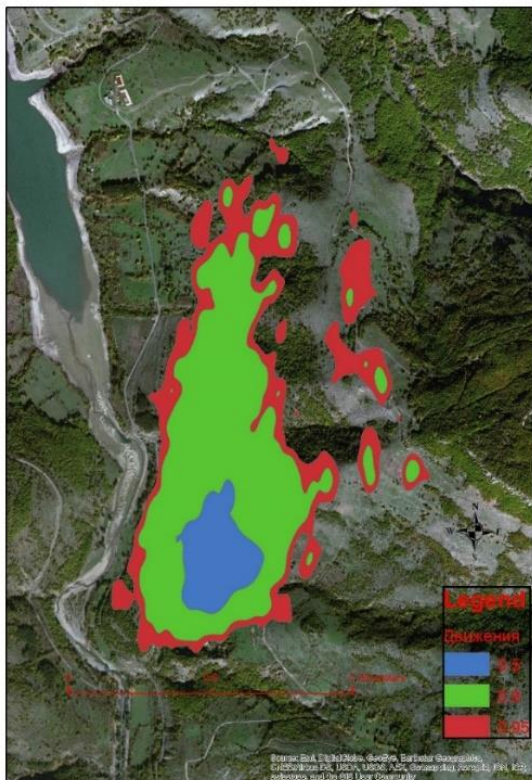


Figure 35. Red deer stag in the area of Studen kladenets. This animal was observed a few times only with camera traps.



Figure 36. Translocated Fallow deer hind with a fawn in the restoration area of Tintyava

#### GPG GSM monitoring



*Figure 37. Fallow deer kernel density estimation*

Five Ecotone GPS GSM collars were purchased in the framework of this project in 2017 and mounted on Red Deer in 2018. Five more Ornitella GPS GSM collars were purchased in 2019. Nine additional GPS GSM, purchased by Rewilding Europe outside the LIFE RE-Vultures project, have been mounted on the released Red and Fallow Deer in 2017.

All collars were equipped with hand-made cotton drop off mechanisms which should biodegrade in one or two years.

Eight Red Deer were equipped with Ecotone GPS GSM transmitters which produced more than 18 956 fixes. Two transmitters stopped to work a few days after the release of the animals. One of them was observed with the animal. It was considered damaged, and it was replaced by Ecotone. Six transmitters worked more than 6 months and one and half year. One of these animals was poached near Svilengrad. The transmitter enabled us to find the pelt of the animal using the anti-poisoning dog (Bars) and to request a criminal investigation. Another animal was found a few months later in the area of Studen kladenets possibly killed by wolves. The other four Red Deer survived the life of their GPS transmitters.

The data from the GPS GSM transmitters were included in ArcGIS and ArcGIS Pro projects. Kernel Density Estimates were calculated using ArcGIS 10.2.2, R 3.1.1 and Geospatial Modelling Environment (GME) 0.7.3.

The data from the GPS GSM transmitters of the Red Deer were used to guide the camera traps mounting. Camera traps were mounted in areas where Red Deer frequented to collect more data about the new populations.



*Figure 38. Red Deer hind marked with GPS GSM collar with her fawn.*



Fourteen Fallow Deer were equipped with GPS GSM transmitters which produced 35 258 fixes. One collar fell a few days after the release of the animal because the Ornitella collar was too big for a young female Fallow Deer. The second transmitter stopped to work the same day after the release of the animal. The animal was observed in the next one year with the transmitter. The transmitter was replaced by Ecotone. Third transmitter was released by the drop off in the enclosure before the release of the animal. The remaining eleven transmitters functioned for a period from a few months to two years. Four of them still transmit data. Four of last transmitters were mounted on control Fallow Deer from the area of Studen kladenets. All of them were still alive one year later. Seven of the last transmitters were mounted on animals released in the areas of Madzharovo, Tintyava and Kardzhali. Two of them were found dead a few months later killed probably by dogs. Five of them (71% of the marked animals) survived more than half year and some of them still transmit.

The results of deer monitoring show that thanks to the reintroductions the Fallow deer increased more than two times its present distribution in the Eastern Rhodopes. Three new populations were successfully established in the areas of Madzharovo, Tintyava and Kardzhali with total number more than 450 animals. The existing Fallow Deer population in Studen kladenets area also slowly enlarge its area and connected in 2021 with the new established population near Kardzhali in the area south of Arda river (Figure 40).

The Red Deer increased significantly both its number and area in the Eastern Rhodopes in the period 2015-2021. The restoration of Red Deer is a result of two processes – the reintroductions within the project and the natural colonization of the area from the Western Rhodopes. Both populations already met north and south of Kardzhali. (Figure 41)

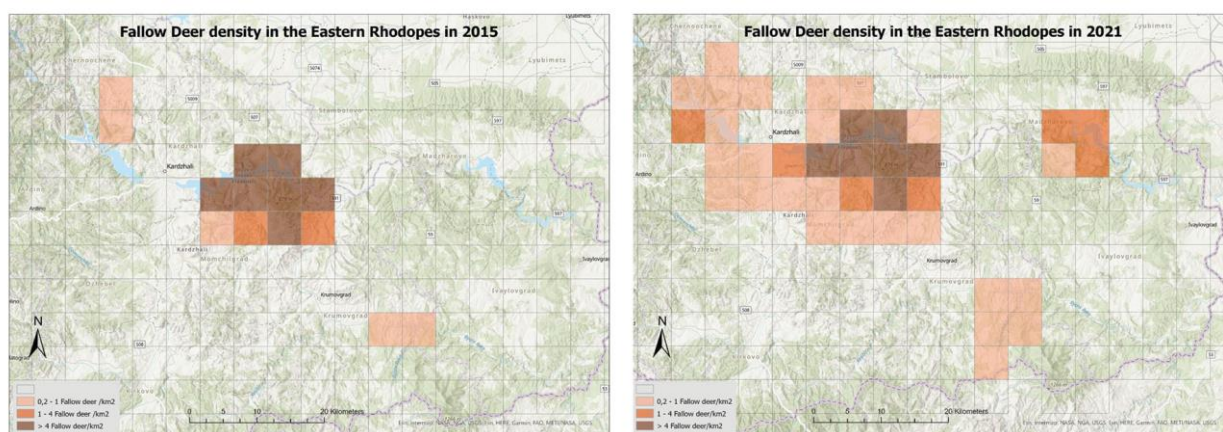


Figure 39. Fallow deer density in Eastern Rhodopes in 2015 and 2021

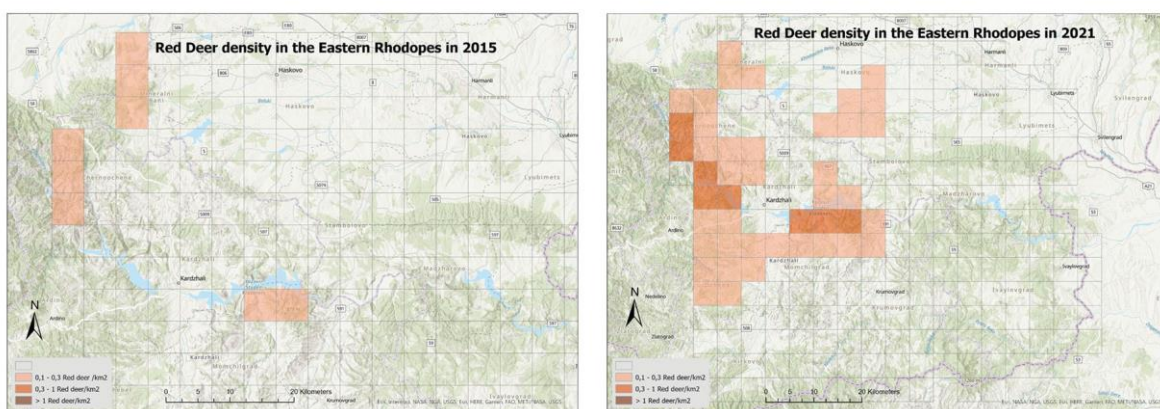




Figure 40. Red deer density in Eastern Rhodopes in 2015 and 2021

**Action D.3. Monitor of the measures taken to minimize electrocution and collision**

Foreseen start date:	01/01/2019	Actual start date:	01/01/2019
Foreseen end date:	31/12/2019	Actual (or anticipated) end date:	31/12/2020

*Objective of the action*

The action aimed to assess the effectiveness of the efforts to insulate the power lines.

*Progress*

The insulated power lines were checked for victims after their insulation. The monitoring of the effect of the insulators and the condition of the insulation caps was conducted in 2019 and 2020. No victims of collision and/or electrocution were found under the insulated poles. No problems with the insulation and the durability of the material were established. Therefore, the insulation is considered very successful and highly recommended elsewhere needed.

*Delays*

The monitoring of the insulate powerlines was initiated after their insulation. Because of the slight delay in this action (see Action C6), the consequent monitoring was also delayed. Furthermore, we monitored the insulated powerlines until the very end of the project to be sure everything is fine with those.

**Action D.4. Monitor of the social impact of the project**

Foreseen start date:	01/01/2019	Actual start date:	01/01/2019
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	31/03/2021

*Objective of the action*

The action aimed at identifying the impact of the project on the socio-economic conditions on the local communities, through a specific study.

*Progress*

Due the Covid-19 limitations the survey on social impact of the project had to be postponed and was conducted in the first half quarter of 2021. The survey was direct, individual, and included 34 open and closed questions. Total of 102 people were interviewed. The sample of the sociological survey presents the public opinion of the local community located on the territory of five municipalities in the Eastern Rhodopes: Ivaylovgrad, Madzharovo, Krumovgrad, Kardzhali and Momchilgrad.

The main goal of sociological survey was to register in public opinion the importance of nature and the protection of vultures as part of the regional natural heritage, to describe the assessments of the activities carried out so far and to monitor the existing threats arising from human activity, as well as possible solutions leading to improvement of the environment in the region of the Eastern Rhodopes.

The positive attitude of the local population towards the biodiversity conservation in the area and in particular towards the griffon vultures prevails. The activities for vulture conservation and deer population restoration are welcomed and supported by local people who are aware of the importance of species for the region's prosperity. For 61% of the respondents vulture conservation is important for the community, and for 34% it is opportunity for development of

the region. Additionally, 52% of the respondents want to be involved in the implementation of various nature conservation activities.

#### **Action D.5. Monitor of the economic impact of the project**

Foreseen start date:	01/07/2016	Actual start date:	01/03/2017
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/03/2021

##### *Objective of the action*

To understand if and how the project activities have generated economic benefits for the relevant stakeholders. The delay of the action start did not affect the achievement of its objectives. On the contrary, the timing has been modified in order to follow more coherent steps.

##### *Progress*

The survey of economic impact of the project focused on 4 municipalities (Madzharovo, Ivaylovgrad, Krumovgrad and Momchilgrad), which share some common characteristics and make possible realistic conclusions to be made. As the official data on municipal level does not reflect all of the existing business results to provide a realistic vision of the economic performance of the tourist sector, in addition 3 independent local businesses, exemplary for the performance of the local tourist providers, were selected and added in the survey. A system of key performance indicators was analysed on municipal and local business level. The studied period is extended from 2015 until the end of 2020, in order to have a clear starting point for the monitoring and to explore the sustainability of the impact of the project activities

All project activities, aiming to support the ecotourism development, had positive impact on the existing tourist entrepreneurs in the project area. The study of relevant local ecotourism businesses proved undoubtedly, that the implementation of the project supports them to improve their economic performance and their everyday activities. As result most of the key economic indicators of the selected businesses has improved and the businesses have generated economic benefits during the monitored period.

As a direct result of the project activities the area is strengthening its position as one of the leading destinations for vulture observation/photography in Europe. The active promotion of the area within the project has as result a growing popularity of the region as a tourist destination and an increasing numbers of tourists.

#### **Action E.1. Create a high-quality audio-visual archive, using the imagery in it for all project communication efforts and developing a strong visual identity for the project, applying this to all materials**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/03/2021	Actual (or anticipated) end date:	30/06/2021

##### *Objective of the action*

With professional audio-visual material the quality and quantity of the communications activities to communicate the key project message. The action was developed as foreseen, no problems or delays appeared.

##### *Progress*

- The audio-visual archive set up and regularly updated with images from the Rhodopes, including existing landscape and species images and maps. Usage rights were secured for 50

existing HG images and around 1000 high quality images; two photo-missions organized, and part of the images ensure.

- Two “Eyes in the wild” live web cameras installed in specially selected vulture nests but they were not temporarily occupied; the footage of the two cameras were broadcasted on the LIFE vultures YouTube channel for short period of time. The second camera worked for one month and for that period caused some serious interest but the vulture pairs show only temporary interest and the broadcasting stopped. The team regularly checked the nest occupancy and in case the nest was occupied the broadcasting was resumed after the project ending.

Altogether during the project period were produced 18 videos; out of them 3 were produced by professional production companies in Bulgaria and Greece and available on the project's

YouTube channel:

For Bulgaria

Time for lunch: [https://www.youtube.com/watch?v=chNvyFsk\\_C4&t=94s](https://www.youtube.com/watch?v=chNvyFsk_C4&t=94s)

The wild heart of the Rhodope Mountains: <https://youtu.be/bxW7B0N6kqs>

For Greece: <https://www.youtube.com/watch?v=M6AttFDDCoA>

This 20 min video named “the Meteora of the North” presents the natural features of Kompsatos valley, the traditional livestock breeding and the vultures. Moreover it focuses on the nomadic animal husbandry which is an integral human activity and supports the rare birds of the valley and on the network of the 5 feedings sites that are supported by the livestock breeders.

- 3 hours RAW video footage was produced by the film company and used for production of the other videos made within the frame of the projects.

- videos and images captured by the camera were collected, edited and regularly updated on the project's social media channels. At least 100 trap camera images and at least 20 videos have been collected and a selection was published on FB and Instagram.

The LIFE Vultures team assisted the production of “Status Wild” - a short film about the rewilding activities in Rhodope Mountains rewilding area.

The team also participated and assisted the making of Europe's new Wild National Geographic TV series with an episode “Scavenger's return” specifically dedicated to the team's work and main activities connected to the vultures and other rewilding activities in the area. The film was broadcasted in 160 countries worldwide and reached millions of viewers internationally.

3 web cameras installed within the project period; 2 in vulture nests in Madzharovo and 1 in Studen Kladenets; 2 additional using budget savings. Second Life web camera installed into a vulture pair nest in January 2021 and was functioning for two months until there was pair occupying the nest. The streaming was then stopped in March 2021 due to the departure of the pair. For the two months the camera was functioning the life broadcasting created quite some interest as it was the first camera installed in griffon vultures nest in Bulgaria.



Figure 41. Vulture pair in the camera installed nest. The pair left the nest after a month after the camera installation

### **Action E.2. Production of information materials to promote the species conservation among targeted audiences and the general public**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

#### *Objective of the action*

The dissemination of the promotional and visibility materials have been a constant project activity aiming to raise the outreach of the communication activities. Although there has been a very slight delay in part of the action, this was fully recovered and the objective of the action has been fully achieved.

#### *Progress*

- The logo and visual identity of the project were produced and used for all communication purposes.
- A first leaflet (3.900 copies) has been produced and distributed to local stakeholders, project partners, partner NGO's, LIFE projects etc.
- In addition, the following project's promo materials have been designed, produced and distributed in the same way:
  - leaflets (in Bulgarian, Greek, English) 3900
  - stickers (in Bulgarian, Greek, English) 4900
  - Notebooks 700
  - Calendars -1800 (300/350/350/500/350/300)
  - Folders 400
  - Pens -400
  - Coffee mugs -400
  - T-shirts -1500
  - Textile bags 400
  - Leaflets for livestock breeders in Greek focused on the health of their guarding dogs - 1000
  - 20 pages brochure in Bulgarian -1000
  - Vulture leaflet in Greek -1000

The electronic versions of all produced information materials are available on the project website.

10 newsletters were produced (in Bulgarian and English) covering conservation and communication issues and promoting the project results. And final one upon the project completion.

Six vulture decoys made for updating the exhibition in the Vulture conservation centre of BSPB, together with new chairs and a projecting screen, in order to ensure better conditions for the visitors of the exhibition. Two decoys already at display in Madzharovo visitor centre.

### **Action E.3. Local, regional and national media activities**

Foreseen start date: 01/03/2016 Actual start date: 01/03/2016

Foreseen end date: 31/12/2020 Actual (or anticipated) end date: 30/06/2021

#### *Objective of the action*

Local, regional and national media activities, through use of their communication channels, aimed to publicly promote all project activities to two target audiences in Bulgaria and Greece.

#### *Progress*

The design and all functionalities of the media database was prepared, the database was used and filled in on a regular basis throughout the duration of the project. The contacts of environmental reporters, editors and various media covering nature related topics are collected and relationship with the media was built.

A media database containing media coverage and all press clipping was completed.

Press releases were regularly sent to the local and national media and reporters were informed about the news and events regarding the project activities. For the project period 68 press releases news articles connected to the project and the project area were sent to the national and local electronic media. In terms of media coverage for the project period more than 700 publications on different media channels in the project area in Bulgaria and Greece were registered and most likely substantial part of the publications were not detected during the media screening and therefore are not registered after the searches with key words and included in the media coverage clipping. For the project period more than 250 news articles, interviews and blog posts connected to the project were registered in national and local electronic media as a result of the media monitoring of the project in Bulgaria. WWF Greece registered 460 news items, in total (print, online articles, TV/ radio references, Social Media posts) in Greece. As a result of the media activities more than 60 mil people were reached (estimation), additional information is provided in media outreach report.

Two media visits were organized within the project in 2017 and in 2019 with 6 media representatives in 2017 and 6 media representatives in 2019 journalists from national and regional media. During both visit the journalist visited Studen kladenets, Madzharovo, Gorno pole and other vulture-related areas. The media group was accompanied by a project expert and participants received a good overview of the project.

Two media partnerships were carried out within the project period – one with travelling magazine Extreme and one with travelling and tourism TV channel “Tourism Tv”. Within those partnerships 4 publications were printed in the magazine (16 000 copies of each issue) and 10 videos were broadcasted on the TV channel



#### **Action E.4. Develop a children and youth awareness programme of extra-curricular activities related to vulture conservation**

Foreseen start date: 01/01/2016      Actual start date: 01/01/2016  
Foreseen end date: 31/12/2020      Actual (or anticipated) end date: 30/06/2021

##### *Objective of the action*

To educate young people and develop positive attitude towards vultures, wildlife and conservation ideas. The action proceeded as foreseen, no problems or delays appeared.

##### *Progress*

A Youth Vulture Education Program was established at the Vulture Center in Madzharovo by BSPB team as a preparatory measure to this action and in order to prioritize the target groups and schools for it. In the frame of this action 25 schools in the project area were visited. Lectures about nature conservation and vultures in the Eastern Rhodopes were presented in front of 1080 students from 1 to 9 grade during 43 classes. A list of environmental educational games was created and played in the Eastern Rhodopes Conservation Center (ERCC) with 372 students who visited ERCC. Furthermore, a children's booklet for vultures was developed, printed out and spread to promote vulture conservation among children.

Yearly, since 2016 in May BSPB is organizing a 5-day youth camp on the southern shore of Studen kladenets reservoir close to the border with hunting reserve "Studen kladenets". In 4 consecutive years more than 160 university students were trained in biodiversity monitoring techniques and conservation by experts in botany, entomology, herpetology, ornithology and mammals' experts (Figure 43).

The program included a variety of daily activities, evening presentations and discussions about nature conservation topics. The educational part also included a course in field practice, real environmental conservation and different approaches to vulture conservation in Bulgaria. Leading specialists in vulture and biodiversity conservation organized educational workshops and field trips during the camp. The participants were also trained in vulture monitoring techniques.

Altogether more than 200 young people and aspiring photographers participated in wildlife photography lectures and workshops. 3 wildlife photography workshops for small and aspiring photographers were done during the project period for more involving more than 100 students from regional photo club and one online photography workshop with more than 140 participants.

4 International vulture awareness days were organized within the project with theatre performance, movie screening, lectures, concerts in Haskovo and Madzharovo to mark the international event.



Figure 42. Group photo of the participants of the youth training camp in Studen Kladentets

#### **Action E.5. Website, Facebook, Twitter feed and blogs**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/03/2021	Actual (or anticipated) end date:	30/06/2021

#### *Objective of the action*

Using website, blog and social media channels to communicate the project activities to a wide range of international and national public. The action proceeded as foreseen, no problems or delays appeared.

#### *Progress*

- The LIFE RE-Vultures project web page was created in English and Bulgarian. <https://www.rewildingeurope.com/life-vultures/>. The site was updated on regular basis and share vulture related news on the Rewilding Rhodopes Foundation page. 100 000 visits were registered on the website since it was created. VCF and WWF Greece also produced regular news updates about the project on their respective websites and social media
- The twitter account was not used for the communication purposes of the projects as it was not a popular communication tool in Bulgaria. Instead, an Instagram profile was created where imageries from the project activities were uploaded on regular basis (<https://www.instagram.com/rewildingrhodopes/>).
- Instead of creating two project Facebook accounts the team decided to use already existing Facebook accounts of the project partners – Rewilding Rhodopes and WWF Greece. This intended to increase the visibility of the project and ensures the maintenance of the social media channels in the long run. The Rewilding Rhodopes account showed a significant growth from 1385 followers in April 2016 to 5158 at the end of June 2021. We also received good engagement and support from the followers.
- The You Tube channels subscription and views have been steadily increasing with 208 channel subscribers and increase of the number of the views with each video published
- 68 news release and blog post (in Bulgarian and English) about project activities were published on the LIFE RE-Vultures web page and social media.

The main project achievements were also published and shared on the websites on the project partners – Rewilding Europe, WWF Greece, Vulture conservation foundation and HOS as well as on their social media platforms.

**Action E.6. Local indoor exhibitions touring in and around the whole C-action area, about the project subjects and the areas where the C-actions take place**

Foreseen start date: 01/07/2016 Actual start date: 01/07/2016

Foreseen end date: 31/12/2020 Actual (or anticipated) end date: 30/06/2021

*Objective of the action*

This exhibition is designed as a tool to try to foster pride, attention, joy and to raise the awareness of the uniqueness and the natural value of the Rhodope are. The action proceeded as foreseen, no problems or delays appeared.

*Progress*

The first two image prints of black and griffon vultures for the exhibitions were made and were displayed for a week (starting from 9<sup>th</sup> of May 2016, Europe day) on the main square in Plovdiv (second largest city in Bulgaria) and were viewed by thousands of local people and visitors. Currently they are part of exhibition of Vulture centre in Madzharovo.

For the project period two “Lords of the Rhodopean Skies” exhibitions with 48 panels were produced. The project envisaged the production of one exhibition but due to project savings and the need of the project second exhibition was made. The second exhibition with 16 updated images and content and demonstrating the project achievements was produced in 2020 in order to better demonstrate the project progress. Due to COVID-19 and post COVID-19 restriction one, addition/thirds exhibition was also available online so the communication team can ensure the continuation of the communication actions and efforts even within the pandemic restrictions regarding the organization of event.

The “Lords of the Rhodopean Skies” exhibition was displayed 12 times in some of the bigger cities in Bulgaria – Sofia (2 times), Plovdiv (2 times/festivals), Burgas (1 time) and also on some of the towns in the project area Madzharovo (3 times), Kardzhali (1 time), Momchilgrad (1 time), Dimitrovgrad (1 time), Haskovo (1 time) so altogether 12 displays and one online display for the project period. According to our estimation the project was viewed by at least 300 000 people most of the views coming from the display in Sofia where the exhibition was displayed on one major city square in front of the National theatre and from the exhibition display in Burgas during, Sea garden at the peak of the summer season with thousands of town guest and citizens, locals, tourist visiting the exhibition. At least by 5000 people viewed the exhibition according to provided data from our partners and co-organizers in Kardzhali, Dimitrovgrad and Momchilgrad. According to the festivals organizers in Plovdiv for the two days of the festival was visited by at least 10 000 people. The online exhibition was viewed from more than 1300 viewer and is still available online, available here: <https://www.artsteps.com/view/5e960cacc461c740b7ff6f10>. The exhibitions will be further used for events outside of the LIFE RE-Vultures project.

**Action E.7. Promote nature tourism services and products that stimulate vulture conservation**

Foreseen start date: 01/07/2016 Actual start date: 01/07/2016

Foreseen end date: 31/12/2020 Actual (or anticipated) end date: 30/06/2021

### *Objective of the action*

This Action was supported also by Action E3 (Local, regional and national media activities) and imagery from Action E1, raising attention to the fact that the vultures can be a very valuable nature tourism attraction. The action proceeded as foreseen, no problems or delays appeared.

### *Progress*

The promotion of the area as destination for ecotourism within the project has as result increased number of visitors in the area (see action D5).

- Images of the Vulture conservation centre in Madzharovo and black and griffon vultures were used for the cover of the “100 Tourist Sites of Bulgaria” booklet, which was issued annually by the Bulgarian tourism society aiming at promoting tourist destination throughout Bulgaria. The booklet, which contains 100 stamps from different cultural and natural sites, is quite popular in Bulgaria and increased the visibility of the project and visits from tourists.

The area was also promoted by European Safari company, a nature travel company directly supporting rewilding activities and local communities

Local nature focused businesses were assisted through the developmental, operational and communications support.

The visit of journalists organized in the frame of action E3 contributed to the promotion of local business related to wildlife and vultures as the journalists met some of the entrepreneurs and reflect the opportunities for nature tourism in the area.

Four videos promoting the main project areas were made instead of three blog post in order to get more public outreach as the platform is one of the major tourist platforms in Bulgaria and blogger have less visibility. *Bulgaria na dlan*, popular tourist platform made and broadcasted on the website and social media. Altogether the videos reached audience of about 200 000 views just on their FB page.

The videos were also promoted on the project You tube account and are also integrated on the project website:

Byala reka area <https://youtu.be/WEnx4Qzahlk>

Kardzhali area: <https://youtu.be/UjhQufOZDZI>

Studen kladenets: <https://www.youtube.com/watch?v=rp2oiBm5S5s&t=365s>

Madzharovo: [https://www.youtube.com/watch?v=a\\_ZFDEMa1LU](https://www.youtube.com/watch?v=a_ZFDEMa1LU)

3 leading Bulgarian travel bloggers were visited the area and published promotional materials for vulture and nature related tourism:

<https://drumivdumi.com/%d0%bc%d0%b0%d0%b4%d0%b6%d0%b0%d1%80%d0%be%d0%b2%d0%be->

[%d0%b7%d0%b0%d0%b1%d0%b5%d0%bb%d0%b5%d0%b6%d0%b8%d1%82%d0%b5%d0%bb%d0%bd%d0%be%d1%81%d1%82%d0%b8/](https://drumivdumi.com/%d0%b7%d0%b0%d0%b1%d0%b5%d0%bb%d0%b5%d0%b6%d0%b8%d1%82%d0%b5%d0%bb%d0%bd%d0%be%d1%81%d1%82%d0%b8/)

<https://bulgarianonthego.blog/bg/zabelezhitelnosti-okolo->

[madzharovo/?fbclid=IwAR3rBl3LYgRRI017ewGDRF9sbFRY6EVOcF0HI2-uFNKlFYjV0HV9uYRBBmc](https://bulgarianonthego.blog/bg/zabelezhitelnosti-okolo-madzharovo/?fbclid=IwAR3rBl3LYgRRI017ewGDRF9sbFRY6EVOcF0HI2-uFNKlFYjV0HV9uYRBBmc)

<https://beyondsofia.com/madzharovo/>

The online media campaign was carried out including Google ads, social media promotion, event promotion. The online campaign increased the website visits and improved the project visibility, increased the project awareness and promoted the area as tourist destination.

To mitigate the disturbance of vulture colonies by increased number of visitors in the area in collaboration with Regional expectorate of environment and water in Haskovo info boards for 5 of most vulnerable protected areas were designed and mounted (2 info board for each protected area)

#### **Action E.8. Launch events and closing events**

Foreseen start date:	01/01/2016	Actual start date:	01/07/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

##### *Objective of the action*

This action was a very good way to start up and finish the activities within this project by involving the main stakeholders and national media. Although there has been a change in part of the action, the objective of the action was fully achieved.

##### *Progress*

The launch event was held in September 2016 in the town hall in Haskovo; a special press conference with information about the project and representatives of the organization involved took place in Haskovo's town hall where partner organizations, officials and media representatives attended the event. Round 30 people attended the press-conference and more than 50 children and their parent participated in the workshops and games organised at the town's main square to mark the International vulture awareness day. The event received good media and public outreach as it coincided with the International vulture awareness day and the public holidays in Haskovo.



*Figure 43. Project launch event in the town of Haskovo*



The project was also officially presented in Sofia during the 3-day Challenge days Festival held between 11 – 13 November where the team had a special stand with information materials. More than 2500 people visited the largest in Bulgaria festival for alternative sports, lifestyle and eco -tourism.

Closing event: The completion of the project was marked with 3-days closing event (25 to 27 of June) in Madzharovo. The event that included theater, presentations, lecture, workshop, movie screening, free access of the Vulture centre was attended by more than 500 people, including student classes from Plovdiv and guests from Sofia, Madzharovo and the surrounding areas. The festival was also visited by local journalists and bloggers, who prepared special materials for the festival and the area, which aims to promote the area and the project work. More about the closing event available in the article: <https://rewilding-rhodopes.com/news/more-than-500-people-attended-the-vulture-festival-the-final-event-marking-the-end-of-the-project-conservation-of-black-and-griffon-vultures-in-the-rhodope-mountains/>.



*Figure 44. Closing event in Madzharovo*

Online webinar “Vulture comeback in Rhodope Mountains” was organized in addition to the life event and was aimed at the international public and presented the key project results, findings, innovative actions and achievements. Around 40 people participated in the event and created discussion and follow.

The webinar was also uploaded on the YouTube channel: <https://www.youtube.com/watch?v=uGasp5xPizk>.

The two closing events were postponed for the actual end date of the project to better present the results as communication activities were carried out throughout the project including the period Jan-June 2021.

#### **Action E.9. Mount info panels in the project sites**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/03/2017	Actual (or anticipated) end date:	30/09/2017

##### *Objective of the action*

The signboards aimed to communicate basic information and key messages about the project to the thousands of residents and visitors who already regularly visit the project sites every year.

##### *Progress*

Various potential locations in the project area were carefully identified with the purpose to distribute the info panels in the area in the most effective manner in order to be seen by the highest possible number of people and secure the constant visibility of the project.

13 information boards were placed: 6 info panels installed in Greek LIFE Vultures project area and 7 in Bulgaria.

In Greece 6 info panels were installed in Iasmos, Fillyra, Kirki, Lefkimi, Dadia and Mikro Derio.

In Bulgaria 7 panels were mounted in SPA Most Arda and SPA Madzharovo SPA Dobrostan, SPA Krumovitsa, SPA Studen Kladenets, SPA Ivailovgrad and SPA Byala reka.

The boards are providing some important information about the species and the project in the project area and are appreciated by the locals and visitors in the area. Additional information boards on some places where tourist pressure is felt were mounted within E7 action.

#### **Action E.10. Networking with other LIFE and non-LIFE Projects, participating in workshops and seminars with connection to the project, to communicate project findings, achievements and results**

Foreseen start date:	01/01/2016	Actual start date:	01/01/2016
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

##### *Objective of the action*

These networking actions have been created in order for the Project staff to be able to share Project results with others and to discuss questions and experiences arising from the C-actions in this area.

##### *Progress*

- The Action A7 from this Project was closely related to the Action A5 of the “Vultures Back To Life” project. In order to avoid overlap it was concluded that A5 of “Vultures Back To LIFE” would refer to the national situation in Bulgaria regarding the poisoning problem and in A7 would be developed specifically for the Rhodope Mountains. However, both Project Teams provided information to VCF regarding the poisoning cases, the legal operation and the anti-poison activities in Bulgaria. This was decided at the two Life Projects join meeting organized by VCF in April 2016 and April 2017 (meeting notes available). VCF together with BSPB (LIFE Re-vultures) and Green Balkans (LIFE Vultures Back To Life) cooperatively worked on this study.

- 29.02.2016: BSPB and RRF staff participated in the coordination meeting organized by the LIFE “The return of the Neophron” (LIFE10 NAT/BG/000152) team.
- 13.04.2016: Coordination meetings with two other projects dealing with vultures in Bulgaria and on the Balkan peninsula (The Return of Neophron LIFE10 NAT/BG/000152 and Bright future for Black vulture LIFE14 NAT/BG/649) were held in Plovdiv.
- 01.04.2016: BSPB organized a joint meeting between BSPB, WWF (LIFE 14 NAT/NL/901) and Dadia National Park management body to discuss the trapping, sampling and tagging procedures.
- April 2016: BSPB team visited the dog unit of MME – Birdlife Hungary and had a discussion and working meeting with them in order to collect information on the dog unit establishment and process of training. Following the meeting with the dog unit of MME – Progress report LIFE RE-Vultures 29 LIFE14NAT/NL/901

Contacts have been established with the Hungarian project managing anti-poisoning dog unit (LIFE10NAT/HU/019).

- 21.07.2016: Another meeting between the project team representatives and the team of Green Balkans working on LIFE14 NAT/BG/649as held in Plovdiv.

- In October 2016 LIFE Vultures team took part in an important workshop, organized by the VCF, for the conservation of vulture populations in Europe, Central Asia and the Middle East in Monfragüe (Spain). More than 70 participants from 25 countries and from over 50 different organizations gathered to discuss and prepare the European part of the Action Plan to conserve African-Eurasian Vultures, which was prepared by the VCF. The overall aim was to develop a comprehensive strategic Action Plan covering the whole geographic ranges across Africa, Asia, and Europe. Bulgaria was represented by Stoycho Stoychev and Dobromir Dobrev, part of a team project LIFE Vultures, who gave introductory lectures presenting the main threats to vultures. WWF Greece participated by Elzbieta Kret contributing with info for the Cinereous Vulture Action Plan.

- In November 2016 the LIFE Vultures team participated in a conference with special focus on minimizing the risks to birds associated with power lines and poisons in Budapest, Hungary. The aim of the Conference was to bring together nature conservationists, industry professionals and governments and to stimulate joint actions to address the problem of large-scale bird mortality on power lines at the European level. During the forum, experts from LIFE Vulture project presented the work of the anti-poison dog unit and the team – Nikolay Terziev from BSPB and Bars

- Again, in November 2016 the team attended the Annual bearded vulture conference, organized by one of our partners LIFE Vultures project (VCF) in Austria, in the National Park Hohe Tauern, where 30 years ago the first attempts were made to return the bearded vultures in the Alps. More than 80 persons participated at this event to exchange experience, establish contacts with vulture expert and discuss some common conservation activities. At this forum the team once again made contacts with the “Bright future for black vulture” Green Balkans which will contribute to the continuity and coordination of our common activities mainly aimed at protecting the black vulture in Bulgaria.

- 25.04.2017: BSPB participated at the Anti-poison Workshop in Sofia, organized by VCF within LIFE14 NAT/BG/649. One of the main outcomes of this Workshop was uncertainty in interpretation of the relevant national legislation. Therefore, VCF requested support by Bulgarian lawyer that can help to interpret the Bulgarian legislation regarding wildlife poisoning and responsibilities of national public bodies. Although these activities were under

different Life Project (Vultures Back To Life) they were extremely relevant for the compilation of the A7 evaluation report, especially for the policy operational recommendations. At the end, two separate reports were produced.

- Further contact was made with the LIFE Project “Return of the Neophron” project <http://www.lifeneophron.eu/> and a common meeting was organized where both project teams discussed the different possibilities for cooperation and networking on selected activities and made adjutant planning for the same.

The staff visited the annual Bearded Vulture meeting in France November 2017; Spain November 2018 – 150 participants. Outputs of the project are shared with all the 6 other projects on vultures in Europe, on the VCF website and through interactions in different project meetings and workshops:

- GypHelp LIFE13 NAT/FR/000093, Reduction of the human threats affecting the Bearded Vulture
- EuroSAP (LIFE14 PRE UK 002), Coordinated Efforts for International Species Recovery
- Vultures back to LIFE (LIFE14 NAT/BG/000649), Bright Future for Black Vulture and Bearded Vulture in Bulgaria
- RUPIS (LIFE14-NAT\_PT\_000855), Egyptian Vulture and Bonelli’s Eagle Conservation in Douro/Duero Canyon
- GypConnect (LIFE14 NAT/FR/000050), Restoration of connections between the Alpine and Pyrenean populations of bearded vulture (*Gypaetus barbatus*)
- LIFE14 NAT/IT/000484 Life Under Griffon Wings

In September 2018 BSPB team member presented the project work with emphasize on anti-poisoning activates at the conference Eagles in Palearctic study and conservation organised by Panoneagle LIFE (LIFE 15NAT/HU/000902) and the Russian Raptor Research and Conservation Network.

In April 2017 the team also participated in *Wild ways Rewilding Europe’s first ever gathering*. The event was attended by all Rewilding Europe staff and team members, as well as a range of strategic and financial partners, Rewilding Europe Circle members, advisors and supporters.

- 26-27.10.2017: The LIFE 14 NAT/NL/901 project organized a common workshop with another LIFE project “Eagle Forest” – LIFE 12 NAT/BG/001218 on poaching and bird crimes problems in Dolno Cherkovishte (see Action C4 and E16).

- In December 2018, WWF Greece participated in the International Workshop with the title: The future of vultures in Balkans: Tackling threats and building network opportunities, organised by the Ministry of Environment and the Management Body of the Messolonghi - Etoliko lagoons- Akarnanika mountains National Park. WWF Greece presented the “Vulture status in Evros and Rhodopes, Past-Present-Future”.

- In March 2019, WWF Greece Dadia team participated in 3 meetings with local authorities in Alex/polis, Komotini and Soufli organized in the framework of the LIFE IP 4 Nature (LIFE16 IPE/GR/000002).

- In March and October 2019, WWF Greece participated in two meetings organised by HOS within the open process for the development of the Vulture Multispecies National Action Plan under LIFE IP 4 Nature (LIFE16 IPE/GR/000002)

- In October 2019, WWF Greece participated in a meeting in Athens, organised by the Ministry of the Environment (under LIFE IP 4 Nature-LIFE16 IPE/GR/000002) with the title “LIFE Project Networking for Nature and Biodiversity in Greece” where the actions of the Re-Vultures project were presented

- In February 2020, WWF Greece participated with a presentation in the workshop for the presentation of the final draft of the Vulture Multispecies National Action Plan two local authorities (under LIFE IP 4 Nature-LIFE16 IPE/GR/000002).

- The VCF distributed brochures and stickers of the project in all the other LIFE meetings and workshops it was involved (7 projects), and also in all relevant international vulture meetings, including the Convention for Migratory Species Conference of Parties 12 (October 2017, where the Vulture multi-species action plan was approved), annual VCF meetings, international workshops, etc.

- The VCF was a partner in another 6 LIFE projects involving vulture conservation (LIFE14/NAT/PT/000855, LIFE14 NAT/BG/000649, LIFE14 NAT/FR/000050, LIFE13 NAT/FR/000093, LIFE14 PRE/UK/002), and thus integrated and conveyed information from any of these projects to the others, sharing best practice, including project documents,

- In October 2019 a project team member took part in Rewilding Europe meeting in Cuenca, Spain. Project experience in deer population restoration and collaboration with hunters was shared with participants from the rewilding areas across Europe.

- The project of the team participated in the European vulture conference held in Portugal between 1 and 4 of October 2019. The team prepared two posters and one oral presentation on the studies undertaken under the project and the GPS movements of the Griffon vultures. The team also lead one of the symposiums of the Conference with a topic of the Griffon vultures monitoring on the Balkans. The team also promoted the work of the anti-poison dog unit in Bulgaria during the symposium.

- On 13.03.2020 a project team member participated as guest speaker in online meeting “Alternative livelihood development for species conservation” organized by LIFE for Danube Sturgeons (LIFE15 GIE/AT/001004) and presented the connection between the vulture conservation and birdwatching tourism and nature-based economy in Rhodope mountains.

#### **Action E.11. Demo visits for local people to vulture hides in the project area**

Foreseen start date:	01/01/2017	Actual start date:	01/06/2017
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

##### *Objective of the action*

In order to more firmly anchor the vulture and wildlife watching tourism among the locals and to boost its development in the region, we wanted to bring some local opinion leaders to see how it is carried out in real life.

##### *Progress*

In July local veterinary authorities and representatives from the Bulgarian Agency for Food Safety visited the vulture feeding site in Madzharovo during and organized visit, which aimed at legalization of the vultures feeding site.





*Figure 45. Demo visit of Kompsatos livestock breeders to Dadia Information Centre*

WWF Greece organized in December 2019 a trip of livestock breeders from Kompsatos valley to Dadia village. These livestock breeders supported the operation of the feeding sites in Kompsatos valley. Ten livestock breeders participated and were guided in the Dadia Information Centre and the Vulture's Observatory. The aim of the trip was the exchange of information on vulture protection and communication activities like feeding sites, monitoring, information centre etc.

In September 2020, 7 representatives of tourist business in Madzharovo visit SPA Studen kladenets and vulture breeding sties in the area.

Due COVID-19 restrictions all other planed demo-visits of local stakeholders were canceled

**Action E.12. International Workshop on vulture supplementary feeding best practice and main issues on the transposition and national regulations of the relevant EU directives**

Foreseen start date:	01/01/2016	Actual start date:	01/04/2016
Foreseen end date:	30/09/2016	Actual (or anticipated) end date:	30/06/2021

*Objective of the action:*

The workshop was planned to offer the opportunity to discuss and produce specific recommendations for the document to be elaborated through Action A13, which would then be partially or wholly implemented through action C1. The workshops also aimed to contribute to develop future conservation strategies (After LIFE plan).

*Progress:*

At the beginning of the project the action was restructured. It initially foresaw the implementation of one workshop, but then two workshops were planned to be organized: one to evaluate the current situation in Bulgaria and Greece and also to provide the best practice experience from Spain and other to evaluate the progress with the implementation of the sanitary regulation in Bulgaria and Greece. The first workshop has taken place in Haskovo on 27-28 April 2017. The second follow-up workshop was finally not organized mostly due to COVID19, although communication on this subject continued amount the partners along the project.

The funds for organization of the 2<sup>nd</sup> workshop were used for production of an info graphic – an illustrative document (in digital version) to promote and explain the sanitary role of vultures and the implementation of the EU sanitary regulation in Greece and Bulgaria.

The International Workshop on Supplementary Feeding Strategies for Vultures was organized by BSPB and the VCF. More than 30 participants attended from Bulgaria, Spain and Greece attended the meeting, representing the central agencies such as ministries, regional services such as veterinary agencies and management bodies of protected areas, and of course the main nature conservation Bulgarian NGO's. The agenda of the workshop was diverse, while its main focus was on the operation of the supplementary feeding stations for the vultures for conservation purposes and the correspondent feeding strategies that are being observed, as well. Focus was also given on the veterinary and sanitary legislation in force, especially in Bulgaria and Greece.

The workshop has been a great opportunity to proceed to a comparative analysis of the situation in three different countries, regarding the establishment and operation of the vulture restaurants and the implementation of the European legislation regarding the management of animal by-products. The participants had opportunity to learn about the Spanish best practice experience related to vulture feeding and implementation of the EU sanitary regulation by the representative from the Spanish ministry.

### **Action E.13. Organization of international workshop on threats posed by NSAIDs/Antibiotics**

Foreseen start date:	01/09/2018	Actual start date:	01/09/2018
Foreseen end date:	30/06/2019	Actual (or anticipated) end date:	30/06/2019

#### *Objective of the action:*

The action foresaw to develop a workshop to disseminate among the professionals that deal with vulture conservation information about the threats posed by NSAIDs/Antibiotics

#### *Progress*

The workshop on threats posed by NSAIDs and Antibiotics took place in Dadia, Greece, on 19-20 February 2019. The event was organized by VCF with the valuable support of WWF GR and the Dadia management body. The workshop was a huge success, 60 participants, including many veterinaries from Bulgaria and Greece, and representatives from the ministry in Athens. Foreign experts came from Spain, France, Italy and Israel, and very relevant and tangible discussions were held. A small training event on forensic necropsies was also organized, on one cinerous vulture that had died in Dadia. This workshop has strengthened collaboration between vets and vulture conservationists on the topics of anti-poisoning work, vet drugs and supplementary feeding. Topics were discussed such as: dangerous veterinary products to vultures, toxicology analyses methodologies, laboratory capacities in Greece, international shipment of samples and international collaboration. This event helped to establish

collaboration, but also to clarify what kind of samples need to be collected and what kind of analyses to be performed within Action A8.



Figure 48. The workshop on impacts of NSAIDs and Antibiotics held on 20 February 2019 in Dadia, Greece.

#### **Action E.14: Developing culture related tourism businesses**

Foreseen start date: 01/04/2016 Actual start date: 01/04/2016

Foreseen end date: 31/12/2020 Actual (or anticipated) end date: 30/06/2021

##### *Objective of the action*

This action aimed at contributing to build up at least three businesses linked to the presence of vultures, in order to provide for additional sources of income for the local communities.

##### *Progress:*

In accordance with the Overview of business opportunities in support of vulture conservation in Eastern Rhodopes and the specific criteria for sustainability of the business, as well as other relevant factors three businesses were selected. Personal consultations were made with each of the business providers to define the needs and to meet the expectations for further development of the tourist products provided by the business.

Two wildlife photography hides in the area of Madzharovo owned by Priroda Madzharovo Ltd were repaired and renovated. A new photo hide was built in Studen kladenets hunting reserve. The third selected business – Gabi tour Ltd was supported with equipment – telescope for bird observation and mobile photo hide.

Research of the needs and interests of local tourist stakeholders regarding the topics of the specialized tourist trainings was made. According to the results, the basic needs of the local tourist providers were focused on two main fields: 1) good practices and new trends in tourist products, focused on animal observation and photography and 2) practical information on tourist business management, mainly marketing and promotion of tourism products to international markets.

Following the directions provided by stakeholders 3 training programs were developed. A selection of trainers was made to respond to the specific topics of the trainings. The main topics in each training responded to the needs expressed by stakeholders and incorporated the topics, mentioned in the project documents, as follows:

- Training 1 – “Photo tourism and management of hides for wildlife photography”. The training was held on 12 October 2016 in Nature Conservation Centre “Eastern Rhodopi” in Madzharovo town. The first trainer, Carles Santana from Photo logistic, presented good international practices in the development and provision of tourist products/services for wildlife photography. A significant part of the training was devoted to the importance of the networking and the establishment of good relations with local population for the successful and sustainable tourism development. The second lecturer, Marin Kurtev from Tour operating company “Natura Madzharovo” Ltd. presented the existing tourist products for birds/wildlife photography in the area of Madzharovo. The third lecturer, Hristo Hristov – from Rewilding Rhodopes Foundation, an expert in vulture protection, presented the risks for birds and people in the process of feeding of vultures. 28 participants attended the training – mostly representatives of tour operating companies, guesthouses, local guides NGOs and a hunting reserve.

- Training 2 – “Successful ecotourism business – key moments in the development and management of the tourist product and overview of the international tourist market”. The training was held on 14 March 2017 in Nature Conservation Centre “Eastern Rhodopi” in Madzharovo town. The trainer, Simon Collier – professional wildlife guide and responsible for product development in tour-operating company for wildlife observation – presented his professional experience in the field and good practices in wildlife products’ development and management. 31 participants attended the training.

- Training 3 – “Development and management of tourist products with a focus on natural heritage and key moments in tourist service”. The training was held on 27 November 2017 in Kardzhali. The trainer, Zoritsa Stavreva - sustainable tourism expert – presented practical information for the leading principles of the development of the specific tourist products for birdwatching/wildlife observation with accent on quality and conflict management and pricing. 12 participants attended the training - representatives of local tourist business – tour-operating companies, guesthouses, tourism entrepreneurs.

For each specific training the team members prepared a list of tourist stakeholders, corresponding to the topics and sent invitations to participate. Each trainer developed Power Point presentations and provided a written overview of the information presented during the training. All materials were distributed via e-mails amongst participants in the tourist trainings.

### *Problems/changes/delays*

It took more time than foreseen to identify the third vulture related business.

During the discussions with local businesses, it was mentioned that in addition to hides specialized for vulture photography it would be very useful if the project support could be diversified in order to serve better local needs. It was proposed to consider supporting the local business through building hides targeting other species and providing optic equipment. This way the touristic offer would have been more diverse, and tourists could stay longer in the area bringing more incomes to the local community. In this regard in the frame of the business plan preparation the project team planned to explore the opportunities for support other than building/repairing vulture hides.

In this regard we would like to note that in the action description the restoration of 3 existing vulture watching hides and creation of 1 new vulture watching hides is mentioned, whereas in the expected results only 3 vulture tourism hides were included. Therefore, we decided the number and type of hides following the local needs.

**Action E.15. Produce a Layman's report**

Foreseen start date:	01/01/2020	Actual start date:	01/01/2020
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	30/06/2021

*Progress*

The Layman's was produced and shared with authorities, stakeholders, guest, partners. The report was also sent as final newsletter in Bulgarian and English to all subscribers, around 200 people. It is also available on the project website. 500 print copies in Bulgarian and 100 in English were produced and distributed to local project partners, stakeholders, visitors of information and tourist centers in the area.

Laymen report available in electronic format for download from the Project web site:

English version:

<https://rewilding-rhodopes.com/wp-content/uploads/sites/10/2021/07/Rewilding-Rhodopes-Broshura-%D0%91%D0%93-online-file-4.pdf>

Bulgarian version:

<https://rewilding-rhodopes.com/wp-content/uploads/sites/10/2021/07/Rewilding-Rhodopes-Broshura-%D0%91%D0%93-online-file-4.pdf>

**Action E.16. Consultation activities to involve crucial stakeholders to gain their support for the project implementation**

Foreseen start date:	01/10/2016	Actual start date:	01/10/2016
Foreseen end date:	30/03/2020	Actual (or anticipated) end date:	30/06/2021

*Objective of the action*

Obtain direct involvement of stakeholders in management decisions and project implementation by involving stakeholders from early steps of implementation, in order to make sure that the specific issues, important for these groups, are given enough importance.

*Progress*

The staff of BSPB and RRF participated in various meetings with stakeholders, like shepherds, majors, local people and ornithologists working in the project area. The meetings were conducted along with other conservation and education actions under the project.

During the organized workshops lists of stakeholders and decision makers were created and consequently used by the project team in the working process. The following meetings were made:

14.07.2017 – Meeting and field visit with veterinarian authorities (representatives of Bulgarian food safety agency – Kardzhali, Animal health and welfare and Plant protection department) and the legal veterinarian of Krumovgrad municipality as well as BSPB and RRF team members. The veterinarian authorities observed a vulture feeding in SPA Studen kladenets and made an inspection of the feeding station infrastructure. The project team presented the activities on vulture conservation within the project. Discussions on veterinarian and sanitary requirements for feeding of vultures and collaboration in cases of epizootic and illegal use of poisons were made. The veterinarian authorities gave recommendations for the implementation and application of regulations. The participants agreed to collaborate in the legalization of vulture feeding stations and in cases of poisoning and epizootic events.



26-27.10.2017 - The workshop “Restocking and protection of game and prevention of wildlife crime” was organized by BSPB and RRF in the frame of actions C4 and E16 of LIFE RE-Vultures project and in cooperation with the LIFE12NAT/BG/001218 project. The main highlights of the workshop were restoration of red and fallow deer in the Eastern Rhodopes and conservation of wildlife and biodiversity to prevent wildlife crimes. Representatives of forest and hunting authorities, Inspectorate for Environment and Waters, police, local hunting societies etc. took part in the workshop. It was divided into 3 sections – (1) deer restoration, (2) protection of game species and (3) prevention of wildlife crimes, collaboration on nature conservation. The stakeholders were acquainted with vulture conservation activities and anti-poison team established within the project, successes and challenges of deer restoration and examples for successful collaborations between different stakeholders on nature conservation in other areas. During the discussions the experience was exchanged, the common problems and overlaps were found and a dialogue and collaboration on issues of game restoration and wildlife conservation were launched.

25.10.2018 – meeting with director of regional directorate of Bulgarian Food Safety Agency in Haskovo and head of the department Animal Health and Welfare – to discuss the legal and animal health aspects of use of animal by-products for feeding of vultures and to start the procedure for legislation of vulture feeding place near Madzharovo.

16.11.2018 – meeting with veterinarian authorities and field visit of vulture feeding site near Madzharovo. In the meeting participated representatives from regional directorate of Bulgarian Food Safety Agency in Haskovo, responsible for food control and animal health and welfare in Madzharovo area as well as BSPB and RRF team members.



*Figure 47. Workshop “Restocking and protection of game and prevention of wildlife crime*

## 6.2. Main deviations, problems and corrective actions implemented

The only change made to the project was explained in the frame of Action C4. The project foresaw that the anti-poison dog team would be made of one dog leader and two dogs. However, upon recommendation of Hungarian experts only one dog was purchased, and after the first training and gaining adequate experience it was decided to limit the teams to this dog and not to add another dog. This was due to a row of technical reasons bonded to the conduction of the dogs, which suggest that having a second animal might create problems in handling them and would not increase the effectiveness of the team.

This did not affect the foreseen objective of the action. The developed anti-poison team has been involved in many cases of search of poison, and it has always worked effectively.

The funds for the second dog have been used to implement a row of additional activities to provide further training and to disseminate the lessons learned in the frame of the action.

## 6.3. Evaluation of Project Implementation

### – Methodology applied

The project implementation followed the intervention logic as planed in the proposal document. The key preparatory activities have informed and supported the conservation actions as foreseen e.g. research on vultures presence and threats (A3, A4, A5) informed various in situ conservation actions (C1, C3, C4, C5), the identification and prioritization of major electricity lines (A6) informed insulation of dangerous poles (C6). More details on the methodologies used under each A action that has research component is presented below:

- The planned survey methods in the frame of Action A3 were standard and at the very early stage (submission of the project) were scientifically consistent and tested in numerous surveys published before. Thus, except for several, mainly technical and financial corrections, the methods proved to be very successful and in accordance with the expected results. 14 observation points were selected immediately after the launch of the action. More than 180 observations of Black vultures were obtained during the vantage points and feedings monitoring which resulted in the establishment of the flyway corridor of the birds towards the Bulgarian sites. They have been immediately visible as all the obtained information was uploaded regularly with no delays and the foreseen results reached even before the end of the action.
- The implementation of Action A4 was mediated by the long-term application of the described monitoring methods. Both the Griffon vulture population structure and demography were closely monitored and therefore during the two years the project team succeeded to establish the breeding performance and the presence of marked vultures in the area. In Bulgaria population growth was followed for two consecutive years from 81 pairs in 2016 to 89 pairs in 2017. Furthermore, 34 Griffon vultures were marked with rings and wing tags. Another example of the successful application of the method is the organization and coordination of the 12th and 13th consecutive Griffon vulture roosting sites monitoring on the Balkans where more than 60 participants from 4 countries participated each year. Additionally, photo traps were used to support the monitoring scheme and to provide additional information.
- The methodology for Action A5 was well planned as the project team applied a common method for tagging birds and followed strictly the recommendations of the

already established protocols. To support the action implementation a training in trapping methods was also planned and conducted before the start of the action. However, a delay in the shipment of the transmitters shifted the planned schedule a bit. Nevertheless, it became apparent that the correct methodology was applied as even though several birds were tagged in the first year of the project, the rest was captured and tagged in only few days in 2017 and 2018. As a result, 27 griffon vultures of different age classes and 27 black vultures were tagged with GPS-GSM and GPS Argos transmitters. This action was continued in the frame of Action D1 where 7 more birds were tagged. They are followed on a daily basis with maps of their movements uploaded on the internal project site.

- Regarding Action A6 a standard and widely used methodology was implemented, which brought immediate results as the hazardous powerlines were mapped in only a week time. A detailed information on this hazard to vultures was obtained and together with the results provided by another project the team was able to analyze the results and to propose powerlines for insulation and diverters installment to Elektrorazpredelenie (EVN) grid operator. For Action A7 a standard dual methodology was used, including the organization of a national meeting with stakeholders to identify issues and discuss the topic, and then the drafting of reports, including hiring external expert help (legal analysis).
- One of the most crucial and important tasks was the development and use of standard sampling protocols for Action A8. Since the improper collection and storage of samples could jeopardize the whole effort, at the very early stage of the project a protocol was developed by the VCF and distributed to both LIFE 14 NAT/NL/901 and LIFE 14 NAT/BG/649 projects so that all the samples are collected and stored in the same way. This brought excellent results and during the progress of this action all the samples were collected and stored as foreseen.
- The human dimension study under Action A9 was planned based on the standard methodologies for inquiry research by an actor's dynamics approach. At the beginning the stakeholder analysis was made to identify the main issues and problems. It was based on a combined methodology: a semi-structured questionnaire (comprised of both closed - analyzed by quantitative statistical methods - and open-end questions – analyzed by qualitative sociological methods) and in-depth interviews (analyzed by qualitative sociological methods). The methodology was strictly applied, but due to the small sample of the quantitative structured interviews, the analysis lacks some qualitative data that could have been collected with in-depth interviews. Also, the statistical analysis was limited with small samples of 49 respondents within the quantitative poll, therefore the results have to be interpreted cautiously – e.g. sometimes 100% refer to 1 person only (e.g. respondents above 70 years of age) so the main findings were necessarily cross-checked between the two methods and the project interventions must consider both aspects of the stakeholder analysis.
- Regarding Action A13 a questionnaire for local tourism related businesses was developed initially, following marketing research rules such as non-discrimination, transparency, and objectiveness. As a result, different local businesses were invited to take part in this research and to fill the questionnaire. Unfortunately, only 5 of them expressed interest and were evaluated following the developed criteria, and three of them were classified as relevant to the criteria. The result of this methodology was available as scheduled and the applied techniques led to prompt

separation of the businesses characteristics and finally to the decision on which of them were eligible.

Most of the conservation actions were implemented as initially planned and they achieved and even overachieved many of the objectives. More deer than planned were released (C2) and more pylons were insulated (C6). Substantial change in the initially planned implementation methodology was done only in the frame of action C4. The anti-poisoning dog unit consisted of one dog instead of two as initially planned. This was done following the recommendation of the selected dog training centre in Hungary and permission from LIFE office. This did not diminish the effectiveness of the anti-poisoning actions as proven during the implementation. More over other stakeholders (state forestry, NGO) planed creating of dog units in the frame of their projects.

### **Comparison of the results achieved against the objectives and expected results**

In Table 6 below is a comparison of the achieved against the proposal's objectives and expected results is made for each of the project's actions. **Indicate which project results have been immediately visible and which results will only become apparent after a certain time period.**

Because LIFE 14 NAT/NL/901 project applied large-scale international efforts to reduce acute threats to the populations of Griffon and Black vultures and was implemented by a consortium of partners with a long-lasting experience in this topic and region, most of the result of the project became immediately visible, while others will sustain in future and will become apparent after a certain period of time. Alongside we engaged the implementation of the project actions to add value and turned these results into a scientific product for most of the project actions. This is a state-of-the-art contribution where practical experience from field experiments and technical procedures might be immediately engaged into policy and management that will address the main goal of the project and will be considered in time. Tackling the major threats to vultures in the cross-border region of the Rhodope Mountains between Bulgaria and Greece had the following immediate and visible results:

- Maps of the movement pattern of vultures and deer, produced based on satellite telemetry and visual observations (A3, A4, A5, and D2), are providing a sound background for the development of the concrete interventions – this result became evident immediately after the implementation of these actions and was utilized as a base for a further build of the whole conservation package of activities in the project. The success of this result guaranteed the proper application of the conservation measures.
- Insulation of power lines and installation of diverters that immediately affected the decrease of bird mortality (C6) – this result was complementary to a previous effort in the region, Currently, we insulated pylons of a type that has not been insulated before in the region although it is the most hazardous one. Furthermore, diverters were installed for the first time in this region of Bulgaria. Both mitigation methods had an immediate effect, and no bird mortality was recorded ever after. At the same time, the mitigation effect will last for years to come that will surely become evident in future as well and will be a guarantee for future work with the grid operator to fight the effect of the energy infrastructure on raptor species;
- The construction and the operation of five feeding sites and the support from the livestock breeders and relative authorities (C1);
- 15 artificial nests for Black vultures (C3) provide for new areas of expansion – nests were installed accordingly and become visible at the very moment. Still, further time would be needed until they become occupied and therefore, we expect that this result will also become apparent in e certain period of time;



- The anti-poisoning dog unit (C4) has reduced the danger represented by poisoning – this unit established in the frame of the project had an immediate effect and result that was proved by the huge media interest in it but also by the interventions of the dog unit in the investigation of different cases in the country, even outside the project areas. The dog unit is the most powerful tool to fight the illegal use of poisons and we, therefore, expect that its results will be multiplied in future and more results will be obtained due to its work in the upcoming years;
- The activities carried out in the frame of Action C5 have allowed to decrease mortality of several vultures – the nest guarding and nests risk assessments helped to save several young Griffon vultures that fell off their nests and some of them were almost drowned in Studen kladenets reservoir. This result became evident immediately and was multiplied during the implementation of the action whereas each year different signals for distressed birds were received;
- The cooperation with local livestock breeders and farmers under actions A3, A4 and D1 were very prominent, visible and started immediately with the project and especially after the obtained results of Action A12 where BSPB hired a legal expert who developed and wrote an extensive report including the EU and Bulgarian regulations that were in charge in Bulgaria and created a set of recommendations and guidelines towards carcass collection, disposal, transport and operating a feeding site. Consequently, BSPB obtained permits for carcass disposal and transport and since then issues special notes to local farmers that account for their dead animals in front of the Bulgarian vet authorities;
- Collected comprehensive information of the number and pattern of presence of the target species in the project territory – the scientifically based and proved monitoring methodology immediately resulted in obtaining knowledge on the population sizes, age structure, spatial patterns, health status and main breeding outputs of both target species under actions A3, A4, A5, A8 and D1. Due to the holistic approach and exchanged international experience and collaboration these results become visible from the very start of the project until its end;
- Rejection of new wind farms in the core vultures' areas;
- The communication activities have increased the awareness of the public. The project activities were largely covered by national and local media, reaching more than 7 million people according to modest estimations (E3);
- The renovation of wildlife photography hides and building of new hide (E14) has generated additional income bonded to the presence of Vultures;

The main secondary goal of each project activity in the frame of LIFE 14 NAT/NL/901 was to reach sustainability and durability in future. Thus, some of the project results will be more obvious after some period of time. Those are related to results that are expected to be increasing over the time or/and build on other results. Those are as the following:

- Increase of the vulture population – this result will become visible with time and is a clear indicator of the success of the current project. Though the demography data that was obtained during the implementation was immediately visible, the population trend of the long-lived species with delayed maturity will be clearly visible over time. Here, the project staff coordinated and published a scientific paper that reviews the long-term development of the Griffon population in the region under Action D1;
- The successful deer population restoration (C2) will increase the natural food availability for vultures and will help to maintain and enhance the biodiversity in the area by creating and maintaining half-open, half-wooded landscapes. Active

involvement of local hunters in deer restoration will increase their support and engagement.

- Increase of the number of visitors in the Vulture centre – due to the active work of the team, organisation of different events, students visits, camps and promotion in the region we expect that this result will become visible in the future. Our result from the study on economic impact of the project (Action D5) clearly showed that this number has been increasing in the time since the start of the project until the Covid-19 outbreak. Therefore, we expect that after the pandemic, this indicator will continue growing and become visible after a certain time in future.
- Increase the support of livestock breeders in Kompsatos for the operation of feeding sites (Greece);
- Increase the rejections for the development of new wind farms in Thrace (Greece);
- Reduce the human wildlife conflict by extending the use of the electric fences to protect livestock from wolf attacks as a result of demonstrating their effectiveness during the project;
- Intensification of the work against poison use and active involvement of the national authorities – at the very end of the project the National action plan to combat poison use in the wild in Bulgaria has been submitted and endorsed by the Ministry of environment and waters. Therein, the establishment of more dog units, operation of a national toxicological lab and active involvement of the national authorities is foreseen. Thus, this result will become visible after a certain amount of time;
- Nine scientific papers published – this result has become visible at the time these papers were printed. However, because they are based on the project results and information collected from the practical arena, the application of the recommendations listed there will become visible in future when applied by the relevant public or private bodies. Moreover, since the project achieved numerous results, some of them are about to be published in future and used as a base for the development of further measures and actions to conserve the vulture species in the region;
- GPS telemetry data stored and downloaded permanently at a project account – this information is stored automatically but will possibly become visible in future when used in environmental impact assessments, new scientific papers development and used in different strategic and planning documents. By fitting vultures with tracking devices under actions A5 and D1, we guaranteed the future monitoring of the major threats to vulture species and assured that these problems might become immediately visible to the general public;

In conclusion, our project results, no matter visible immediately or after a certain period of time, brought exceptionally new knowledge and helped in solving some of the major threats to the target species. Both types of results, must be considered and reviewed together because they are aimed to be sustainable in time. Therefore, results that became immediately visible will also bring outcomes in future and others that will be visible later on, were actually planted at the very beginning of the project. Henceforth, our project results entirely support the successful implementation of the project that is immediately visible in its numerous outputs and additional annexes to it.

**If relevant, clearly indicate how a project amendment led to the results achieved and what would have been different if the amendment had not been agreed upon.**

As mentioned further up it was decided that the anti-poison dog team was limited to the presence of one dog instead of the initially foreseen two. The cooperation between the dog has worked very well. The introduction of another dog was likely to disrupt this balance and create

conflicts either among the two dogs or between at least one of the dogs and the leader. Therefore, we believed that the choice of limiting the team to one dog would most probably ensure a major success of the action.

The dog unit operated more than 4 years (October 2016 – December 2020) in the frame of the current project. During that time 153 searches and patrols were conducted. The majority of the patrols were executed in the Eastern Rhodopes (80%) which is the core area of the vulture populations in Bulgaria. The total number of all findings is 310 with 40 of them being illegally poisoned animals, 7 were animal remains and 10 were poisoned baits.

Additional promotion and training of state authorities were organized instead. Moreover, a national anti-poisoning plan was developed, submitted and endorsed by the Ministry of environment and waters in Bulgaria. Along with that special guidelines for poisoning cases investigation was developed and printed to be used by the police authorities. An active communication with the Bulgarian National Police was started to initiate the foundation of canine units searching poisons in the Police.

Therefore this change has demonstrated to have been the most reasonable option, because a very effective anti-poison team is now operational and many side actions have been implemented to further disseminate and demonstrate this approach to the most significant responsible parties.

### **Effectiveness of the dissemination actions**

The public awareness and dissemination actions have been implemented as planned. Deliverables, in terms of physical promotional material such as leaflets, calendars, stickers, T shirts and other were produced and distributed during public events, fairs, presentations, photo exhibitions, round tables and meetings. At the events, we used other communication tools that have been created during the project such as stand up banners and the short promotional movie that was prepared earlier than planned to achieve better public awareness about vulture poisoning. Information boards), which bare the LIFE logo and project name, are placed at the envisaged Natura 2000 sites in Greece and Bulgaria. On all promotional and info materials the visibility of LIFE and Natura 2000 logos was ensured.

On the website ([www.life-vultures.com](http://www.life-vultures.com)) all deliverables, reports, additional information about the project and news regarding project activities produced are available to wider audience in Bulgarian and English. 100 000 visits were registered on the website since it was created. The web site can be reached from two other websites, [www.rewildingeurope.com](http://www.rewildingeurope.com) and [www.rewilding-rhodopes.com](http://www.rewilding-rhodopes.com) to reach a wider audience.

Through the communications channels of the partners, especially Rewilding Europe, the project reached a wider European audience.

The photo exhibition was displayed 12 times in Bulgarian cities, reaching at least 300.000 people. The media interest was continually rising, and media relations established are positive and giving the project the needed publicity on both local and national level. The project activities were largely covered by national and local media, reaching more than 7 million people according to modest estimations.

The project effectively carried out education activities for youth. In fact, 25 schools were involved in a big number of educational activities for children.

The project team regularly conducted consultation activities to involve crucial stakeholders and their support for the project implementation increased. This included networking activities of all partners, maintaining regular contacts, news and updates with other LIFE projects, participation in workshops, seminars and international conferences to both exchange scientific views and inform others about the work of the project to ensure replication.

Social media were used and played key role in promoting and disseminating the project and its activities with gradual and steady increase and engagement of the followers of the YouTube, Instagram and Facebook accounts – on the project and as well on the partners ones.

Being one of several LIFE projects focusing on vultures in Europe, which shared partners, this project was indeed part of a larger program of vulture conservation, and its results and best practice conveyed to audiences and partners elsewhere.

The long-term sustainability of the project results and further dissemination will be ensured by all project partners.

### **Policy impact**

One of the obvious policy impacts relates to the issue of national and EU regulations on the disposal of carcasses. The review studies of the situation done in Greece and Bulgaria (Action A12) are a good basis to change regulations and even the law at regional or national basis – and these, coupled with some parallel and converging actions in other LIFE projects (e.g. LIFE RUPIS LIFE14 NAT/PT/000855), can actually have repercussions even at regional (European) level – this is going to be the subject of a technical meeting to be organised by the end of this year in the frame of the project continuation as referred also in the After-LIFE plan.

The process of obtaining permits for the network of the small-scale feeding sites in Kompsatos valley (Greece) supported by the local livestock breeders was useful to introduce a new approach to authorities for the vulture supplementary feeding in Thrace. Until now, the authorities in Thrace were familiar with the permission process and operation of the Dadia feeding station which, is supported by the public (Evros Regional Unit-Environmental Directorate), funding one employer, one car and one trailer. The positive reaction of the local authorities (Forest Service, Rhodopes Vet Directorate, Iasmos Municipality, Management Body of the Vistonida National Park) and the Decentralized Administration of Macedonia-Thrace and finally their permission for the construction of the feeding sites, was an experience gained by all, which can be disseminated to other regions too. Moreover, the Ministry of Environment supported strongly this action as a measure to decrease the poisoning vultures' incidents by providing safe food.

WWF Greece has implemented a long-term project for the proper planning of wind farms in Thrace, among which the evaluation of the Environmental Impact Studies (EIAs) for each wind farm. Moreover, in 2017 WWF Greece stopped two wind farms during their construction, which had started although a court case was pending in Council of the State due to WWF Greece's complaint. There was a long process of documentation and arguments in the court and we should argue that these areas were used by Black vultures as foraging habitat. Satellite telemetry data under Action A5 were too useful in building our arguments against the opponents who supported that Black vultures feed only in Dadia National Park. Furthermore, during 2017-2021, four wind farms were rejected by the administration, while some companies stopped or postponed the permission process after the negative opinions for new wind farms. Vulture telemetry data were extremely useful to prove the high use by vultures of the proposed sites for new wind farms.

The dissemination of knowledge on the vultures' dispersal during their foraging activity affects the decision makers to take into account how risk for vultures is the intensive development of wind farms in Thrace, Greece.



This project also has impacts at policy level on the issue of poisoning – the workshops organized, the stakeholders groups consolidated and the reports produced - including the legal review of the issue in Bulgaria and Greece – are milestones and will certainly be important building blocks in the progress in this area.

Finally, this project happens concurrently with the development of two seminal action plans – the Vulture Multispecies Action Plan (Vulture MsAP), a comprehensive plan to conserve 15 species of old world vultures, including the griffon and the black vultures, that was co-developed by the VCF on behalf of the Convention for Migratory Species (CMS), and approved and endorsed enthusiastically by all members parties including the EU in the recent COP 12 (October 2017); and the development of the European species action plan for the black vulture, also developed by the VCF as part of LIFE EuroSAP (LIFE14 PRE/UK/002). These two action plans will be, in the foreseeable future, the official guidelines for the conservation of these species, and will guide further funding and policy-related work. The VCF made sure that the regional priorities for black and griffon vulture conservation in the Rhodopes were reflected and included in both plans, and also that partners in the LIFE Re vultures were consulted and became an active part in the development of those plans.

A National anti-poisoning plan has been developed and endorsed by the Ministry of environment and waters in Bulgaria. This document will direct the fight against poisons use in Bulgaria and will establish a common action framework for the state authorities whenever such event emerges. Furthermore, this planning document budgets the relevant actions and will secure funding for their implementation in 10 years to follow.

In Greece a National Vulture Multispecies Action Plan under the LIFE IP 4 Natura was developed with the participation of many NGOs and Academics which was approved in September 2021. Moreover the Greek Local Action Plans against poisoned baits (an action under new EV Life) were approved under a Ministerial Decision in 2018.

## 6.4. Analysis of benefits

### 1. Environmental benefits

This LIFE project has direct benefits on two species included in the Birds Directive: Griffon vulture and Black vulture. The colonies of Griffon vulture in Eastern Rhodopes have been increasing since the beginning of the project, with 75 pairs in 2015, 88 in 2016 and 91 in 2017, 101 in 2018, 105 in 2019, 118 in 2020 and 117 in 2021.

The artificial feeding action is not only beneficial for the two target species, but also for other scavengers like Egyptian vulture, Golden eagle, Steppe eagle or White-tailed eagle.

The anti-poison dog patrol has been able already to retrieve poisoned baits from the nature, possibly avoiding the poisoning of wildlife other than vultures, like wolves.

The insulation of powerlines will have direct effect and mitigate this hazard to other raptor species in the area, but also other large birds like White and Black storks, ravens and kites.

The release of fallow and red deer helps to strengthen the trophic chains in Eastern Rhodopes. prey remains will favour the food availability by scavengers, mainly Griffon and Black vultures, but also other species like Golden eagle or Egyptian vulture. The re-building of trophic chains will also decrease human-wolf conflict, as an increase of wild prey availability for wolf will result on less damage to livestock.

The release of fallow and red deer, together with the release of wild horses carried out by the partners outside this project, increase natural grazing, an important ecological process which has decreased alarmingly with the abandonment of the land, after centuries of livestock grazing.

The network of feeding sites in Kompsatos was one of the first environmental actions for the protection of birds in this crucial for vulture SPA. It introduced the need for the protection of the vultures, the raptors and their habitats to the authorities and local people. During the implementation of the project actions, a networking among authorities and among local people was created. Thus, expectations, support and positive approach for the protection of this area were established.

The transboundary character of this LIFE proposal has been very useful to engage a closer cooperation between the Bulgarian and Greek teams, especially the involvement of Dadia National Park Management Authority. The only colony of Black vulture is inside this Greek national park, while the movements of the birds are much wider, crossing often to Bulgaria as has been proved by the satellite tracking being carried out under this LIFE project.

## 2. Economic benefits

The main economic benefit can be registered at local level in Madzharovo and Studen kladenets thanks to the development of the three businesses. They are regularly running and providing incomes.

On the long term these businesses will be supported by the European Safari Company (an international sales and marketing platform founded by Rewilding Europe but an independent entity), which will monitor the businesses and potentially implement similar activities with external funds.

The small local community of Madzharovo is also benefiting economically from the fact that the information centre (the Vulture centre), run by BSPB, is being more and more intensively visited by tourists thanks also to the presence and improvements in the frame of the project. The Centre is a key attraction in the municipality and the only place where tourist can receive information. In addition, the intensive promotion of the area by the project contribute to increase number of visitors. This is best illustrated by the fact that in the last three years two new guesthouses were opened and two more are under construction in the town of Madzharovo that has 560 inhabitants only. Supporting the wildlife photography business, the project contributed to increasing the tourist season that is normal confined to the spring/summer as the photographers come also during the winter. Thus, additional incomes in the low season are provided.

As a direct result of the project activities the area is strengthening its position as one of the leading destination for vulture observation/photography in Europe. The active promotion of the area as a destination for ecotourism through info tours for journalists and tour-operators, as well as the conducted marketing campaign and the elaborated promotional materials in the framework of the project, have very satisfying results. More and more products, related to observation/photography on vultures and wildlife in the area, are offered. The data, collected in the project municipalities, presents a growing popularity of the region as a tourist destination and an increasing numbers of tourists.

## 3. Social benefits

The business-related activities within the project (training and business consultancy) attracted representatives of multiple and diverse business sectors – from accommodation providers, tour-operators, nature based tourism providers to nature protection volunteers. The project activated the entrepreneurial spirit in the targeted project area and the conducted trainings provided to the local entrepreneurs were very helpful in the process of assessment of the natural heritage as a valuable resource for successful business initiatives.

The case studies of successful tourist business in wildlife photography and wildlife watching from Europe and Africa opened the door to a new way of perceiving the local nature resources and demonstrated how people can earn an income based on the value of wild nature.

A significant part of the participants in the tourism trainings shared their business ideas for the future, especially in the field of wildlife photography and wildlife watching services. This momentum is crucial for the successful business development and the project officers supported these initiatives by providing individual consultancy and provision of training materials. As a result of project activities there are more entrepreneurs in the project area directly linking the vulture protection with sustainable nature-based economy. Representatives of local businesses express their interest in expanding their products developing tourist vulture-related services or creating tourist programs for vulture photography and wildlife watching. The project activities, related to the support of 3 local tourist business (construction of hides and purchase of equipment for birdwatching), has proved very useful and highly appreciated by local tourism entrepreneurs.

Some of the benefits from the project extend to other groups - for example local stock-breeders. The feeding of vultures with marked animals, tested and approved for carcass disposal (total of 6 per year), generates an additional income for the local farmers and their families by transforming the potential loss into profit. This is an important moment in the process of receiving the approval and support of a wide range of local population and the establishment of long-lasting relationship between local stock-breeders and those invested in nature conservation activities.

The effect of the project activities can be also felt directly in the work of the Nature conservation center “Eastern Rodopi” (The Vulture center) in Madzharovo town. The number of visitors in the center displayed a raise for 2016 and 2017, comparing to 2015. The animator in the Center reported 1763 visitors, that received information about the local wildlife (with focus on vultures) in 2015. In 2016, this category is raised by 335 people (a raise of more than 19 %), reaching the total of 2098 visitors. In 2017 the trend is still positive – 149 people more were interested in vultures (raise of 7% compared to 2016) from the total of 2247 visitors in the Center. Even in the year with COVID19 restriction (2020) the total number of visitors was growing reaching 5100. The efforts of the project team to raise the awareness and implementation of communication activities about the project and target species are contributing directly to this statistic and creating a focused interest from visitors for the local wildlife and respectfully – vultures. There is a noted increase of individual visitors, that are coming in the area specifically for vulture observation. These facts support the better understanding of local tourist providers and tourism professionals about the connection between wildlife and sustainable tourist revenues.

A social benefit from insulation of powerlines is reduced number of electricity outages caused by electrocution events thus improving the quality of life in the remote villages.

The activities related to E actions of the project, especially the visual presentation of local biodiversity through photo exhibitions, HQ imagery, video, articles in national and local press, are transforming the mindset of local people, creating pride in the natural and cultural heritage, interest in nature as a potential source of income and a much more positive attitude to vultures compared to the start point of the project. There are 7 information panels, providing information

about the project activities and biodiversity in the region, installed in the project territory in Bulgaria and another 6 are placed in Greece.

#### 4. Replicability, transferability, cooperation:

The following aspects of the project have a potential for being replicated or transferred:

- As mentioned before, this project is one of several LIFE projects focusing on vultures, and its actions are closely coordinated with those so as to contribute to a wider European vulture conservation strategy. Many of the actions (e.g. on poisoning, lead poisoning, analysis of vet medicines, mitigation of electrocution and collision threats) in this project mirror others in other projects, and contribute to a cumulative impact that is much greater than the parts. Most of the actions here cannot be analysed in isolation and need to be put in context – the recent Vulture MsAP and the European action plan for the cinereous vulture are good comprehensive documents where actions in this project are included and contributing to wider vulture conservation objectives

- Anti-poison dog teams have already been used in previous projects (LIFE07NAT/IT/436, LIFE10NAT/HU/019, LIFE14 NAT/PT/000855, LIFE10 NAT/BG/000152) and shown to be very efficient. The experiences from the Hungarian project have been directly transferred to the present project through the training of the dog leader. This expertise and technique has a further potential for replication, and this was addressed in the frame of action C4. In fact, the funds spared from the fact that only one dog was purchased were used for enhancing the communication and demonstration of the anti-poison team to local, national and international authorities and experts, in order to encourage them to transfer these techniques to other areas.

As a result of the wide media campaign about the anti-poisoning dog unit that is the only in Bulgaria other entities planned to establish dog units as well. One LIFE project aimed to establish such dog unit in Southwest Bulgaria was submitted (CO-LIFE for ALL). In Greece the state Forestry authorities also plan to established two anti-poisoning dog units in Northern Greece and included such action in a new LIFE proposal (REWILD VULTURES LIFE).

- Cooperation was very tight with the Vultures Back To LIFE Project, in the frame of the preparatory Actions (A4, A6, A7, A8) as well as in the development of the workshop regarding artificial feeding as well as during common networking activities. In fact, this cooperation has been foreseen in the project proposal, also upon request of the EC during the revision phase. Clear synergies were built with the up-mentioned project, which benefit both initiatives.

- The work being done to review the poisoning situation in Bulgaria, produced legal reviews and recommendations for the future (Action A7) also has a wider impact, certainly in the Balkans: parallel to this project, the VCF is leading a MAVA-funded Balkan anti-poisoning project with 5 countries (Croatia, Bosnia-Herzegovina, Albania, Macedonia and Greece), where national anti-poisoning actions plans and working groups are to be developed or enhanced, and the work done in Bulgaria provided several trips, learnings and information that are also relevant for the processes to be established for the other countries. Development of a National anti-poisoning plan in Bulgaria will certainly promote and enhance endorsement of regional and focal plans and strategies to fight illegal use of poisons. Further, as part of that project it is planned to organise several training regional workshops, and Bulgarian colleagues will be invited- also because the issue has been picked up in the newly started LIFE for the Egyptian vulture flyway (LIFE16 NAT/BG/000874)

- The reports on the implementation of the EU regulations on carcass disposal in Greece and Bulgaria, and the best practice and experience gathered from establishing small feeding sites for vultures in Greece within this project also add to the European debate on this topic, since a number of countries are now changing their regulation, or considering to do so, to allow for



carcass abandonment (under certain circumstances and in some areas), like it is being done in Spain, and so the outputs of this project are very topical and relevant for this processes.

- The genetic analysis made add a lot of information on this important topic, for which we have little information in the Balkan – such as levels of lead contamination, veterinary drugs and bacteriological impacts prevalent, etc. This informs the ongoing debate about the potential impact of vet drugs on vultures, and also will help in the global campaign to ban lead ammunition.

- The pilot initiative to test non lead ammunition within this project has been one of several happening around Europe (both through LIFE projects and other non-LIFE projects), and was part of a two pronged approach to try to ban lead ammunition – on one hand, bottom-up, working with hunters for them to test, validate and then promote within their constituencies the advantages of non-lead ammunition, and the other top down working in Brussels to push for regulation and legislation (through the REACH process) to phase out and ban lead ammunition,.

- WWF Greece's anti-poison dog unit was used during the project for several incidents in Thrace like poisoning incidents or cases of dead/enable to fly Black vultures. In every case, WWF Greece called the authorities to be present during each patrol and after each patrol WWF Greece sent an official letter to the local authorities with all the information. The dissemination of this information either via official letters or via media articles, engaged authorities to a more active involvement.

- The BSPB team developed and/or cooperated in publishing 9 scientific papers that are discussing and addressing main mortality factors for the vultures. Methodologies applied there can be used and transferred to other areas and multiplied by other researchers. Moreover, one of the papers have been developed in a cooperation with 27 raptors and vulture experts from the Balkans and resulted in the first review of the long-term trend and range changes of the Griffon vulture population on the Balkans. Griffon vulture roosting sites census had united more than 40 experts from all over the Balkans during the project to trace Griffon vulture population development and age structure in the pre breeding season. Such corporations are rare and the Balkan Griffon vulture roosting sites census has become a purely outstanding event in the vulture conservation calendar and one of the most recognisable events among vulture specialists from the region.

- A good cooperation and replicability was achieved with two other LIFE projects in Bulgaria – The Egyptian Vulture New Life (LIFE 16 NAT/BG/874) and LIFE 18 NAT/BG/1051. A number of joint workshops, trainings and antipoisoning issues were developed and organised with The Egyptian Vulture New Life (LIFE 16 NAT/BG/874) (for more details see Action C4). Recently, the National antipoisoning action plan investigation protocol was transferred and replicated in LIFE 18 NAT/BG/1051 project.

Finally as mentioned, this project contributed data and information, priorities and context to the development of both the Vulture MsAP, and the European species action plan for the black vulture.

## 5. Best Practice lessons

The project implemented and demonstrated a number of best practice techniques and methods:

- Satellite telemetry is successfully applied in Griffon and Black vulture. This project was the first case of tagging of Griffon vultures from the natural population on the Balkans. Valuable information on migration and dispersal pattern was obtained, e.g. that Griffon vultures from the Rhodopes winter in Saudi Arabia and go as far as Iran. Dead birds were found thanks to the transmitters and mortality factors identified. Also, the tagging of Black and Griffon vultures was important to identify mortality factors and dispersal.

- Identifying and insulating dangerous electricity poles and mounting bird diverters to prevent collisions: this action was built on existing practices in EC, notably Hungary, and already also used by BSPB in Bulgaria targeting Imperial eagle and Egyptian vulture. The project team did a research on the powerline network and identified power lines priority for mitigation measures.
- The first anti poisoning dog unit was established in Bulgaria. The use of anti-poison dog teams has been developed in Spain, and this tool is being widely used (e.g. also in Italy, Hungary) and has shown to be extremely successful. The dog unit established turns to be successful in the control of poisoning accidents. It was used in other areas in Bulgaria (Kresna gorge) where a large poisoning accident happened, thus demonstrating its usefulness. The dog was demonstrated also to representatives of the authorities (police, forestry, environmental) during training seminars and other events.
- Establishing small feeding places operated with the support from local communities: this was the first practice lesson in Greece where local authorities and livestock breeders were experienced in supporting the operation of feeding sites. In addition, this action brought to life an area important to vultures where few protection activities were carried out before the start of this project.
- Involving authorities and raising their capacity to tackle bird crime and poisoning: the current project builds on existing experience and expands it involving representatives of the juridical system: prosecutors and judges took part in the seminar held in Krumovgrad to address wildlife crime.
- Developing of ecotourism to gain local support: this is a conservation tool used worldwide. Here the project team supports local people to benefit from visitors coming to see and photograph large vultures, thus creating incentives for preserving endangered species and reducing cases of poisoning since some of the key livestock owners would be involved in ecotourism as well.
- Griffon vulture roosting sites census is one of the most outstanding actions involving tens of experts and hundreds of volunteers to promote vulture conservation and also to demonstrate the international cooperation.

## 6. Innovation and demonstration value

Several actions under the project have a great demonstrative value. One of the outstanding actions is the establishment of an anti-poison dog unit for the first time in Bulgaria. The anti-poison team is not only a field unit, but also a communication tool that has one of the best demonstrative values towards institutions, stakeholders, local supporters, etc.

The high number of tagged with transmitters vultures first was achieved within this cross-border area resulting in a long-term data collection. The high number compensates the vultures losses, as researchers can fit the transmitters in other individuals achieving the flow of data.

The type and scope of analysis being done on samples collected from griffon and black vultures from Greece and Bulgaria are also pioneering and have never been done in the Balkans.

The pilot scheme testing non-lead ammunition is also a novelty in the Balkans.

The operation of feeding sites by the livestock breeders is an innovation in Balkans as the vulture feeding is being done mainly by NGOs or the public sector.

Another action with significant demonstrative value was the joint deer restoration with hunters, including deer doubling by the hunting parties.

These are innovative approaches and will ensure the sustainability of the results of the relevant actions and are flag actions to be transferred to other sites, projects and species.

## 7. Project Specific Indicators

The KPI database has been updated. In section 7.4 Griffon vulture population was re-evaluated at 220 individuals beyond end value due to its stable increase in the last 5 years. However, although the initially set indicators are reached there is still risk of poisoning events that might revert those numbers. There was also an update in indicator 12.1 where due to the high intensity of personal meetings, trainings, workshops that were organized additionally to the planned ones, we have exceeded the initially set thresholds. Moreover, because networking is a permanent process dependent on the monitoring efforts and stakeholders contacts, more people are likely to be influenced in future. Based on this hypothesis we have further updated the indicator for professional training or education (12.2) where we have fulfilled the threshold and expect to affect more people after the end of the project. Indicators 14.1 and 14.2.3 need to be reconsidered carefully because of the current Covid and economic crisis where some inflation and uncertainty should be anticipated. Therefore, the running costs when replicating some of the actions will go beyond the incurred ones in the current project and will therefore affect also the revenue.