

Re-introduction of the Cinereous Vulture *Aegypius monachus* in Balkan Mountains, Bulgaria Biannual Report for **2022-2023**

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Technical Report
"Bright Future for the Black Vulture in Bulgaria" LIFE14 NAT/BG/649
&
LIFE22-NAT-BG-BEARDED VULTURE LIFE - 101113869
Green Balkans & Fund for Wild Flora and Fauna

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Abstract

The 2022 and 2023 were the fifth and the sixth years of the Cinereous Vultures (*Aegypius monachus*) releases aiming at reintroducing the species in the Balkan Mountains in Bulgaria that started in 2018. The action is implemented by a consortium of organisations – the Bulgarian NGOs: e.g. Green Balkans-Stara Zagora (Green Balkans), Fund for the Wild Flora and Fauna (FWFF), Birds of Prey Protection Society (BPPS), and the Bulgarian Partnership Foundation (BEPF). The International NGOs involved are the Vulture Conservation Foundation (VCF) and a partner from Romania – the MILVUS Group Association (Milvus). Local support for the project is also received from the administrations of the “Sinite Kamani” Nature Park Directorate (SKNPD) and the “Vrachanski Balkan” Nature Park Directorate (VBNDP), in which territories are part of the activities.

This document is part of the report on Action C3 – “Black Vulture pre-release care, release and post-release care” of the project “Vultures Back to LIFE” LIFE14NAT/BG/649, which ended at the end of 2022. In 2023, a new Project was launched – LIFE22-NAT-BG-BEARDED VULTURE LIFE – 101113869, in which the Cinereous Vulture’s newly reintroduced nuclei are about to be boosted. Both projects got financial support from LIFE – the EU Financial instrument and the new one is also co-funded by Bioparc Conservation and Sainte Croix Biodiversite from France.

After the successful reintroduction of the Griffon Vulture (*Gyps fulvus*) in the period 2010–2016 and the ongoing increase of the locally established colonies, the first release of Cinereous Vultures aiming reintroduction of the species in Balkan Mountain (and Bulgaria at all) took place in the Eastern Balkan Mountains (EBM) – Kotlenska Planina SPA near Kotel in 2018 and continued with releases also in “Sinite Kamani” Nature Park (SKNP) in 2019–2022, and another distinct site – “Vrachanski Balkan” Nature Park (VBNP) in 2020–2022. Seventy-two individuals have been released, and local nuclei have been successfully established in the two distinct sites in Bulgaria – EBM and VBNP. Initial successful reproductions took place in 2021 and 2022 respectively. In 2023, both nuclei are now well established, with five pairs in EBM and 6–7 pairs in VBNP, which produced 2 and 1 fledgings, respectively.

The conservation actions targeting the Cinereous Vulture also support the established since 2010 Griffon Vulture colonies, stabilising to 22–27 pairs in VBNP and 25–30 in EBM in the last few years.

Cinereous Vultures at both release sites increasingly attract birds from the neighbouring colonies and sub-populations (e.g. Dadia-Soufli-Lefkimi Forest National Park (hereafter Dadia) in Greece and in Turkey). However, the opposite process was also observed – one of the first birds released by hacking now nests in the Dadia in Greece, and the second alive one settled permanently near Cankiri in Turkey.

The nature conservation activities in the SKNP (by Green Balkans and SKNP), Kotlenska Planina SPA (by FWFF) and VBNP (by BPPS and BEPF) – all along the Balkan Mountains chain in Bulgaria, are continuing to be implemented under the LIFE22-NAT-BG-BEARDED VULTURE LIFE – 101113869 project, funded by the EC LIFE Financial Instrument and co-funded by Bioparc Conservation and Sainte Croix Biodiversite, by the coordination of Green Balkans – Stara Zagora, in cooperation with FWFF, VCF, Fondatsiya EkoObshtnost (BEPF), SKNPD, Northwestern State Forestry Enterprise – Vratsa (NWSFE), Elektropradelenie Yug EAD (EVN) and MILVUS Group Association.

Key words *Aegypius monachus*, Kotlenska Planina SPA, Kotel, Sinite kamani Nature Park, Sliven, Eastern Balkan Mountains, Vrachanski Balkan Nature Park, satellite tracking, feeding sites, hacking, acclimatization aviary



Introduction

Within the joint LIFE project called “Bright Future for the Black Vulture” (2015–2022), whose acronym is “Vultures Back to LIFE” (LIFE14NAT/BG/649), the project partners Green Balkans, FWFF, VCF, EuroNatur and GOBEX successfully started the establishment phase and reintroduced the Cinereous Vulture in Bulgaria. Two places were recommended in a feasibility study (Stoynov et al. 2018) – the Eastern Balkan Mountain (EBM) (with two subareas – the Sinite Kamani Nature Park (SKNP) near Sliven and Kotlenska Planina SPA near Kotel) and Vrachanski Balkan Nature Park (VBNP). The two sites are along the Balkan Mountain chain, in which in the period 2010–2016, successful local reintroductions of the Griffon Vulture also took place (Stoynov et al. 2018; Kmetova-Biro et al. 2021), and well-established colonies are now present with a continuous increase of number of individuals, breeding pairs and breeding success.

The Cinereous Vulture releases in Balkan Mountain started in 2018 and were implemented according to the know-how from VCF gained in practical projects from France and Spain, where two techniques were successfully used for this species. The ‘Hacking’ technique consists of releasing nestlings only, similar to the release of a Bearded Vulture in the Alps (Frey & Bijleveld 1994), resembling natural fledging but from an artificial nest. This method differs from the ‘Cage’ or ‘Aviary’ technique, consisting of releasing immature birds kept in captivity in an acclimatization aviary built at the top of a cliff in the middle of the colony (Terrasse et al. 2004). The regular presence of wild vultures feeding nearby helped to accustom the captive birds to their release environment. Birds released by hacking were born in captivity and originated from Cinereous Vulture EEP: zoos or breeding centres from Latvia, Czech Republic, Belgium and France. Birds released by the other method, ‘Cage’, came from rehabilitation centres in Spain (Extremadura).

The conservation activities – release of more individuals, food base and nesting habitat improvements and public involvement and awareness raising in the SKNP (by Green Balkans and SKNP administration), Kotlenska Planina SPA (by FWFF) and VBNP (by BPPS, BEPF and NWSFE) – all along the Balkan Mountains chain in Bulgaria, are continuing to be implemented under the LIFE22-NAT-BG-BEARDED VULTURE LIFE – 101113869 project started in August 2023, funded by the EC LIFE Financial Instrument and co-funded by Bioparc Conservation and Sainte Croix Biodiversite, by the coordination of Green Balkans – Stara Zagora, in cooperation with FWFF, VCF, BEPF, SKNP, NWSFE, EVN and MILVUS Group.

Transfers & Releases

In 2021, 22 Cinereous Vultures were imported from Extremadura, Spain. Two birds were released shortly in Kotel in 2021, and 11 were released in Vrachanski Balkan (see Biannual report 2020-2021) (Ivanov et al. 2022). Nine birds were delivered on 03.03.2021 to SKNP, spent a year acclimatising, moved on 29.03.2022 to Kotel and released in the wild there on 29.04.2022. Ten more vultures arrived 05.05.2022 in Vrachanski Balkan and were released in groups from 31.05.2022 until July 2022. One more remained unreleased from 2021 and was released in 2022. In total, 10 Cinereous Vultures were delivered in 2022, and 20 were released - 11 in VBNP and 9 in EBM.

In July 2022, three juveniles from the Cinereous Vulture EEP were delivered from zoos (Ostrava, Praha and Plankendael) and prepared for release through hacking in SKNP. Two (called PRAHA and PLANKENDAEL) were released late summer, and following unsatisfactory development - early autumn both started an imminent migration southwards - one went to Greece and was soon poisoned and another went to Turkey, where both fell in distress and were recaptured, the third one (called SVETLIN) remained in the cage and was kept there until the following spring. It was released by so-called 'delayed release' in Kotel in early June 2023.



Monitoring

Methods

The vultures were frequently (every 2 to 4 days) observed by binoculars and spotting scopes at the feeding site and the known roosting sites.

Yellow plastic rings with a code of two or three black letters and digits were used, along with standard ornithological rings.

We continue to use local people and tourists' reports about observations of vultures to keep track of vultures' whereabouts in the area.

When possible, pictures were taken frequently of birds in flight to create a database and using 'visual marking' (in accordance with Stoynov et al. 2015) to identify those who have lost their individual markings and also non-marked birds based on their characteristics of the plumage (worn or missing feathers and alike) (fig.1).

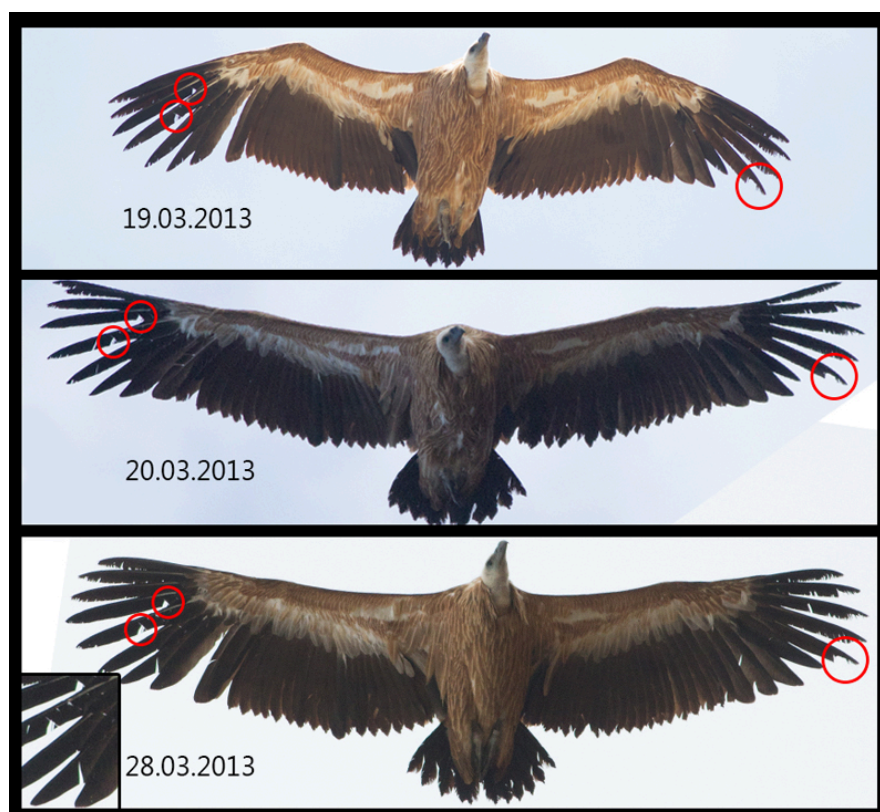


Figure 1. Example of how the method works: when a single feather is cut across, it turns into a long-lasting sign, while if it is only disheveled (as shown on the small crop picture down left), the bird could repair it, and the sign will disappear. (Stoynov, Peshev, et al. 2015).

A base-line of the actual plumage for all local and some guest Cinereous Vultures in EBM in the end of 2023 is shown on the Fig. 2.



Figure 2. Pictures catalogue of all released and appearing Cinereous Vultures in EBM in summer and late 2023, including some guests from other colonies.

Video camera and trail cameras use

The feeding sites in VBNP and SKNP were equipped with permanent online video monitoring with video cameras. Additionally, trail cameras were also used. Such was also in use in the feeding site near Kotel.

GPS/GPRS tracking

All released Cinereous Vultures were tagged with GPS/GSM transmitters produced by Ornitela Ltd. <http://www.ornitela.com/> - some OT-30 were used, but due to better performance, we shifted to OT-50. All are attached by leg-loop in accordance with the VCF recommendations (Hegglin & Locher 2018). The transmitter takes GPS fixes from 10 minutes to one hour daily, has a sleep interval at night to keep the battery, and uploads the data every 1 to 20 hours (again, depending on battery charge). All birds' movements were tightly followed by our team on the computer or cell phone on the transmitters' producer's platform several times a day. Upon detection, all critical cases were duly reacted to in the field.

Results & Discussion

In 2018-2022, 79 Cinereous Vultures were imported to Bulgaria for the Project to reintroduce the species in Balkan Mountain, six of which were non-releasable.

Seventy-four Cinereous Vultures have been released in Balkan Mountain since the beginning of the project (Table 1 summarises the results). Twenty-two were released in 2022 - 11 by aviary in VBNP and 11 in EBM (9 by hacking in Kotel and two by hacking and 2 from aviary in SKNP). In 2023, only one individual was released in EBM using the 'delayed release' method.

Table 1. Number of released Cinereous Vultures in Balkan Mountain in Bulgaria, by group, year, site and method and respective post-release survival by period.

Group release by method/site/year	Number of birds released	Fledging	Acclimation	First autumn/migration/dispersal	First winter	First spring migration/dispersal	One year after release	Two years after release	Three years after release	Four years after release	Five years after release
Hacking EBM 2018, 2019, 2022	9	9 (100%)	6 (67%) [67%]	4 (67%) [44%]	3 (75%) [33%]	2 (67%) [22%]	2 (100%) [22%]	2 (100%) [22%]	2 (100%) [22%]	2 (100%) [22%]	2 (100%) [22%]
Aviary EBM 2019	11	N/A	11 (100%)	11 (100%) [100%]	10 (91%) [91%]	8 (80%) [73%]	7 (88%) [64%]	7 (100%) [64%]	7 (100%) [64%]	7 (100%) [64%]	7 (100%) [64%]
Aviary EBM 2021	13	N/A	7 (54%)	7 (100%) [54%]	4 (57%) [31%]	4 (100%) [31%]	4 (100%) [31%]	3 (75%) [23%]	N/A	N/A	N/A
Aviary EBM 2022	9	N/A	8 (89%)	8 (100%) [89%]	7 (88%) [78%]	6 (86%) [67%]	5 (83%) [56%]	N/A	N/A	N/A	N/A
Aviary VBNP 2020	10	N/A	7 (70%)	7 (100%) [70%]	7 (100%) [70%]	7 (100%) [70%]	7 (100%) [70%]	6 (86%) [60%]	6 (100%) [60%]	6 (100%) [60%]	N/A
Aviary VBNP 2021	10	N/A	9 (90%)	9 (100%) [90%]	9 (100%) [90%]	9 (100%) [90%]	8 (89%) [80%]	8 (100%) [80%]	N/A	N/A	N/A
Aviary VBNP 2022	11	N/A	11 (100%)	11 (100%) [100%]	8 (73%) [73%]	8 (100%) [73%]	8 (100%) [73%]	N/A	N/A	N/A	N/A
Delayed Release, EBM 2023	1	N/A	1 (100%)	1 (100%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aviary Total	65	N/A	54 (83%)	53 (100%) [83%]	(87%) [70%]	(93%) [66%]	(93%) [61%]	(92%) [55%]	(100%) [62%]	(100%) [62%]	(100%) [64%]
TOTAL	74	(100%)	60 (81%)	57 (95%) [77%]	(84%) [66%]	(92%) [60%]	(93%) [56%]	(93%)	(100%)	(100%)	(100%)

Hacking

Of the 74 released individuals, nine were released by hacking (artificial nest), of which four are alive - 2 in the wild (BOYAN and RIGA), which eventually settled in the area of Cankiri in Turkey and Dadia in Greece respectively, and RIGA bred in a nest in Dadia in 2022 and 2023, and two were taken in captivity - BARNABIE and PLANKENDAEL. This accounts for 100% fledging success of the release by hacking Cinereous Vultures, 88% survival until the first migration, and 44% survival in the first winter. Twenty-two per cent survived the first year and later succeeded in reaching maturity in the wild, but 100% emigrated from the release site.

Delayed Release

The delayed release is an intermediate method between classic hacking and acclimatisation aviary release methods that use captive-bred individuals, but instead of releasing them in the natural time of fledging (late summer), they are kept in captivity over the first winter and released by aviary next spring. This way, the bird passes the critical period – autumn-winter in a safe environment, avoiding migration and wintering in unsafe areas. The release in spring provides a more extended period of good weather suitable for practising flight and socialisation with the local vultures in a safe and controlled area with secured food and guarding. This way, despite missing some of the critical periods for developing skills and social interaction, an individual from a rare species is exposed to fewer of the known threatening factors during migration and wintering – poor navigation and bad decisions for crossing large water bodies (and related drowning), exhaustion, due to lack of experience of finding food and conspecifics, choosing ecological traps for wintering and subsequent dying due to poisoning or shooting and others.

One Cinereous Vulture called N23-SVETLIN hatched in 2022, provided by Ostrava Zoo, was involved in delayed release and freed in June 2023 in EBM. It showed good orientation to keep close to other vultures and search and take food with them while developing flight skills. It spent all the summer in Kotlenska Planina SPA and started migration in November 2023, together with a locally wild-fledged Cinereous Vulture chick called A01-VASSIL. After a short visit to Eastern Rhodopes in Bulgaria and Dadia in Greece, the two birds moved together to Turkey but split while A01-VASSIL crossed the Marmara Sea (Fig. 3 and 4). Although A01-VASSIL's crossing was successful, the decision of N23-SVETLIN not to cross the sea is considered precisely what the purpose for the delayed release is – the older and wiser birds to avoid risky decisions. A01-VASSIL successfully arrived in the Cinereous Vultures areas between Kutahya and Eskişehir in Turkey, where it is wintering. At the same time, N23-SVETLIN has returned to Dadia, choosing to overwinter there in the species' colony in Greece. All this is considered a successful story, and the promising results give us the strength to continue applying this method, at least as far as reaching 9-10 birds to perform statistical analysis to compare the results with the classic hacking method.

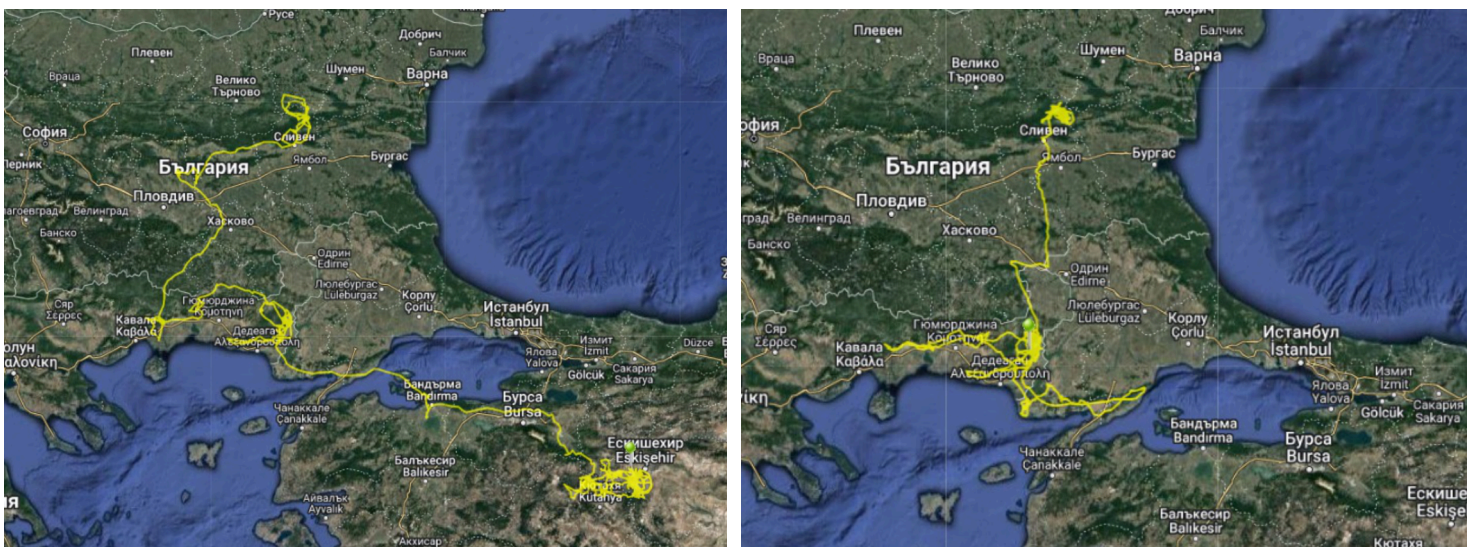


Figure 3 and 4. Maps showing the migrations of N23-SVETLIN (left) and A01-VASSIL (right). They started simultaneously from EBM and reached Eastern Rhodopes by different routes, where they met again and continued towards Turkey together but split on the shore of Marmara Sea when A01-VASSIL directly crossed. At the same time, N23-SVETLIN did not cross the Sea and returned to Dadia.

Acclimatisation aviary

In total, 64 individuals were released by aviaries as follows:

- 33 individuals were released in Eastern Balkan Mountains with this method (15 individuals are still alive – 45% survival; 11 individuals settled in the area, which accounts for 33% of all released birds and 73% of the survivors).
- 31 individuals were released in VBNP exclusively with this method (21 individuals are still alive – 68% survival; 20 individuals settled in the area – 65% of all released and 95% of the survivors);

For more detailed analysis of the survival and the success of the different release methods see the publication of Ivanov and Stoykov et al. (2023).

Number of individuals in the EBM and VBNP nuclei

As for the end of 2023, the EBM Cinereous Vulture nucleus consists of 11 locally released individuals, one locally recruited female from VBNP, and between 3 and 6 shorter- and longer-term present guests from other colonies (e.g. Dardia, and newly reintroduced individuals from Bulgarian part of Eastern Rhodopes. Thus, the nucleus consisted of 15-20 individuals that formed 5 pairs.

The nucleus in the VBNP consists of 19 locally released individuals, one locally recruited female from EBM, and between 3 and 8 shorter- and longer-term present guests from other colonies. Thus, the nucleus consisted of 20-25 individuals that formed 7 pairs.



Breeding behaviour and reproduction

Breeding pairs in 2022

- Eastern Balkan Mountains

1. KOTEL * VCF KNOW-HOW - incubated an egg in an artificial nest on Sessile Oak (*Quercus petraea*) from 22.02.2022 till 21.04.2022 when left the nest. Unsuccessful season.
2. ZLOSTEN * MONTANA - incubated an egg in an artificial nest on Moesian Beech (*Fagus moesiaca*) from 12.03.2022 till 06.05.2022, then gave up. Unsuccessful season.
3. BALKAN * KAMCHIYA - A new bird called MARTO has replaced the male, and the season was unsuccessful.
4. OZZY * VAGLEN - nest building and strong pair bond, but no egg was laid.

- Vrachanski Balkan Nature Park:

1. VR.BALKAN * KUTELKA - incubated an egg in a natural nest on Scots Pine (*Pinus sylvestris*) from 06.02.2022, hatched 05.04.2022, successfully fledged young (B2H - PONORA) on 12.08.2022;
2. VARSHETS * KOTLYA - nest building and strong pair bond, but no egg was laid;
3. BARABA * PATEVA - strong pair bond, but no egg was laid in 2022.

Breeding pairs in 2023

- Eastern Balkan Mountains

1. KOTEL * VCF KNOW-HOW - incubated an egg in an artificial nest on Field Maple (*Acer campestre*) from 05.03.2023, chick hatched on 06.05.2023, GPS tagged on 21.07.2023 (named A12 - BONCHEV) and fledged successfully on 27.08.2023.
2. ZLOSTEN * MONTANA - no one of the birds has a GPS transmitter, and the location of the nest in 2023 remained unknown, but according to the presence and the behaviour of the birds observed at the feeding site, the season was unsuccessful.
3. MARTO * KAMCHIYA - incubated an egg in an artificial nest on Sessile Oak (*Quercus petraea*) from 03.03.2023, chick hatched on 01.05.2023, GPS tagged on 20.07.2023 (named A01 - VASIL) and fledged successfully on 20.08.2023.
4. OZZY * VAGLEN - nest building and strong pair bond, but no egg was laid.
5. BAGATUR * KARAKACHANKA - nest building and strong pair bond, but no egg was laid.

- Vrachanski Balkan Nature Park:

1. VR.BALKAN * KUTELKA - egg laid 03.03.2023 in a natural nest on Scots pine, hatched 02.05.2023, successfully fledged young (BE7 - LYUBOMIREN) on 15.08.2023;
2. VARSHETS * KOTLYA - nest building and strong pair bond, nest building in an artificial nest on oak, but no egg was laid in 2023;



3. BARABA * PATEVA - strong pair bond, nest building on a dry walnut tree on rock screes, but no egg was laid in 2023.
4. HRISTOVICH * REISERA - egg was laid around 07.04.2023 on fallen wild cherry tree, egg was laid and incubated for
5. ARABADJIEV * JOVANA - nest building in an artificial nest in beech and strong pair bond, but no egg was laid in 2023.
6. FINSCHA * ATANASAOVA - nest building and strong pair bond, nest building in an artificial nest in beech, but no egg was laid in 2023.
7. TERRASSE * P2 - strong pair bond observed, but P2 is still too young (2022 hatched in Dadia).

There are unclear relationships between DJUNINSKI, JUANITTA, TAVARESKA, HARRISON and HANS. It is likely that eight pair to has been formed, but some of these birds lost their GPS transmitters. Also, FREMUTH spent the winter in Uvats in Serbia, where it is likely paired with an unmarked bird (probably from Dadia) - data from the GPS transmitter accomplished with data from the field provided through Sasha Marinkovich.

Table 2. Number of formed pairs, breeding attempts and fledglings of Cinereous Vultures in Balkan Mountain in Bulgaria, by site and year. The figures with * are the total number of pairs present in the area until the end of 2023 and are not the sum of the figures given for each year.

No	Year	EBM			VBNP			Total fledglings
		Number of formed pairs	Breeding attempts	Fledglings	Number of formed pairs	Breeding attempts	Fledglings	
1	2020	3	0	0	0	0	0	0
2	2021	3	2	1	2	0	0	1
3	2022	4	3	0	3	1	1	1
4	2023	5	3	2	7	2	1	3
Total		5*	8	3	7*	3	2	5

Mortalities and misfortunes

Four Cinereous Vultures were poisoned near the village of Ticha in EBM on 14.03.2022. A Common Buzzard, two shepherd dogs – eaten by the vultures, and two Golden Jackals were found on the site. Kotel Regional Police Department has launched a preliminary investigation. In accordance with their competencies Sliven District Prosecutor's Office, Regional Inspectorate for Environment and Water – Stara Zagora, Bulgarian food safety agency – Sliven, Southeast State Company – Sliven took legal measures for this matter. However, the case was closed in 2023 without finding the perpetrator. The following Cinereous Vulture individuals from the Project were lost in this case: M5 – VRATSA, released in VBNP in 2020; X1 – BULGAR, released in EBM in 2021; L1 – BAI IVAN, released in EBM in 2021; and the fourth one was BE1 – MICHEV-BOEV – the first successfully fledged Cinereous Vulture in Bulgaria – hatched on 19.05.2021 on the territory of Kotlenska Planina SPA.

In June 2022, a freshly released in the EBM Cinereous Vulture called X45 – JINN was found dead – probably exhausted near Russe (Northern Bulgaria), after it was once recaptured in Romania and rereleased after some recovery period from EBM (SKNP).

In late 2022, for a short period, five Cinereous Vultures died in VBNP – all depredated by Golden Jackals while roosting on the ground during the night as follows:

30.11.2022 – E56-NANKINOV, released in May 2022 was found depredated (in its first winter in the wild) near Gorno Ozirovo;

09.12.2022 – two Cinereous Vultures – CC-FARMANA, released in May 2021 (died a year and a half after release) and E90-BOYAN II, released in May 2022 (died in its first winter in the wild) were depredated close to the feeding site near Dolno Ozirovo.

16.12.2022 – B2H-PONORA, wild-fledged from Ponor in September 2022 (the first chick from VBNP died in its first winter in the wild), was depredated not far from the feeding site near Dolno Ozirovo.

20.12.2022 – E67-BUHTICHKA, released in May 2022 (died in its first winter in the wild), was depredated not far from the feeding site near Dolno Ozirovo.

Two chicks released by hacking in 2022 from EBM (SKNP) were lost for the Project – both started migration shortly after fledging and fell in distress – PLANKENDAEL was once saved, rehabilitated and released again in the south of Turkey, but again recaptured in Iskenderum and finally took for permanently in captivity. The other one – PRAHA, migrated towards Greece and got poisoned or died by exhaustion (reason not fully clear) in Central Greece.

Four Cinereous Vultures from EBM died in 2023 as follows:

04.01.2023 – A1-DJURANLYI, released in 2021 (died a year and a half after release), died in Iran on the shore of the Caspian Sea. Possible reasons for the death are lead poisoning and/or depredation by Golden Jackal.

21.01.2023 – X12-REGENERAT, released in April 2022 (died in its first winter after release), was depredated by Golden Jackal during the night, while roosting on the ground near Kotel in Kotlenska Planina SPA.

14.03.2023 – X23-GALYO, released in April 2022 (died in its first winter after release), was secondary poisoned, while eating from a poisoned dogs' carcasses near Maysko, Elena Municipality. The bird died 10 km from the place it ingested the poison in absolute accordance with the findings of the possibility of a remote mortality due to poisoning described by Peshev et al. (2022).

12.10.2023 – X90-CHATALKA, released in April 2022 (died year and a half after the release), was poisoned in Bozdag mountain near Drama in Greece. In the area also a dead raven was found, but no baits or other carcasses were found, so probably small pieces of meat were used as baits and they were fully consumed by the birds (Lavrentis Sidiropoulus pers. comm.).

Table 3. Number of dead Cinereous Vultures by reason during or beyond the acclimation period and weight of the respective factor from all cases. Note: the figures given in brackets refers to locally wild fledged individuals – thus unrelated to the reintroduction process.

Mortality per reason/ period	During acclimation period	Beyond acclimation period	Total absolute number	Weight of the factor - % from all cases
Predation	4	5 (+1)	10	0.29
Poisoning	1	7 (+1)	9	0.26
Gun fire shooting	3	1	4	0.12
Natural disease/ malfunction/ exhausting	4	-	4	0.12
Drowning	1	2	3	0.09
Electrocution/collision	-	3	3	0.09
Natural disasters	-	1	1	0.03
Total	14	18 (+2)	32 (+2)	1

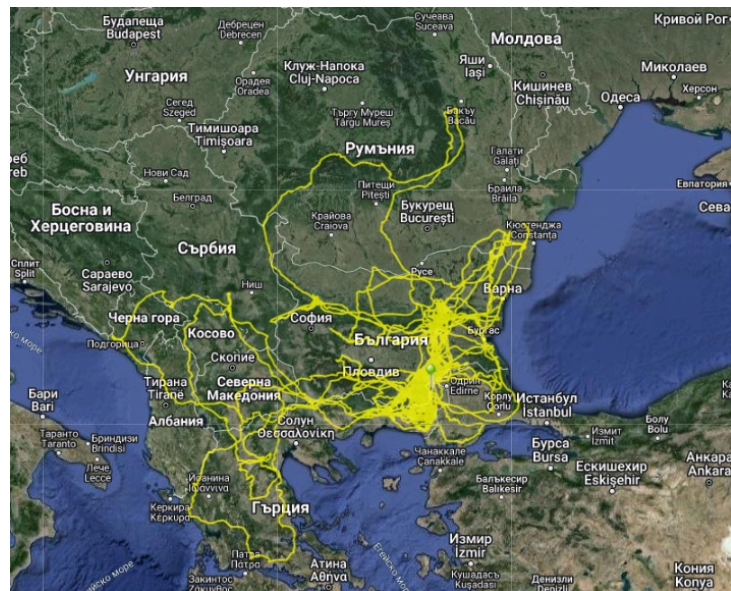
Dispersal and movements

In both areas, EBM and VBNP, the Cinereous Vulture shows tendency with the gaining experience and studying the territory to increasingly explore the areas to the valleys north of the Balkan Mountains ridge, which differs from the pattern observed in the Griffon Vulture, which prefers mountain slopes and rarely goes to the valleys.

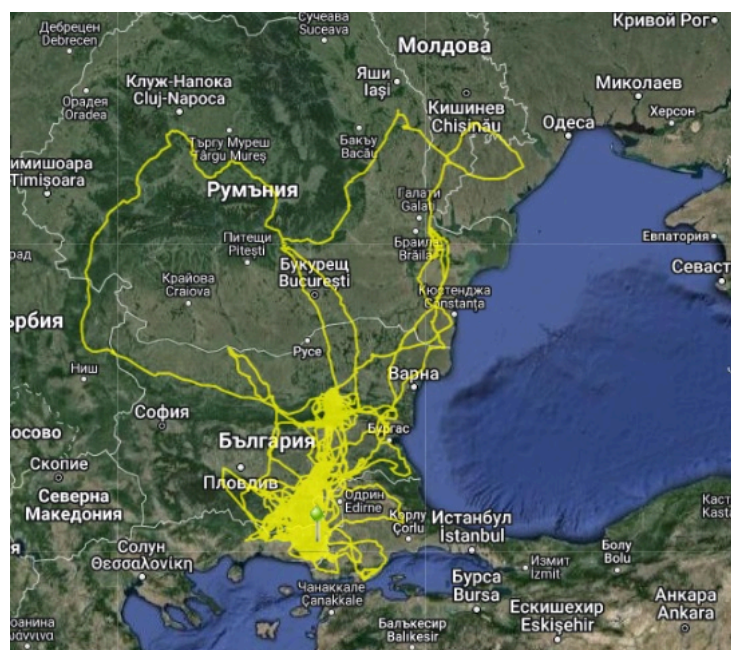
Although move a lot along the Balkan Peninsula and beyond, the most birds keep attached and explore intensively the focal reintroduction area of Balkan Mountains with centres the two release sites in EBM and VBNP.

By the time of issuing this report the following birds are away from the release sites and their settling is still unclear:

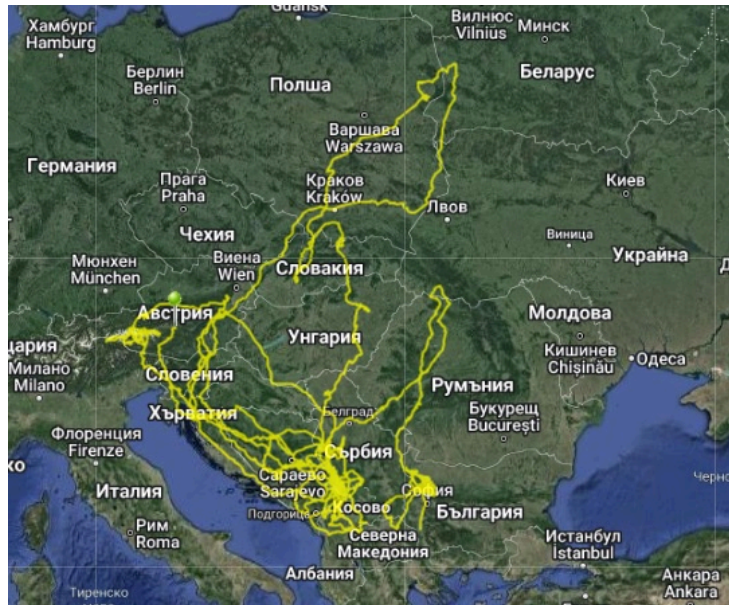
MM - DOBRUDJA - Released in 2022 from EBM. After some mid to long-distant movements, it is now settled in Sakar, but frequently moves to Eastern Rhodopes and Dadia.



X78 - PARISIAN - Released in 2022 from EBM. After some mid and long-distant movements, it is now settled in Dadia.



E34 - FREMUTH - Released in 2022 from VBNP. After some long-distant movements, it spent last summer in the Hohe Tauren (Austrian Alps) and overwintered in the Uvats area in Serbia.



E89 - TEWES - Released in 2022 from VBNP. After some long-distant movements, it spent last summer in the Hohe Tauren (Austrian Alps) and overwintered in the Peloponnese (South Greece), in the very same area, where OSTRAVA was poisoned in 2019.



N23 - SVETLIN - Captive-bred in Ostrava Zoo, released in June 2023 in EBM near Kotel by the Delayed Release method. See details in the section Delayed Release of this report.

A12 - VASSIL - Wild hatched from reintroduced parents in EBM near Kotel in 2023. Migration and movements are mentioned above in the section Delayed Release.

B7N - LYUBOMIREN - Wild-hatched from reintroduced parents in VBNP in 2023. In November 2023, it moved to Eastern Rhodopes and overwintered there, repeatedly observed by our colleagues from BPSB/BirdLife Bulgaria at their Cinereous Vulture release and feeding site.

Attracted exogenous birds

Cinereous Vulture with a white wing tag M4 and a partner were observed in Kotel on 13.09.2022. In the summer of 2022, 10 Cinereous Vultures from the Balkan population were seen in the VBNP (two of the birds where tagged - N1, N6).

In 2023, M4 and P7 were observed in Kotel and Sinite Kamani in July 2023 in EBM. Four non-marked immatures were distinguished in EBM in the summer of 2023 by the “visual marking” method. One more exogenous Cinereous Vulture - blue ring F29 was present for some time and photographed in Kotel on 01.07.2023. Its origin is from the local reintroduction project in Eastern Rhodopes (BSPB/BirdLife Bulgaria pers. comm.).



In late 2023 a Cinereous Vulture with a wing-tag P2 is frequently observed in VBNP and it is well bond in a pair with the locally released E23 - TERRASSE.



One non-marked Cinereous Vulture was captured in VBNP and was dully marked and tagged with GPS transmitter and named NANKINOV 2. It appears that this is a bird from Dadia, judging by the permanent visits and overwintering in Dadia National Park since the tagging in VBNP.



On March 9, 2023, a black vulture of unknown origin was filmed on the feeding site near the village of D. Ozirovo with a blue plastic ring on its left leg - probably with the inscription GX.

During the summer season of 2022 and 2023, up to 3 unmarked young black vultures (probably from Dadya) were identified in VBNP at the same time.

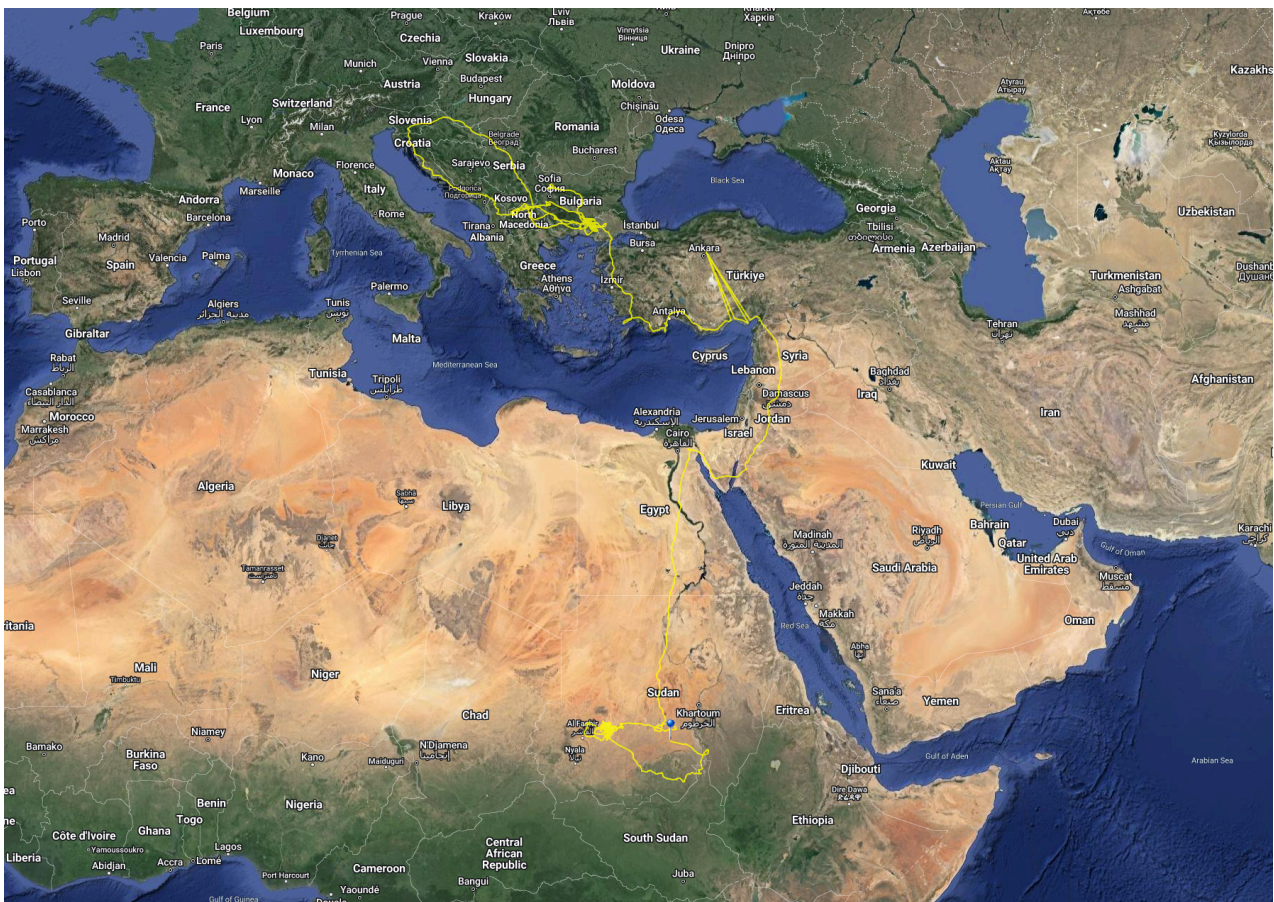
Other species

Griffon Vulture

The conservation actions targeting the Cinereous Vulture also support the established since 2010 Griffon Vulture (*Gyps fulvus*) colonies (Kmetova-Biro & Stoynev et al. 2021, Stoyanov & Peshev et al. 2023), stabilising to 22-27 pairs in VBNP and 25-30 in EBM in the last few years. In 2023, 15 fledglings were raised in VBNP from 4 distinct colonies and 17 from 6 colonies in EBM. The maximum number of individuals counted at once is 79 in VBNP and 92 in EBM.

Egyptian Vulture

On 26.06.2023, an immature Egyptian Vulture (*Neophron percnopterus*) was captured in VBNP aviary and was tagged with a GPS/GPRS transmitter. Shortly after release, the bird moved to Eastern Rhodopes and, out of some excursions throughout the Balkans, spent most of the summer there before the autumn migration. It started on 01.09.2023 heading SE and by crossing the Dardanelles on 02.09.2023 through the Turkey Mediterranean coast line and turning around Iskenderun, and through Syria, Jordan and along the Nile river in Egypt, reached the wintering grounds in Sudan around 16.09.2023.



In EBM, a pair of Egyptian Vultures appeared in May 2023. After some remarkable observations and photo-documentation of using stone to crack snail shells and bring material for a nest, the pair moved somewhere, and individuals were seen occasionally throughout the season. Four more immature individuals were observed visiting the feeding site in summer, as the presence of floaters (3 to 9 individuals a year) has become a tradition for the last 15 years since the reintroduction of the Griffon Vulture started in the area in 2007.

Urgent conservation actions

As such actions, we recognise those provide an immediate effect and are not necessarily sustainable but increase the extinction time of a threatened species, or support the reintroduction process. Such actions may be implemented for endangered species to help them rise at least to a better conservation status or until any sustainable and long-term measures produce results. We recognise these to be feeding of vultures to minimise dispersal and avoid poisoning. Nest guarding to ensure safe reproduction, brood management and captive bird release to increase recruitment, insulation of dangerous power lines, intensive in-time tracking of vultures to detect and prevent poisoning etc.

Feeding

In 2022 and 2023, we continued to organise the feeding of vultures at a minimum 2 to 3 times per week (and every time upon the availability of carcasses – sometimes up to 7 days a week). Each feeding site (FS) was supplied annually between 16 to 60 tons of carcasses in 110 to 150 events per site. Two feeding sites were running in EBM (SKNP and Kotel) and one in VBNP in 2022 and 2023. The respective number of feeding events and amounts per month are summarised per feeding site and year in the tables provided below (Table 4,5,6,7,8,9):
Kotel FS in EBM:

Kotel FS in EBM:

Table 4. Number of feedings and amount of food (kg) provided at the feeding site in Kotel (EBM) in 2022.

2022													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
# feedings	10	8	18	8	13	7	10	4	5	13	8	9	113
Kg food	3845	2369	4645	2500	3029	2649	2218	1100	1350	2645	1310	1680	29340

Table 5. Number of feedings and amount of food (kg) provided at the feeding site in Kotel (EBM) in 2023.

2023													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
# feedings	12	12	15	11	11	10	5	6	10	11	10	11	124
Kg food	2260	3115	3550	2595	2455	2705	1800	1565	3690	4400	2470	3190	33795

Sinite Kamani Nature Park FS in EBM:

Table 6 Number of feedings and amount of food (kg) provided at the feeding site in Sinite Kamani Nature Park (EBM) in 2022.

2022													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
# feedings	7	6	12	8	7	8	2	2	2	2	2	4	62
Kg food	3070	2250	2030	1730	1825	1875	1000	1000	1000	800	700	1100	18380

Table 7. Number of feedings and amount of food (kg) provided at the feeding site in Sinite Kamani Nature Park (EBM) in 2023.

2023													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
# feedings	4	4	3	4	4	3	4	5	8	5	5	5	54
Kg food	1200	400	1200	1200	1400	700	1800	1600	1450	1600	1400	1600	15550

Vrachanski Balkan Nature Park FS:

Table 8. Number of feedings and amount of food (kg) provided at the feeding site in Vrachanski Balkan Nature Park in 2022.

2022													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
# feedings	11	12	14	13	14	15	16	15	11	8	9	8	146
Kg food	3070	3130	5120	4270	5060	5890	6540	6020	4430	4510	4960	3750	56750

Table 9. Number of feedings and amount of food (kg) provided at the feeding site in Vrachanski Balkan Nature Park in 2023.

2023													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
# feedings	9	7	10	11	9	10	9	8	9	9	7	7	105
Kg food	4590	2980	5380	5170	4050	3980	4525	4400	4900	4490	3480	4620	52565

Nest platforms building in trees

As a nesting in trees species the Cinereous Vultures' one of the most serious threat and reason for local extinction in the past was lack of suitable trees for nesting. In order to support and facilitate the initial establishment of breeding nuclei out of the currently classic range of the Cinereous Vulture (coniferous trees in the Mediterranean), we established artificial nests/nest platforms in EBM. More than 100 such were build/designed/formed for nesting and perching around the possible nest. Most were built in deciduous oak, beech, ash and filbert trees, but also in black and silver pines.



Poison and other problems detection by using intensive tracking of vultures with GPS/GPRS transmitters.

A Manual for establishing and using of early detection system for poisoning was published by Stoynov, Peshev and Grozdanov 2018; find it here: https://www.researchgate.net/publication/330563619_Early_warning_system_for_wildlife_poisoning_using_intensive_GPS_tracked_vultures_as_detectives). The transmitters are checked by a person called “Alarmist” from the Project team on the internet platform a minimum of once a day in periods with lower vultures’ activity (e.g. winter or prolonged periods of poor weather). In case of periods with high vultures activity, on good sunny or clear windy days, the checks are provided a minimum of twice a day. In situations with received information or signs of inadequate behaviour, the transmitters are set up to provide data every 10 minutes, and the internet platform with the data from the transmitters is observed permanently. When possible and if necessary, the Project team member visits the place where the vulture is and checks the reason for landing.

Long-term conservation actions

As such actions, we recognise those that do not necessarily provide an immediate effect but are sustainable and change the habitat and the local people's attitude to better the target species. Such actions are rarely regarded as a specific endangered species, which could be stated as a flagship species, but more for its habitats and entire ecosystem.

Restoration of food source for vultures

The action for local reintroduction of the Fallow deer (*Dama dama*) in Kotlenska planina SPA – two release sites – one near Kotel and another near Ticha continues, another release site was initiated in co-operation with the Hunting Society of Kotel near the village of Neykovo. In 2022 20 individuals and in 2023, another 14 were released and are now free ranging. The first results show the animals adapt well to life in nature and can afford the dogs' and wolves' attacks. The only problem still remains the poaching, but so far, most local people and authorities are supportive of the initiative, and this prevents any illegal attempts.

The Green Balkans is running a sheep farm in SKNP, raising more than 250 sheep and 30 cows that are grazing the pastures in the core area for the vultures in the site.

The FWFF is running a sheep farm in Kotel, raising more than 800 sheep that are grazing the pastures in the core area for the vultures in the site.

The European Souslik (*Spermophilus cittelus*) was restocked in SKNP and locally reintroduced around Kotel and their habitats are now maintained by extensive grazing of the above mentioned sheep herds. The Souslik's newly created nuclei are showing increase in numbers and area used, as well as their ecological role is now obvious, as symbiotic species like Isabeline Warbler (*Oenanthe isabelina*), but also specialised predators such as the Booted Eagle (*Aquila pennata*) appeared in the reintroduction sites.

Against poisoning activities

Public awareness activities are continuing. However, fewer reports and claims are received, which may be based on the increase in professionally run livestock breeding compared to some years ago when most holdings were village and amateur.

It seems, however, that the feeding site operation in an area with a permanent wolf presence is the most effective anti-poison tool. Maintaining permanent feeding sites for vultures in regions of sympatric presence with wolves is an irreplaceable conservation tool.

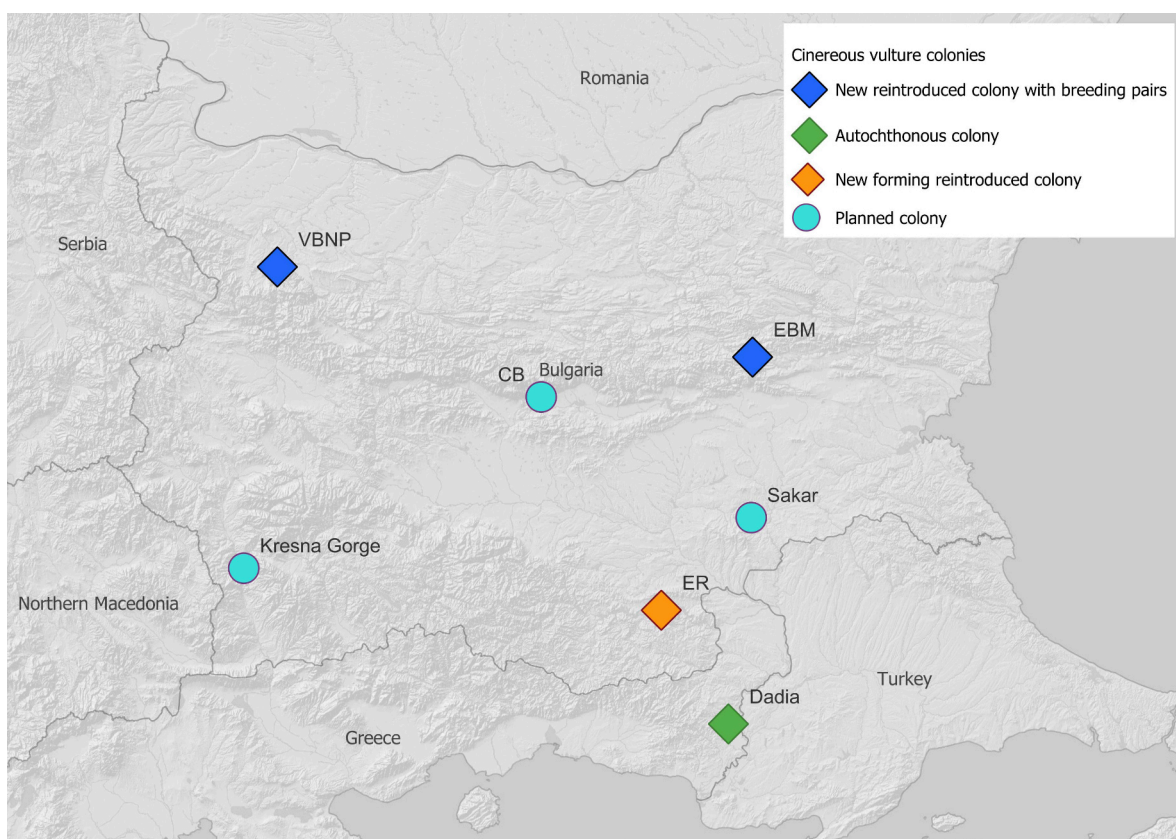
The existence of an aviary with Griffon Vultures inside, placed just at the feeding site, increases the attraction of wild and free-ranging reintroduced vultures, and this is a way of keeping them away from occasionally present and potentially dangerous (poisoned) food.

However, constantly monitoring the problem and the underlying causes and preventively addressing them is necessary.

Against poisoning activities

The releases in VBNP and EBM will continue in the next years until each of the local nuclei starts producing 10 offspring a year.

Three strategic new release sites are planned within the Bearded Vulture LIFE project to be started - Kresna, Central Balkan and Sakar. Together with the project of BSPB/BirdLife Bulgaria and Rewilding Europe, which started with releases in 2022 in Eastern Rhodopes (BSPB personal comm.), the most important sites of the country will be repopulated by the species, and a coherent network will be recreated to a long-term benefit of the Cinereous Vulture in Bulgaria and the Balkans.



Creating a nucleus in the Central Balkan National Park will support the connection between EBM and VBNP. If a nucleus in Sakar re-appears, it will help the connection between Dadia/ Eastern Rhodopes with EBM but will be one more stopover during migrations and another wintering area with a milder winter climate for the overwintering of the birds from the entire Balkan metapopulation. Creating a Cinereous Vulture nucleus in Kresna will support extending the species in SW Bulgaria and towards North Macedonia. It will make one more area for overwintering of the species with a milder climate during the winter.

Ongoing and planned Cinereous Vulture local reintroduction projects in Bulgaria.

Table 10. Ongoing and planned Cinereous Vulture local reintroduction projects in Bulgaria.

#	Site	Year of releases starting	Implementing organisations	Outcome
1	Eastern Balkan Mountain (EBM)	2018	Green Balkans, FWFF, BPPS, VCF	Reproduction of the species achieved in 2021, on-going
2	Vrachanski Balkan (VBNP)	2020	Green Balkans, FWFF, BPPS, VCF	Reproduction of the species achieved in 2022, on-going
3	Eastern Rhodopes (ER)	2022	BSPB/BirdLife Bulgaria, Rewilding Rhodopes, Rewilding Europe, GREFA	Still no reproduction, on-going
4	Kresna	2024	Green Balkans, FWFF, BPPS, VCF	Planned, in progress
5	Sakar	2024	Green Balkans, FWFF, BPPS, VCF	Planned
6	Central Balkan (CB)	2025	Green Balkans, FWFF, BPPS, VCF	Planned



Overview

The first (establishing) phase of reintroducing the Cinereous Vulture in Bulgaria is successful. Two nuclei were established along the Balkan Mountains – EBM and VBNP consisted of some 15-20 and 20-25 individuals and 5 and 7 pairs, respectively. The hacking, although successful as a method to release Cinereous Vultures into the wild, is not too effective in establishing a local population/nucleus from zero; it could be helpful for restocking regional populations.

However, it might be useful in areas where no aviaries and permanent feeding sites are established, but the area is worth trying to repopulate by the species.

The release by aviaries method is a perfect and effective tool to establish a Cinereous Vulture nucleus aiming at a precisely spatially focused reintroduction initiative. Captive-bred individuals might be released through aviaries by the so-called Delayed Release method, and the first results are promising. However, more birds should be released and data processed for a definite conclusion.

The Cinereous Vultures are less prone to electrocution than Griffon Vultures, probably because they prefer landing on the ground if lacking suitable trees or rocks instead of power line pylons/towers. However, roosting on the ground appears to be a significant threat, especially for depredation by Golden Jackal. This newly established threat led to 29% of the mortality cases in reintroduced and freshly fledged Cinereous Vultures in Balkan Mountain.

The anti-poison activities should be incorporated into all regional and international conservation initiatives. Greece needs exceptional attention, as it is very attractive for the vultures from the Balkans but still plays the role of an ecological trap due to hardly controlled and frequently applied illegal wildlife poisoning.

Shooting is still a problem for the Cinereous Vulture, mainly in the acclimation period and especially in areas where specific and intensive vulture conservation actions have not been provided.

Interactions between different nuclei are essential for the species. All new groups shortly started interchange with other established colonies (e.g. Dardia and Turkey), as well as the birds from the newly started local reintroduction project (in 2022) in Eastern Rhodopes (BSPB/ BirdLife Bulgaria) started interchange with the locally reintroduced colonies in Balkan Mountain. Strategically, establishing more such nuclei – e.g. Kresna Gorge, Central Balkan and Sakar- seems essential to facilitate the coherence of local colonies and stepping stones for the species.

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Coordinating beneficiary of LIFE14 NAT/BG/649 project is Green Balkans NGO, associated beneficiaries are Fund for Wild Flora and Fauna (FWFF), Vulture Conservation Foundation (VCF), Junta de Extremadura and EuroNatur.

In 2023, a new Project was launched – LIFE22-NAT-BG-BEARDED VULTURE LIFE – 101113869, in which the Cinereous Vulture’s newly reintroduced nuclei are about to be boosted. Both projects got financial support from LIFE – the EU financial instrument and the new one is also co-funded by Bioparc Conservation and Sainte Croix Biodiversite from France. The current report is becoming part of this new Project’s on-going reporting and information dissemination approach.

Additional financial contributors to the project are:

- for Green Balkans activities, including donating transmitters for the birds to be equipped : Stichting Wildlife and DierenPark Amersfoort from the Netherlands; Cornel Cotorogea from Romania; Jeremie Touchard, Silent Book Club of Trouble Bakers, Abordaje bar, Maria Anastasova, Lidiya Sinova, Neda Djarova, Valentin Mihov and Nia Dryankova from Bulgaria.

- for the FWFF activities: BIOPARC Zoo de Doue Conservation, Sainte Croix Conservation from France, and Goerlitz Zoo Germany.

There would not be reintroduction without birds donated by the Regional Government of Extremadura!

Cinereous Vulture EEP and their members: Ostrava Zoological Garden and Botanical Park, ZOO a zamek Zlin - Lesna, Prague Zoo and Liberec Zoo from Czech Republic; Antwerp Zoo - Planckendael from Belgium also contributed by providing birds for release in Bulgaria.

We are grateful to all those EAZA members who continued to donate Griffon Vultures for reinforcement of Bulgarian population, donated transport crates and covered transport costs for the birds to arrive in

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BEARDED VULTURE LIFE

LIFE22-NAT-BG-BEARDED VULTURE LIFE - 101113869
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Green Balkans



Fund for Wild Flora and Fauna



Bearded Vulture Life



Vulture Conservation Foundation



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**European Endangered
Species Breeding Programme -
Cinereous Vulture**



Organizations/institutions with significant contribution to the project implementation





<https://vultureslife.greenbalkans.org/>



Bearded Vulture *Life*

<https://vultureslife.fwff.org/>

