

# Re-introduction of the Griffon Vulture *Gyps fulvus* in Kresna Gorge of Struma River, Bulgaria Annual Report for 2020

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Fund for Wild Flora and Fauna [www.fwff.org](http://www.fwff.org)

“Bright Future for the Black Vulture in Bulgaria” LIFE14 NAT/BG/649  
Report on Action D2 – “Monitoring the impact on indicator species”



**BRIGHT FUTURE FOR THE BLACK VULTURE**

VULTURES BACK TO LIFE LIFE14NT/BG/649





Recommended citation:

**Peshev, H., E. Stoynov, N. Vangelova, G. Georgiev, N. Stoyanov & A. Grozdanov (2021):** Re-introduction of the Griffon Vulture *Gyps fulvus* in Kresna Gorge of Struma River, Bulgaria, Annual Report 2020, Fund for Wild Flora and Fauna, Blagoevgrad. DOI:

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ID Number

Annual bulletin published by the Fund for Wild Flora and Fauna © 2011-2021.

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**ISSN: 1314-9814**

DOI: 10.13140/RG.2.2.27957.63205



## Abstract

This is the **elevAenth year** of the griffon vulture *Gyps fulvus* reintroduction into the Kresna Gorge, which has started in 2010 and is implemented by the NGO Fund for the Wild Flora and Fauna (FWFF). This document is part of the report of Action D2 of the project “Vultures Back to LIFE” LIFE14NAT/BG/649.

After the mass poisoning incident from March 2017 the colony of the griffon vultures in the Kresna Gorge started to recover and this process continued throughout 2019 and 2020. For the control and prevention of poisoning a massive use of high definition and intensive data collecting and loading satellite transmitters is on-going.

Highlights from the reintroduction process of the griffon vulture in the Kresna Gorge for 2019 are as follows:

- 1.) Two pairs of griffon vultures successfully raised young.
- 2.) The exchange of individuals between the colony of the species in Demir Kapia – North Macedonia and the Kresna Gorge continued – supporting the theory that the two sites are parts of a common sub-population;
- 3.) Over 100 Griffon vultures not-released within the project – have visited the Kresna Gorge for a certain time of the year, of which 44 were tagged. Thus, together with the ones released in the project, the total number of griffon vultures registered in 2020 in the Kresna Gorge exceeds 100 individuals;
- 4.) Four Cinereous vultures (*Aegypius monachus*) and four Egyptian vultures (*Neophron percnopterus*) were observed in the Kresna gorge from May to September 2020.

In 2020, marked griffon vultures from Israel, Greece, Serbia, Croatia, Italy and from other parts of Bulgaria (including Eastern Rhodopes and Vrachanski Balkan) were again observed in Kresna Gorge.

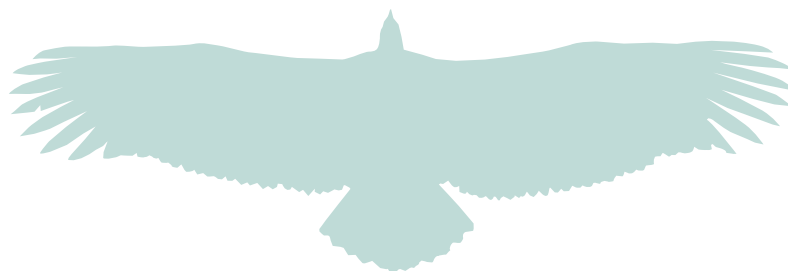
Individuals released or captured and marked in the Kresna Gorge were observed in Serbia, Israel, Turkey, Greece, Northern Macedonia, Austria, Italy and Yemen as well as in other parts of Bulgaria (Vrachanski Balkan, Sinite kamani, Kotel and Eastern Rhodopes).

In 2020, the Griffon vultures from Kresna gorge were observed again in Rila and Pirin mountains, during the summer months.

Vulture feeding site maintenance continued in 2020 with over 38 tons of carcasses provided in 153 feeding events. Other activities to prevent conflict between livestock breeders and predators, and activities to increase wildlife and extensive livestock breeding continued.

The FWFF's nature conservation activities in the area continued under the "Bright future for the Black Vulture" - LIFE14 NAT/BG/649 project, under the leadership of Green Balkans - Stara Zagora, funded by the EU LIFE Financial Instrument, in the cooperation with Vulture Conservation Foundation, EuroNatur and Gobierno de Extremadura, and co-funded by zoo parks Bioparc de Doue, Naturschutz-Tierpark Görlitzand and Sainte Croix.

**Key words:** *Aegypius monachus*, *Neophron percnopterus*, Pirin National Park, Rila National Park, satellite tracking, GPS/GPRS transmitters.



## Transfers

In 2020 one griffon vulture from Allwetterzoo Münster was transferred on September 2<sup>nd</sup> to the acclimatization aviary in Kresna Gorge. Tagged with a wing tag **Y3**.

## Releases

In 2020, four Griffon vultures were released in Kresna Gorge



Date	Tag	Transmitter	Release	
24.6.2020	<b>HW</b>	OT-33	Hard release	
24.6.2020	<b>V6</b>	OT-33	Hard release	Rerelease
4.7.2020	<b>V6</b>	OT-33	Hard release	Rerelease
4.9.2020	<b>V7</b>	OT-P33	Hard release	
15.9.2020	<b>Y3</b>		Soft release	



# 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.

In 2020 we continued to use blue wing-tags with orange (enlightened to “gold”), yellow wing-tags with black inscription with three and two vertically set symbols of a digit and a letter and vice versa (common letters for the Cyrillic and Latin alphabets) as follows: **B69**, **1H**, **2H**, **C1**, **HZ** and the like.



*The marking scheme for Griffon vultures released in Kresna Gorge in the period 2013-2020.*

We continue to use local people and tourists’ reports about observations of vultures to keep track on their presence in the area. In 2020 the social platform Facebook was used again to gather locations and pictures of birds from the mountain tourists – a successful practice with scientific and popularizing effect.

## Individual identification of vultures

We continued to photograph all observed birds, according to the previously proposed and implemented “**visual marking**” method (Stoynov, Peshev et al. 2015). More than 2800 pictures were made during the period, mostly of Griffon vultures, but also of Black and Egyptian vultures, eagles and other diurnal raptors in order to gather material for individual identification.

## GPS/GPRS tracking

Three Griffon vultures, released within the project and thirteen captured wild birds were equipped with GPS/GSM transmitters in 2020. We continued to use and further develop the design of the *patagial* transmitter produced by Ornitela Ltd. <http://www.ornitela.com/patagial-transmitter>. Transmitters P-30, attached by leg loop method were also used.

The transmitter-based information was used mainly to track potential poisoning incidents, thus preventing large-scale damages on the vulture population in the area. Effective monitoring required frequent determination of GPS locations of all tagged birds (on every 5-10 minutes) and expert interpretation of the received data. In addition, the gathered information was used for scientific analysis of the home range, migration movements and other ecological specifics of the vultures. In order to popularise the important role of the equipped vultures in poisoning monitoring and prevention, we adopted the term “poison-detectives” for them (Stoynov, Peshev & Grozdanov 2018).



*Transmitter attached by the leg-loop method*



*Transmitter attached by the patagial method*

The number dynamics and individual identification of vultures on the feeding site was assisted again by camera trap, which also helped to identify individuals observed from a great distance during the field monitoring.

## Marking of wild vultures

To identify the origin of wild griffon vultures present in Kresna Gorge and to connect the dispersion of the released vultures with a particular age groups of the wild ones, we captured and marked the passaging individuals which enter the hole in the aviary's roof mesh – a method used by Iezekiel, Woodly & Hatzofe (2003). Marking was made with Blue wing-tags and green rings (were used), as well as GPS/GPRS tags, when available. The age of the captured birds was determined according to the moult pattern (Zuberogitia et al. 2013).

The following birds were captured (and) marked and released on the date accordingly:

Date	Species	Tag	Transmitter
24.1.2020	G. fulvus	Y4	OT-P33
24.1.2020	G. fulvus	Y1	OT-P33
22.2.2020	G. fulvus	BY3	OT-50
22.2.2020	G. fulvus	BY1	OT-30
22.2.2020	G. fulvus	Y8	OT-P33
22.2.2020	G. fulvus	Y1	OT-P33
22.2.2020	G. fulvus	Y2	OT-30
19.3.2020	G. fulvus	5	OT-30
3.6.2020	G. fulvus	BY7	OT-30
24.6.2020	G. fulvus	Y9	OT-P33
24.6.2020	G. fulvus	C9	OT-P33
29.7.2020	G. fulvus	DEFILE	OT-30
4.9.2020	G. fulvus	A4	
4.9.2020	G. fulvus	W0180	OT-30
4.9.2020	G. fulvus	C7	OT-P33



## Results

At the beginning of 2020, about 60 vultures spent the winter in the Kresna Gorge. Many wild ones (visitors) joined the colony for the winter.

The frequent communication and the usage of the two feeding sites - Vitachevo in Northern Macedonia and Kresna Gorge in Bulgaria, was proved also by the GPS/GPRS transmitters. Some birds were moving between the two sites on a daily basis. Obviously some of the breeding birds in Demir Kapia were coming to collect food at the feeding site in Kresna Gorge.

Marked birds from Israel, Greece, Serbia, Croatia, Italy and other parts of Bulgaria have been observed.

Birds released in Kresna Gorge were observed in Serbia, Greece, Austria, Italy, Israel and Northern Macedonia as well as other parts of Bulgaria (Vrachanski Balkan, Sinite Kamani, Central Balkan, Kotel, and Eastern Rhodopes). This year too, the griffon vultures spent the July and August months in Pirin National Park and sometimes in Rila National Park.



*Griffon vultures in "NP Pirin",*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number Identified Griffon vultures	21	18	29	26	21	17	16	15	4	23	14	15
Number of Griffon vultures observed at once (max.) at the feeding or roosting site	74	73	51	50	44	36	31	26	27	56	54	41
Number of Eurasian Black Vultures					1	1	2					
Number of Egyptian vultures					1	1	2	1	1			

*Numbers of griffon vultures and black vultures observed in Kresna Gorge in 2020 by months.*

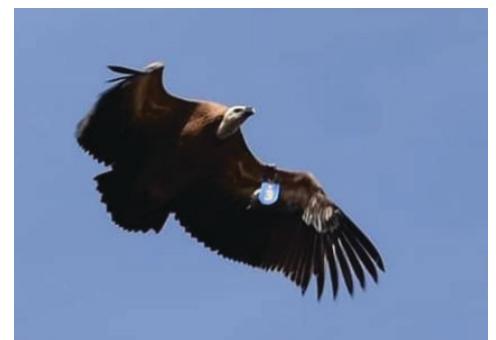
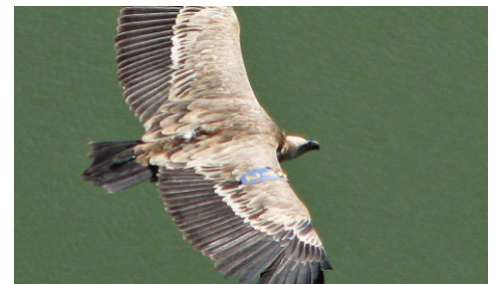
Tag	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>HW</b>							X	X		X	X	X
<b>V6</b>						X	X	X		X	X	X
<b>V7</b>									X			
<b>Y3</b>										X	X	X
<b>56</b>			X									
<b>78</b>	X	X	X	X	X	X	X	X		X	X	X
<b>O</b>				X								
<b>XX</b>	X	X	X	X	X	X	X	X		X	X	X
<b>HE</b>	X		X	X	X	X	X	X	X	X	X	X
<b>HT</b>	X	X	X	X	X	X	X	X		X	X	X
<b>V2</b>	X	X	X									
<b>V3</b>	X	X	X		X						X	X
<b>V8</b>	X	X	X	X								
<b>HC</b>	X	X	X	X	X	X	X	X		X	X	X
<b>HJ</b>	X	X	X	X								
<b>HZ</b>			X	X	X	X	X	X		X	X	X
<b>HN</b>					X	X	X	X				

Released griffon vultures and their observations in 2020 in Kresna Gorge

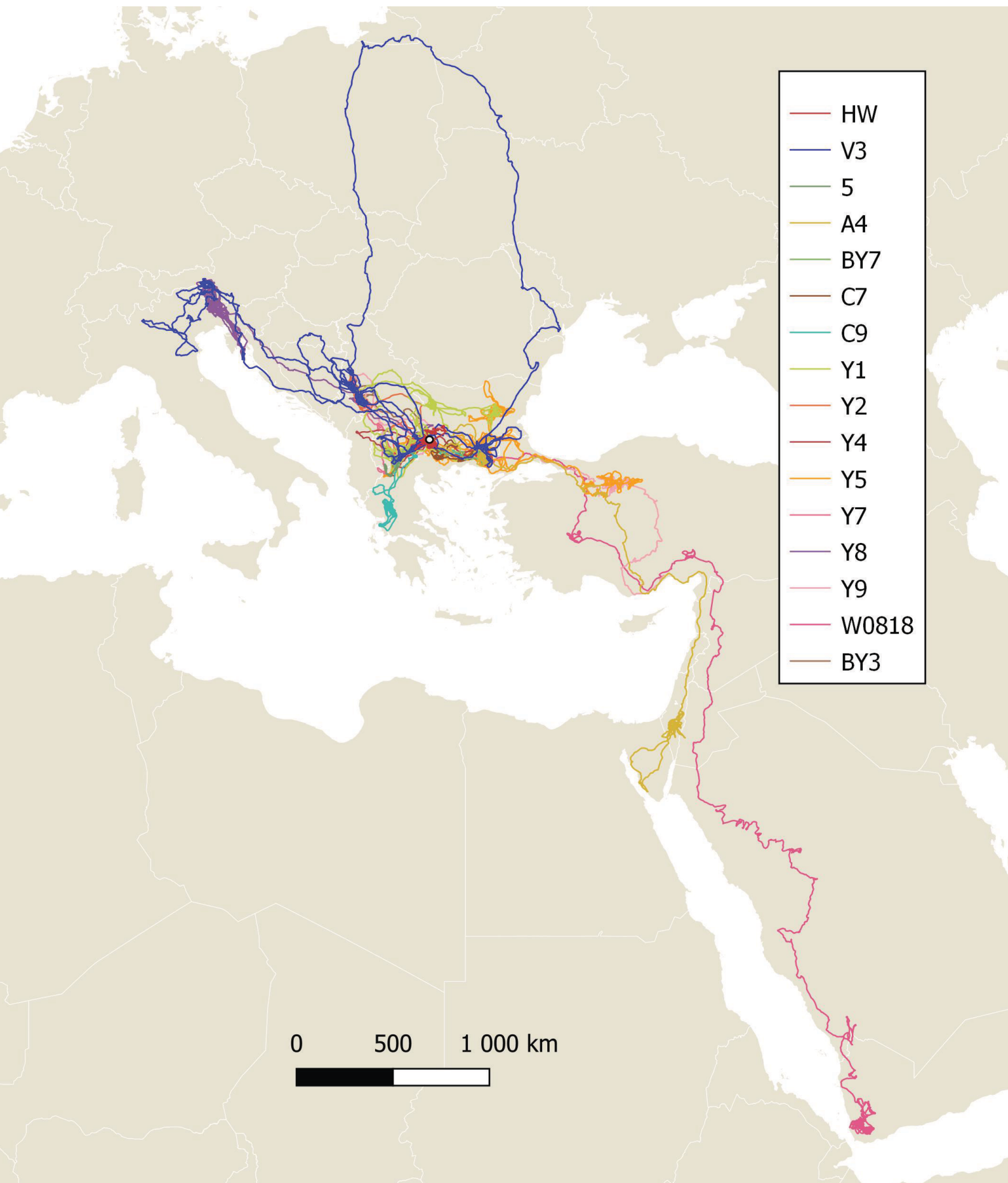


## Whereabouts of some of the marked birds

Tag	Period	Place	Observer
V5	from January to December	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
K9U	January and February	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
HA	January to March and December	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
HZ	from January to March	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
45	from January to the end of April and in November and December	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
V9	24-01-2020, 11-02-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
Y4	from February to April	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
HE	11,13-02-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
G10	11,21-03-2020, 05-11-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
V2	from March to December	Vrachanski Balkan	Georgi Stoyanov
Y2	from March to December	Uvac	Sasha Marinkovich
C5	from March to December	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
H - B41	from March to June	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
BY1	12-04-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
Y5	from April to September	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
BY1	12-04-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
HC	4 to 14-05-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
V1	05-05-2020	Kotel	FWFF
HA	07-05-2020	Vrachanski Balkan	Georgi Stoyanov
V8	21-05-2020	Italy	Fulvio Genero
V3	28,29,31-05-2020, 01-06-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
HZ	June	Macedonia (Vitachevo)	Emanuel Lisichanets
Y6	04-06-2020	Uvac	Sasha Marinkovich
2X	04-06-2020	Uvac	Sasha Marinkovich
HN	28-06-2020, 18-09-2020, 23-11-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
X	08-01-2020	UvacDora Skartsi	Sasha Marinkovich
V6	28-08-2020	Kompsatos (Greece)	Dora Skartsi
B73	28-08-2020	Uvac	Sasha Marinkovich
HN	28-08-2020	Kompsatos (Greece)	Dora Skartsi
V5	28-08-2020	Kompsatos (Greece)	Dora Skartsi
C9	from September to December	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
XX	15,16-09-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
A4	24,25-09-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
Y3	October	Mount Olympus	Facebook group
V1	02-11-2020	Kompsatos (Greece)	Dora Skartsi
V1	3,24-11-2020	Eastern Rhodopes (Potochnitsa)	BSPB - Volen Akumarev
A4	25-11-2020	Israel	Ohad Hatzofe
C7	October and November	October and November	BSPB - Volen Akumarev



### Movement of Griffon Vultures with transmitters tagged in the Kresna Gorge in 2020



## Attracted exogenous birds

Of more than 100 individually recognised griffon vultures that visited Kresna Gorge in 2020 from other colonies, 44 were marked and their origin identified.

Tag	Ring		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5	B95	Kresna gorge			x	x	x	x	x	x		x	x	x
	CYY	Croatia	x	x	x	x								
C6	BC6	Kresna gorge	x	x	x	x								
T59	H20	Israel	x	x	x	x	x							
C4	BC4	Kresna gorge	x	x	x	x								
T73		Israel	x		x	x								
M3	KY7	Greece	x	x	x	x								
	CZC	Croatia	x	x	x	x	x							
Y5	BY5	Kresna gorge	x	x	x			x						
C7	M13	N. Macedonia	x	x	x	x						x		
Y6	BY6	Kresna gorge	x	x	x	x	x	x						
Y1		Kresna gorge	x	x	x	x	x	x						
Y8		Kresna gorge			x	x								
Y2		Kresna gorge			x	x								
	CZG	Croatia			x	x								
	BY3	Kresna gorge			x									
K52	K52	NP-Sinite Kamuni			x									
XN	XN	NP-Sinite Kamuni		x										
Y4 (M)	BY4	Kresna gorge	x		x		x	x	x	x		x	x	x
K88	K88	NP-Sinite Kamuni				x								
T10	3E9-HB	Israel				x								
K9C	K9C	Kresna gorge				x	x	x						
39	SC8	Serbia					x	x	x	x				
	CZI	Croatia					x							
JO9	HB2	Israel					x							
T84	H21	Israel					x							
	CZB	Croatia					x							
	BY1	Kresna gorge												
V1		Kresna gorge						x	x					
Y9	BY9	Kresna gorge						x						
K9A	K9A								x	x	x	x	x	x
C5	BC5	Kresna gorge							x					
47	SF9	Serbia							x	x				
4Y		Eastern Rhodopes							x					
8F	B8F	Eastern Rhodopes								x				
17		Serbia										x		
45		Kresna gorge										x		
38		Serbia										x		
	CC6	Croatia										x		
18		Serbia										x		
10		Serbia										x		
04		Serbia										x		
	FD7	Italy										x		
24		Serbia										x		

Attracted in Kresna Gorge exogenous marked griffon vultures in 2020.

Visitors to the Kresna Gorge feeding site



CYY



CZG



CZI



K9A, 04, 18, 10, 24, T59



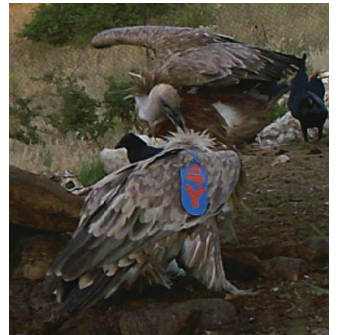
38, 39



3F



3F



4Y



J09



T84



FD7

## Breeding

Several pairs demonstrated breeding behaviour in 2020. Two of them laid eggs and hatched young successfully, and a third pair was also observed, but the breeding success was unclear due to specifics of the breeding niche, which complicated the observation.

The pair **S** and **O** disappeared before the breeding season, and we assume that they have made a breeding attempt in Macedonia, which was obviously unsuccessful, as they returned in Kresna gorge in mid-March .

Of all breeding birds in 2020 only **78** was a marked bird. In July we have captured and mark an individual with characteristics of immature bird, but later it was identified as one of the vultures from the local breeding pairs.



*The two successful nests with chicks*



*Juvenile before the first flight*

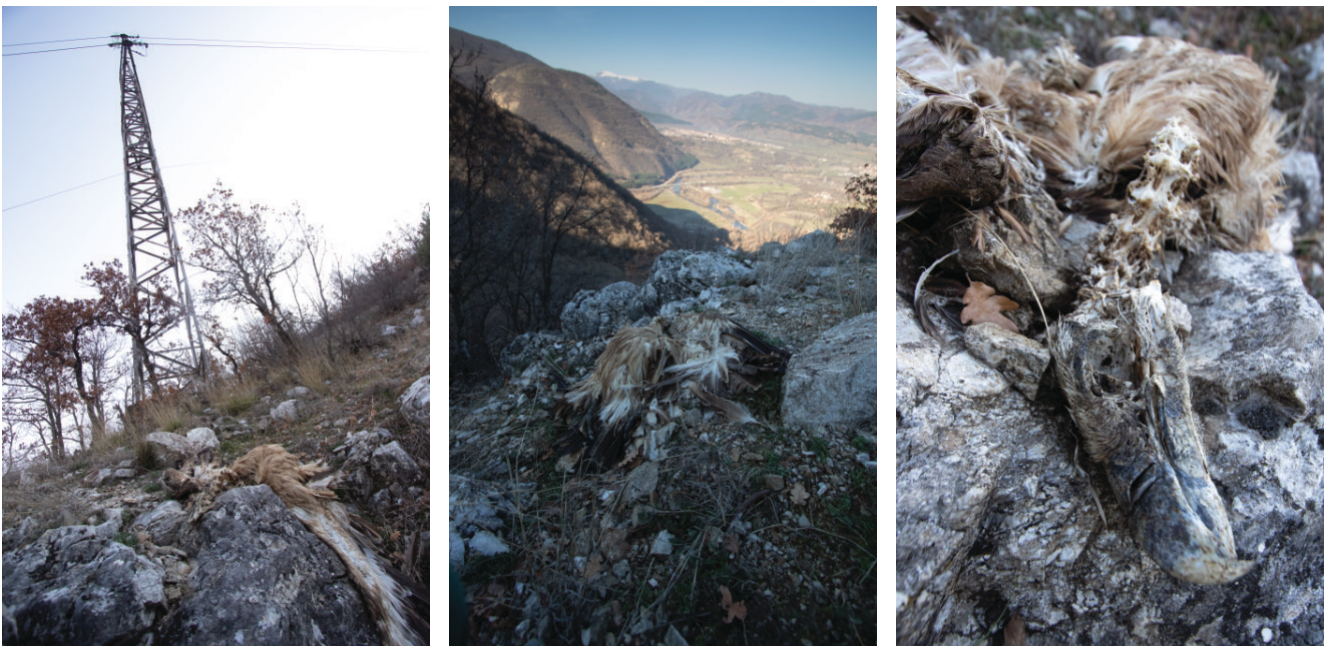


*One of the juveniles, hatched in 2020 in the Kresna Gorge*

## Mortalities and misfortunes

On February 27, 2020, **v9** was found under an electric pole near the village of Chomakovo in the Eastern Rhodopes.

On March 20, we received information about the carcass of a griffon vulture under an electric pole. We found the carcass of a immature griffon vulture.



On May 7, we received a signal for remains of a griffon vulture carcass in the Kresna Gorge, we found a wing with a wing tag **C4** and one leg. When inspecting the area and checking the transmitters in the area and where the birds landed in the recent days, we found the remains of sheep but we were unable to find evidences for possible connection of the carcass and the vulture's death.



All vultures with transmitters and the nesting birds were alive. A week later we received a call for another remains of a corpse one km in a straight line from the first, but unfortunately only a few bones and feathers were left on the terrain. We have not seen few of the marked vultures since this incident.



The vulture **BY7** was caught and released with a transmitter on 03.06.2020. A few days before we noticed that the bird demonstrates untypically calm behavior even when approached. After placing the vulture transmitter, we found that it continued to behave unusually, staying in one place for a long time. **BY7** went to Macedonia and then to the Greek part of the eastern Rhodopes, on 13.07.2020 the transmitter signaled that the bird was not moving again and the temperature dropped. We gave the information to colleagues from Greece working with anti-poisoning dog. The bird was found dead, but the lack of any poisoning signs suggests, that intoxication occurred elsewhere, before the marking of the bird. death of the vulture and its strange behavior are the result of poisoning before its marking.

Griffon Vulture **V7** was found dead on September 9th under an electric pole in the Kresna Gorge. The bird had been released shortly before the incident, but due to lack of experience, it landed on inappropriate place.



## Other species

The griffon vultures presence and the feeding site continuously attract other rare and threatened species in the area like Eurasian black vulture (*Aegypius monachus*) and the Egyptian vulture (*Neophron percnopterus*).



Three species of vultures photographed for the first time together on the feeding site in the Kresna Gorge

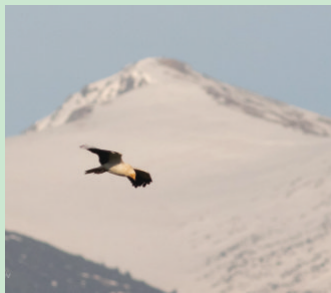
### Eurasian Black Vulture *Aegypius monachus*

Four individuals visited the Kresna gorge and ate at the feeding site during the summer months of 2020. Two of them E6 and M4 were tagged in The Dadia-Lefkimi-Soufli Forest National Park in Greece.



### Egyptian vulture *Neophron percnopterus*

Four Egyptian vultures (two immature and two adults) remained in the Kresna Gorge for different periods in 2020.



Lesser spotted eagle (*Clanga pomarina*)

## Urgent Conservation actions

As such actions we recognize those providing an immediate effect and are not necessarily sustainable, but slow population decline of a threatened species. Such actions may be implemented for endangered species to support them to reach at least a better conservation status or until any sustainable and long-term measures produce results. We recognize these to be the supplementary feeding of vultures, to minimize dispersal and avoid poisoning. Nest guarding to ensure safe reproduction, brood management and captive birds release to increase recruitment, insulation of dangerous power-lines, intensive intimate tracking of vultures to detect and prevent poisoning etc.

### Feeding

The Covid-19 outbreak and the African swine fever largely complicated the providing of food to the feeding site in 2020, but despite of the difficulties we continued to organize intensive feeding of vultures at minimum 3 to 4 times per week (and every time upon availability of carcasses – sometimes up to 7 days a week). More than 38 tons of carcasses were deposited in 153 deliveries at the feeding site in 2020.

A new feeding site was built in Rila Monastery Nature Park and FWFF provided two feedings per month from May to October there.

A new feeding site was built near the village of Stara Kresna, the construction work was carried out by Green Balkans. In 2020, only a few test feeds were made there.

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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	total
Feeding events	11	14	8	13	14	16	14	13	13	13	11	13	153
Amount of food in kg	2850	3270	2090	3700	3620	2510	3960	3700	4910	1850	2120	3710	38290

Number of feedings and amount of food provided by FWFF in Kresna Gorge in 2020.

## Insulation of dangerous power-lines

In 2020, two power lines of 5 km. each were isolated by CEZ Electro Bulgaria together with BSPB in the area of the Kresna Gorge.



Reintroduction of the griffon vulture in Kresna Gorge of Struma River, Bulgaria, Annual Report 2020

## Long-term Conservation Actions

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

### Restoration of food source for vultures

The attempts for reintroduction of the Fallow deer (*Dama dama*) in the area continued as in 2020 another 12 deer were released in 2020 and are now free ranging.



FWFF continues to keep a herd of Rhodope Short Horn Cattle in Kresna Gorge. The herd is doing well and increasing. More and more farmers are now interested to start to raise this breed, as it is proven very adaptable and good for the area (in terms of forage use and predators protection).



## Against poison activities

The compensation programme and the public awareness activities are continuing although less reports and claims are received, probably due to on the increase of the professionally run livetsock breeding compared to the widely distributed small-scale one in the previous years.

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

The existence of an aviary with griffon vultures inside, placed just at the feeding site effectively attracts wild and already released reintroduced vultures and this is a way of keeping them away of occasionally present and potentially dangerous (poisoned) food.



## Overview

In 2020, a new nucleus of breeding pairs was formed, With the successful reproduction of two possibly three pairs

The releases of immature Griffon vultures should continue with at least 10 birds per year until natural colony is established and begin to produce at least ten juveniles per year. However, the area, having a central place in Balkan Peninsula and although keeping small breeding nucleus is still important as a summering, on-passage and wintering site for the species.

As much as possible 20 kV power-line pylons should be safeguarded for birds in Kresna Gorge.

The actions for establishment of wild population of Fallow deer and establishment of extensive raised sheep and cattle herds should continue. The wild nucleus of Fallow deer should now be shortly supplied with some more animals until they reach at least 30 females.

Feeding sites in the high mountain areas of Rila and Pirin National Parks should be established, as these areas are obviously preferred by the vultures in summer, and lesser risk of poisoning or electrocution exists there.

The poisoning is still hard to control along Struma Valley and this will be probably a long-term problem, caused by the co-existence of people and predators in the area. Therefore feeding of vultures on established feeding sites still is a must, while any actions for minimizing the poison baits use are underway as permanent and long-term measures.



## Acknowledgements

The conservation work and monitoring of the vultures continue under the LIFE project “Bright future for the Black Vulture” LIFE14 NAT/BG/649, financed by the LIFE+ financial instrument of EU. The Project aims the reintroduction of the Black Vulture (*Aegypius monachus*) in three different sites of Bulgaria and the Kresna Gorge was one of the target sites. However, due to the poisoning incident in March 2017, the release of Black Vultures in this particular site will be postponed for uncertain period of time. The monitoring of vultures and other related species is performed under Action D2 of the Project.

Coordinating beneficiary of LIFE14 NAT/BG/649 project is Green Balkans NGO, while FWFF is one of the associated beneficiaries. The FWFF is in charge with the actions in Kresna Gorge and Kotlenska Planina (Kotel Mountain). The other associated beneficiaries within the Project are Vulture Conservation Foundation (VCF), Junta de Extramadura and EuroNatur. Additional financial contributors of the Project are BIOPARC Zoo de Doue, Naturschutz-Tierpark Görlitzland and Sainte Croix Zoo from France.

At the pre-release stage the project was financially supported by:

Deutsche Bundesstiftung Umwelt (DBU), Frankfurt Zoological Society (FZS), Foundation Ensemble, Rufford Small Grants (RSG), Whitley Fund for Nature (WFN), Black Vulture Conservation Foundation (BVCF), EAZA Carnivore initiative and others.

We are grateful to GREFA and Spanish Government as well as Hegalaldia Wildlife Center and French Government for the rehabilitated Griffon vultures provided for release.

We are grateful also to Bioparc Zoo de Doue, Zoo Mulhouse, Zoo Sainte Croix, Allwetterzoo Münster and Paris Zoo from France as well as Barcelona Zoo from Spain for the provided captive bred Griffon vultures for release.

We are also grateful to all colleagues and nature lovers that provided information for observed Griffon vultures: Blagoi Stefanov- Mayor of Brezhani; George Stoyanov - BPPS; Emanuel Lisichanets- NCA Aquila, Kavardarsi, Northern Macedonia, Elena Kmetova- Green Balkans; Lachezar Bonchev - FWFF; Theodora Skartsi - WWF Greece; Sylvia Zakkak - Dadia National Park authority, Greece; Volen Arkumarev - BSPB/BirdLife Bulgaria; Marin Kurtev - Priroda Madjarovo Ltd.; Club SKOREC- Faculty of Biology/Sofia University; Rosen Aleksov - RIEW Blagoevgrad; Goran Susic - Grifon - Birds of prey conservation centre, Croatia; Sasa Marinkovic - Birds of Prey Protection Fund, Serbia, Ohad Hatzofe - NPA, Israel, Rigas Tsiakiris, Greece, Hans Wilpstra - EcoLife Bulgaria Ltd. and many others

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