Re-introduction of the Griffon Vulture *Gyps fulvus* in Kresna Gorge of Struma River, Bulgaria

Annual Report for **2019**

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"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

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Abstract

This is the **tenth year** of the griffon vulture *Gyps fulvus* reintroduction into the Kresna Gorge, which has begun 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 catastrophic poisoning incident from March 2017 the colony of the griffon vultures in the Kresna Gorge in 2018 started to recover and this recovery and increasing continued throughout 2019 too. The local group ranged between 35 and 50 birds, reaching over 70 in the end of 2019. 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.) On 25-th November 2019 were counted 74 griffon vultures roosting in the Kresna Gorge – a new absolute record for the area of simultaneously observed individuals of the species.

2.) Breeding of griffon vulture in the Gorge was not proven, but at least two pairs with birds from Krensa Gorge bred somewhere else (probably Demir Kapia in North Macedonia) still keeping the connection with the Gorge and frequently feeding at the feeding station.

3.) The exchange of individuals between the colony of the species in Demir Kapia – North Macedonia and the Kresna Gorge continued – in conjunction of the consideration that the two sites are parts of a common sub-population;

4.) Over 100 Griffon vultures not-released within the project – so called "guests" have visited

the Kresna Gorge for a certain time of the year. Thus, together with the ones released in the project, the total number of griffon vultures registered in 2019 in the Kresna Gorge exceeds 100 individuals;

5.) For the seventh consecutive year Eurasian black vulture (*Aegypius monachus*) were observed in the Kresna gorge.

In 2019, marked griffon vultures from Israel, Greece, Serbia, Croatia 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 and Yemen as well as in other parts of Bulgaria (Vrachanski Balkan, Sinite kamani, Kotel and Eastern Rhodopes).

This year again the griffon vultures from Kresna Gorge were observed during the hottest months of the year in the high parts of Rila and Pirin Mountains.

Vulture feeding site maintenance continued in 2019 with over 46.5 tons of carcasses in 165 feeding events, an average of 13.75 per month. 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 Goberno de Extremadura, and co-funded by the French zoos' conservation foundations - Bioparc de Doue and Sainte Croix and the Irish Trust "The Nelson Settlement" from Dublin.

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

Transfers

No vultures were imported for reintroduction in 2019.

Releases

In 2019 griffon vulture **V5** were rereleased in Kresna Gorge with GPS transmitter on 12th February.

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 2019 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 2013-2019.

We continue to use local people and tourists' reports about observations of vultures to keep track on vultures' whereabouts in the area. In 2019, the initiated a year earlier Facebook request for people who visit the mountains to report their sightings and pictures of the vultures, was again in use.

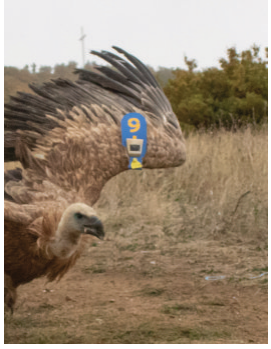
Determination of different individuals

We continued to photographs all observed birds, and to use "***visual marking***" method (Stoynov, Peshev et al. 2015). We made several thousand photographs of Griffon Vultures, but also of Black Vultures, Egyptian Vultures, Eagles and others mostly in flight with the goal to determine the different individuals.

The Griffon Vulture 56 still recognized by "visual marking" method although lost its wing-tag and ring.

GPS/GPRS tracking

In 2019 we fitted with GPS/GSM transmitters one more released within the project vultures and two wild-caught. We continue to use and further develop the *patagial* tag produced by Ornitela Ltd. http://www.ornitela.com/patagial-transmitter .



The patagial GPS/GPRS transmitter for griffon vulture.

The action is considered more as a tool to avoid poisoning of large groups of birds and finding the poison baits and perpetrators, then just establishing the home-range or migration routs, that is why very frequent data logging was elaborated (such as taking GPS fixes every 5 to 10 minutes and logging the data every 1 to 4 hours). For the purpose of PR we use the term "poison-detectives" for the birds equipped with transmitters (Stoynov, Peshev & Grozdanov 2018).

This year we continued to use a camera trap to the feeding site and counted and recognized the present individual griffon vultures. We succeeded to take pictures of vultures that we were unable to recognize from a distance.

Marking of wild vultures

To establish the origin of wild griffon vultures present in Kresna Gorge as well as to follow with which age groups the released Project birds are dispersing we capture and mark the birds on passage through a hole in the aviary's roof mesh in a manner described by (Iezekiel, Woodly & Hatzofe 2003). Blue wing-tags and green rings were used, as well as GPS/GPRS tags, when available. When captured the age of the bird is established according to the moult pattern (Zuberogoitia et al. 2103). The following birds were captured and marked and released on the date accordingly:

C5 - BC5 - 7.02.2019
45 - 03.07.2019
B73 - 03.07.2019
C4 - 03.07.2019
V1 - 03.07.2019 - found dead in the Eastern Rhodopes (information: Volen Akumarev).
12 - K9U - 03.07.2019
Y5 - BY5 - 1.11.2019 - GPS transmitter
Y6 - BY6 - 1.11.2019 - GPS transmitter

On October 30, we helped with the tagging of two vultures in Macedonia. Sunchica (C7 - M13) and Svetislav (C5 - M17).

Results

In late 2019 the number of griffon vultures in Kresna Gorge reached 74 individuals. Many wild ones ("guests") joined the colony for the winter. Two pairs expressed breeding behaviour, but only one (B34-0 x B95-5) tried to laid egg.

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 breeding birds in Demir Kapia were coming to take food at the feeding site in Kresna Gorge.

Marked birds from Israel, Greece, Serbia, Croatia and other parts of Bulgaria have been observed. Birds released in Kresna Gorge were observed in Serbia, Greece 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 hottest summer months in Pirin National Park and sometimes in Rila National Park.

Numbers of griffon vultures and black vultures observed in Kresna Gorge in 2019 by months.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number Identified Griffon vultures	11	13	14	16	26	20	17	15	13	12	24	24
Number of Griffon vultures observed at once (max.) at the feeding or roosting site	52	52	51	49	56	51	48	44	38	44	74	74
Number of Eurasian Black Vultures						1				1		

Mortalities and misfortunes

V1 - Griffon Vulture found dead in the Eastern Rhodopes in January 2019 (information: Volen Akumarev) .

Griffon Vulture **V8**I was found dead under an electric pole in the Kresna Gorge. The necropsy showed that there was a collision.

Whereabouts of some of the marked birds

HJ, V9 January 05

V8 , **B76** , **12** , - Uvac - June

45 - 28.07.2019 National Park Cozia, Romania

S89 Uvac - August

B73 - Uvac - August and October

V5 - Eastern Rhodopes - September

45 - Eastern Rhodopes - October,

V2 - Vrachanski Balkan - 21 May

T20 - **H00 -** Eastern Rhodopes - October

T20 - **H00** - Uvac - October

T21 - - Vrachanski Balkan - 05 April

Griffon Vulture **45** - 28.07.2019
National Park Cozia, Romania

C2 - Nelson - Yemen

The immature griffon vulture Nelson **C2** (2018) was equipped with satellite transmitter, wing tagged and ringed in Kresna Gorge. Its journey brought our team (on Google maps) to Arab Peninsula. We have received frequent data from Saudi Arabia, but as soon as the bird entered Yemen it stopped. Later on, the bird entered Saudi Arabia again and we have received all the locations from the last 15 days and found out the vulture had been mainly wandering around Sanaa. In November it came back to Yemen eventually and we lost contact, until ...

On 5th of April 2019 we have received hundreds messages and e-mails from Yemenis, who were very concerned about welfare of a caught Griffon vulture. It appeared from the pictures sent, it is Nelson- **C2**. The bird fell down in the vicinity of city of Taiz and local people took care of it. We were updated about Nelson location and condition, thanks to all wonderful people, who were so much in the story and do care for bird's survival, although the current military situation they are facing in Yemen.

Our team got into contact with local nature conservationists there. Considering the unsafe situation because of Yemen's civil war and Yemeni people has also witnessed two outbreaks of cholera and acute watery diarrhea since 2016, the chance to support Nelson was limited.

Meanwhile the vulture has been captured by a militia in Yemen who feared the migrating bird was a spy, because of the GPS tracker attached to the wing. The pro-government force that runs Taiz and has defended it from the Iranian-backed Houthi rebels decided that the tag, which was fitted with GPS location services so it could be monitored, was a Houthi spying device.

First help came from Mr. Pierre Gay, director of Bioparc Zoo De Doue in France http://www.bioparc-zoo.fr/en/, who has been providing long-term support to Fund for Wild Flora and Fauna in Bulgaria, but also to a Yemeni NGO One World Actors Animal Rescue, which normally tries to engineer the rescue of animals from zoos in war-torn locations. Mr Al-Hoot from One World was recruited to help, but first he has to travel about 12 hours from Sanaa to Taiz, on a dangerous route.

Mr Al-Hoot has spent ten days in Taiz, has been trying to convince a militia in Yemen to release the vulture. He was allowed to provide food to Nelson daily, waiting for militia's decision meanwhile.

FWFF and Green Balkans, running The Bright Future for Black Vulture LIFE14 NAT/BG/649 Project, have contacted and asked for political support from international organizations and embassies.

Finally, the help came from Mr Ben Keatinge, the Nelson Settlement Trust in Ireland, who succeeded to attract international attention and media. As a result Mr Al-Hoot has been given the tag by General Abdu Farhan al-Makhlafi, the commander of the base where the vulture is being held, who is better known by his nom de guerre General Salem. Nelson, however, was still in custody.

Fortunately, on April 16, Nelson has been released from jail. He has been transported from Taiz to Sanaa and has had a full veterinary assessment which indicates a number of health issues which will need 5-6 weeks rehabilitation.

The organization on the ground rehabilitating Nelson needs funding urgently.

Their webpage is: https://www.oneworldactorsanimalrescues.org/

Conservation of vultures in the Balkans requires endless efforts and lots of energy. If you like to help and donate, get informed about FWFF projects and activities on www.fwff.org

People from FWFF and Green Balkans feel a deep gratitude for all the help from Yemeni people, who have contacted and alarmed us! We are deeply indebted to Mr Al-Hoot and Kim-Michelle Broderick from One World Actors Animal Rescue, Mr Pierre Gay, Mr Ben Keatinge, Hafeda and Yemeni Embassy in Bulgaria.

For more information from different points of view watch and read:

Arabic TV with Nelson's rescuer Hisham Al- Hoot:

https://www.youtube.com/watch?v=bjpjrIGCKcc&feature=share

The Times:

https://www.thetimes.co.uk/article/nelson-the-wayward-vulture-held-as-enemy-spy-by-yemen-wg6rqq957

BBC: https://www.bbc.com/news/world-middle-east-47974725?fbclid=IwAR1U-MFWHDM-afbn9oVsQn3de4wxzPBrzv_gDjUN_NuamWrpL-tPnBT_yzY

The Daily Mail: https://www.dailymail.co.uk/news/article-6931217/Migrating-vulture-seized-SPY-militants-Yemen.html

The Sun: https://www.thesun.co.uk/news/8884663/yemen-fighters-vulture-nelson-hostage-spy/

The Australian: https://www.theaustralian.com.au/world/the-times/winged-spy-nelson-a-hostage-to-paranoia/news-story/fb1e5593a6a2b99cfaffc9d4018cfc38

Darik radio: https://dariknews.bg/novini/liubopitno/nash-leshoiad-zadyrzhan-za-shpionazh-v-jemen-snimki-2160593

Breeding

After the first successful reproduction of two pairs in Kresna Gorge in 2016, the 2017 was unsuccessful due to the poisoning incident in March 2017, where all breeding pairs were poisoned or destroyed. From about 16 known breeding birds in 2017, only 3 survived the poisoning – B95-5; B61 and B34-0. In February 2019 B34-0 and B95-5, occupied their nest. They left it a week later and moved to another place. The birds used to visit the feeding site on different days in the coming months, its very likely that they have successfully nested.

Pair of griffon vultures.

Attracted exogenous birds

From the >70 recognised exogenous griffon vultures that visited Kresna Gorge in 2019, eleven were marked and their origin established. Details follow:

Attracted in Kresna Gorge exogenous marked griffon vultures in 2019.

	wingtag	ring	origin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	B76	B76	Eastern Balkan	X	X										
2		CYY	Croatia	X	X	X	X	X						X	X
3	T10	3E9-HB	Israel					X	X						
4	T59	H20	Israel					X			X	X	X	X	X
5	T20	H00	Israel					X	X	X					
6	B73							X		X					
8		SA1	Uvats, Serbia						X						
9	T73		Israel								X	X		X	X
10	M3	KY7	Greece										X	X	X
11		CZC	Croatia											X	X
12	C7	M13	N. Macedonia											X	X

Unmarked adult Griffon Vultures

Other species

The griffon vultures presence and the feeding site became a reason for attraction and observations of other rare and threatened species in the area like Eurasian black vulture *Aegypius monachus*.

Eurasian Black Vulture *Aegypius monachus*

One of the three released in Balkan Mountains in summer 2018 Eurasian black vultures – named "Riga", overnight in the Kresna Gorge on on passage to wintering grounds in Greece (21 October 2019) and was well tracked and followed due to its GPS transmitter.

Black vulture Chrysoula **E0** tagged by Dadia Management Body in 2017. Chrysoula. Spent one day in Kresna gerge , and and fed on the feeding site. She was returning from the Carpathians in Romania where she spent more than a week. Chrysoula seems to be a traveller since earlier this year she also visited south Greece, Albania, North Macedonia, Serbia and Central Balkan Mountain in Bulgaria.

White-tailed eagle
Haliaeetus albicilla
7.01.2019

Golden eagle
Aquila chrysaetos
21.01.2019

Black kite
Milvus migrans
12.04.2019

Urgent Conservation actions

As such actions we recognize those providing an immediate effect and are not necessarily sustainable, but increasing the extinction time of a threatened species. Such actions may be implemented for endangered species to support them increase at least to a better conservation status or until any sustainable and long-term measures produce results. We recognize these to be 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 intime tracking of vultures to detect and prevent poisoning etc.

Feeding

In 2019 we continued to organize 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 46 tons of carcasses were deposed in 164 events at the feeding site in 2019. When larger animal corpse was available during the summer months, meat was preserved in a freezer and disposed in smaller quantities more frequently. In addition to the vultures' feeding Programme of FWFF in Kresna Gorge, food was provided to Viatchevo vulture feeding site in FYR Macedonia, by the Nature Conservation Association "Aquila". Food was provided two to three times per month which turned to intensification of occasional foraging movements of small groups of vultures between the two feeding sites. In the table bellow could be seen the frequency and amounts of food deposited to the feeding site near the village of Rakitna in Kresna Gorge. Also the numbers of the vultures present in the area.

Number of feedings and amount of food provided by FWFF in Kresna Gorge in 2019.

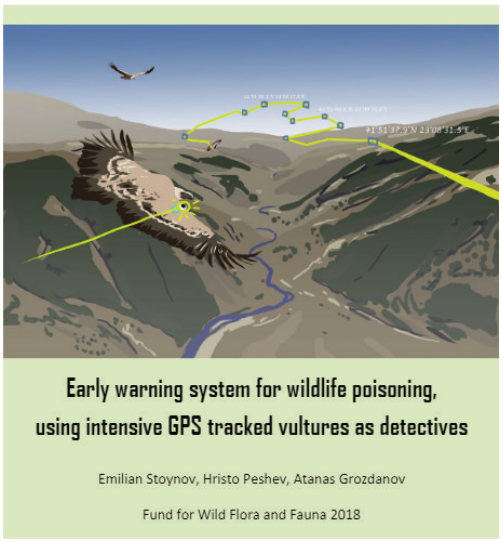
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	total
Feeding events	13	16	18	17	22	11	11	11	13	10	11	11	164
Amount of food in kg	3820	3420	5100	5720	4960	2610	2700	1970	3860	3370	4070	4400	46350

Insulation of dangerous power-lines

No addituinal power poles were secured in 2019.

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

A Manual for establishing and use 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). Despite the Anti-poison Dog Units might be good tool to check certain area for poison baits and/or dead animals, there is need of some preliminary information for the general location of the poisoning event. This preliminary information could be received from local people's or tourists' reports, but the best option would be to keep certain number of "poison detectives" among the vultures in the local community – such equipped with last generation GPS/GPRS transmitters. The transmitters should be checked from a person called "Alarmist" from the local conservation entity in the internet platform minimum once a day in periods with lower vultures' activity (e.g. winter or prolonged periods of poor weather). While in case of periods with high vultures' activity, in good sunny or clear windy days, there should be checks of minimum twice a day. In situations with received some information or signs of poisoning, the transmitters should be set up to provide data up to every 10 minutes and the internet platform with the data form the transmitters should be observed permanently. This option should be used to establish a potential poisoning even and to send a field team (ideally an Anti-poison Dog unit) to check and eventually destroy the bait and provide first aid to poisoned animals.



BRIGHT FUTURE FOR THE BLACK VULTURE

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 rarely are regarded 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 action for reintroduction of the Fallow deer (*Dama dama*) in the area continues as in 2019 the entire herd of more than 20 animals was released and is now free ranging. The first results show the animals are adapting well to life in nature and they can afford the dogs' and wolves' attacks. The only problem still remains the poaching, but so far the most of local people and authorities are supportive to the initiative and this prevents any illegal attempts.

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, while it proven very adaptable and good for the area (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, may be based on the increase in professionally run livetsock breeding compared to some year sago when most holdings were village and amateur. 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 with wolf 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 of occasionally present and potentially dangerous (poisoned) food.

Overview

In 2019 following the poisoning of the colony in Kresna Gorge in 2017 the colony is recovering and the permanent presence of more than 40 birds is again seen. Reproduction of at least one pair was successful once again. About 46 tones of food are disposed annually to the feeding site.

Kresna Gorge' griffon vulture colony is re-established and the Social memory saved. The colony now is integrated to Demir Kapia colony and both form a common griffon vulture population of Northern Macedonia and SW Bulgaria (probably from now -on will be called Vardar-Struma subpopulation).

The releases of immature Griffon vultures should continue with at least 10 birds per year until natural colony is established and begin to produce by 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.

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 et 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 obviously always be the case until people and predators share the same habitat. Thus feeding of vultures on traditional feeding sites still is a must, while any measures 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 and Sainte Croix Zoo from France and Nickelson Trust from Ireland.

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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, Kavadartsi, 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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