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

Annual Report 2014

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Fund for Wild Flora and Fauna
"Conservation of Birds of Prey in Kresna Gorge, Bulgaria" LIFE11 NAT/BG/363

Recommended citation:

PESHEV, H. & E. STOYNOV. (2015): Re-introduction of Griffon Vulture *Gyps fulvus* in Kresna Gorge of Struma River, Bulgaria, Annual Report 2014**,** Fund for Wild Flora and Fauna, Blagoevgrad.

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ID Number 101523620

Annual bulletin published by the Fund for Wild Flora and Fauna © 2011-2015.

ISSN 1314-9814

Резюме

Това е отчетът за петата година от началото на реинтродукцията на белоглавия лешояд (*Gyps fulvus*) в Кресненския пролом, която беше започната в началото на 2010 и се изпълнява от Фонд за дивата флора и фауна.

През 2014 броят на белоглавите лешояди присъстващи в района продължи да се увеличава и бяха постигнати някои рекордни числености:
1.) Най-голям брой белоглави лешояди нощуващи в Кресненския пролом – 28 инд. на 02 октомври 2014;
2.) Най –голям брой двойки белогалви лешояди, демонстриращи брачно поведение – три двойки, от които две двойки бяха наблюдавани да копулират;
3.) За втора поредна година бяха регистрирани голям брой непуснатите в рамките на проекта белоглави лешояди - „гости", посетили Кресненския пролом за определено време през годината – над 70 индивида. Така отново заедно с пуснатите в рамките на проекта, общият брой белоглави лешояди регистрирани през 2014 година в Кресненския пролом доближава 100 индивида;
4.) За втора поредна година бяха наблюдавани черни лешояди (*Aegypius monachus*) да се хранят на площадката в Кресненския пролом и за първи път бяха категорично идентифицирани две разлчини птици от вида, едната от които е престояла в района минимум 5 дни.
5.) За първи път беше категорично установено хранене и престой на площадката и в района (23 дни) на царски орел (*Aquila heliaca*).

За поредна година бяха наблюдавани маркирани белоглави лешояди от Израел, Гърция, Сърбия, Хърватска и други части на България.
На свой ред индивиди пуснати в Кресненския пролом бяха наблюдавани в Сърбия, Италия, Гърция, БЮР Македония, както и в други части на България (Врачански Балкан, Сините камъни, Централен Балкан, Котел и Източни Родопи).

И тази година белоглавите лешояди от Кресненския пролом прекараха най-горещите месеци от годината във високите части на Рила и Пирин. Това освен от радио-предавателите, които носят някои от птиците, беше документирано и от туристи и парковата охрана в района на връх „Вихрен", „Кончето", „Тодорка", „Орлите" и „Спано поле" в НП Пирин.

През 2014 не бяха констатирани смъртни случаи на белоглави лешояди в района на Кресненския пролом, нито научихме за такива на птици пуснати по проекта.

Природозащитните дейности на ФДФФ в района продължават в рамките на проект „Живот за Кресненския пролом" финансиран от финансовия инструмент LIFE+ на ЕС и съ-финансиран от Клуба на приятелите на Зоопарк Виена, Австрия и Биопарк де Дуе, Франция.

Ключови думи: Белоглав лешояд, *Gyps fulvus*, Кресненски пролом, България, реинтродукция, черен лешояд, *Aegypius monachus*, царски орел, *Aquila heliaca*

Abstract

This is the Annual Report for the fifth year of the re-introduction of the Griffon Vulture (*Gyps fulvus*) in Kresna Gorge started by FWFF in early 2010. In 2014 the Griffon Vulture presence continued to increase in the area with record numbers of simultaneously present individuals at the roosting site - 28 on 02 October 2014 and again registered presence of more than 70 exogenous individuals for some time in different periods of the year. Thus in total nearly 100 different Griffon Vultures have been observed in Kresna Gorge in 2014 including released within the project, but also migrating, summering, wintering and vagrant birds form other parts of the Balkan Peninsula. Marked birds from Israel, Greece, Serbia, Croatia and other parts of Bulgaria have been again observed. Birds released in Kresna Gorge were observed in Serbia, Italy, Greece, and FYR of Macedonia, as well as other parts of Bulgaria (Vrachanski Balkan, Sinite Kamani, Central Balkan, Kotel, and Eastern Rodopi). This year the Griffon Vultures spent even more time in the National Parks of Rila and Pirin during the hot summer months, where they have been recorded by the transmitters they bring, but also they were directly observed and photographed by tourists and park authority in the area of Vihren and Todorka peaks, Koncheto, Orlite and Spano Pole in Pirin National Park.
This year for second year in a row, Black Vultures (*Aegypius monachus*) were observed in the area of Kresna Gorge. This time two different birds were photographed and their presence well documented.

For the first time feeding and presence for more than 15 days of an Imperial Eagle *Aquila heliaca* was documented at the feeding site and near by area in Kresna Gorge.

No mortality cases of vultures were recorded in 2014 in Kresna Gorge, nor for birds released within the project.

Conservation measures for improving the habitat for vultures in Kresna Gorge are still underway – providing food for the vultures, against poison activities, compensation for farmers and prevention programme against livestock depredation, eco-tourism promotion, insulation of dangerous power-lines, introduction of rare breeds of cattle, Fallow deer etc.

FWFF continues to work in the frame of the project “Conservation of birds of prey in Kresna Gorge, Bulgaria” supported by LIFE+ financial instrument of EC and co-funded by private donors as Friends of Vienna Zoo, Austria and Bioparc Zoo de Doue, France.

Key words: Griffon Vulture, *Gyps fulvus*, Kresna Gorge, Bulgaria, reintroduction, Eurasian Black Vulture, *Aegypius monachus*, Imperial Eagle, *Aquila heliaca.*

Transfers

In 2014 eight Griffon Vultures were transferred to Kresna Gorge. Two of them were rehabilitated birds from Spain (obtained with the support of Green Balkans) and five were captive born in French zoos as follows: 3 from Bioparc Zoo de Doue, 2 from Mulhouse Zoo and 1 from Sainte Croix Zoo.

One young male Black Vulture was provided by Bioparc Zoo de Doue for the Bulgarian captive breeding program, which was transferred by FWFF to Green Balkan's Wildlife Center in Stara Zagora in attempt to be paired with a female kept there.

Releases

In 2014 four Griffon Vultures were released in Kresna Gorge. Two of them were rehabilitated Spanish birds (B96-6 and B97-7), after three and four months of acclimatization released on 25 May 2014 and 26 June 2014. The other two were captive bred birds from Bioparc Zoo de Doue (B92-2) and Mulhouse Zoo (B91-1), which after three months of acclimatization were released on 26 June 2014.

B91-1 was recaptured on 19.07.2014 near Blagoevgrad, captured by local people. The other captive bred B92-2 was present at the feeding site for few days after the release and was no longer seen. B97-7 moved to Vrachanski Balkan soon after the release and was permanently present there until the end of the year. B96-6 adapted well and was permanently present in Kresna Gorge until the end of the year.

Figure 1. Releases and observations of the released in 2014 Griffon Vultures in Kresna Gorge

N	ID of the bird\ month	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	B91-1					x	recap					
2	B92-2					x						
3	B96-6					x	x	x	x	x	x	x
4	B97-7				x	VB	VB	VB	VB	VB	VB	VB

recap-means the bird was recaptured
VB- means moved to Vrachanski Balkan

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 2014 we continued to use blue wing-tags with orange (enlightened to "gold") inscription of single letter (common letters for the Cyrillic and Latin alphabets) or single digit from 1 to 9 for the released birds.

In 2014 all released and captured wild birds were equipped with green ring B91 to B98 and a single digit blue wing-tag with yellow inscription 1 to 8.

Figures 2, 3 and 4. The marking scheme for Griffon Vultures released in Kresna Gorge in 2013 and 2014



The marking pattern from the releases in 2012 and 2013 are still in use - the wing tags and the rings were set to create a unique combination – e.g. ring on left leg, wing tag on left wing, and opposite and/or crossed. We put two wing tags to one of the birds. Thus even if it is impossible to see the codes, one could recognize the bird only by the situation of the rings and wing tags. The records of the observed birds are made as the number of the ring is followed by the letter of the wing tag (M60-X or B31-U).

Because the release in March 2013 happened by accident, the birds got free with the existing wing-tags and rings with which they were received- 6 birds with blue wing-tags with vertical black inscription of three alphanumerical code as K44. Five birds bear blue wing tags with vertical yellow three alphanumerical codes as B61.

We fitted wild caught Griffon Vulture with GPS-GSM logger to check if and to what extend the wild vultures move and use the area compared to released ones. The tagged vulture soon after the release moved to Vrachanski Balkan and is still there.

We are using local people and tourists' reports about observations of vultures to keep track on vultures' whereabouts in the area.

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, as well to take pictures of Black Vulture (*Aegypius monachus*) and Imperial Eagle (*Aquila heliaca*) using the feeding site.

Figures 5, 6 and 7. Pictures of Griffon Vultures, Imperial Eagle and Black Vulture at the feeding site in Kresna Gorge taken by camera trap

Digiscoping and determination of different individuals

We continued to use digiscoping and took pictures of all observed birds with 400 mm Canon lenses and Canon 7D camera in RAW format. After that digitally enlarged on a PC screen and improved through *Adobe PhotoShop* we found the number of the photographed birds either pictured from a hide or in flight or anywhere.
We continued using the sophisticated "***visual marking***" method (Stoynov & Peshev 2014). We made several thousand photographs of Griffon Vultures, but also of Black Vultures, Imperial Eagles and others mostly in flight with the goal to determine the different individuals. After removing the inappropriate pictures, remained more than 3500, which were catalogued with *Adobe LightRoom*.

Marking of wild vultures

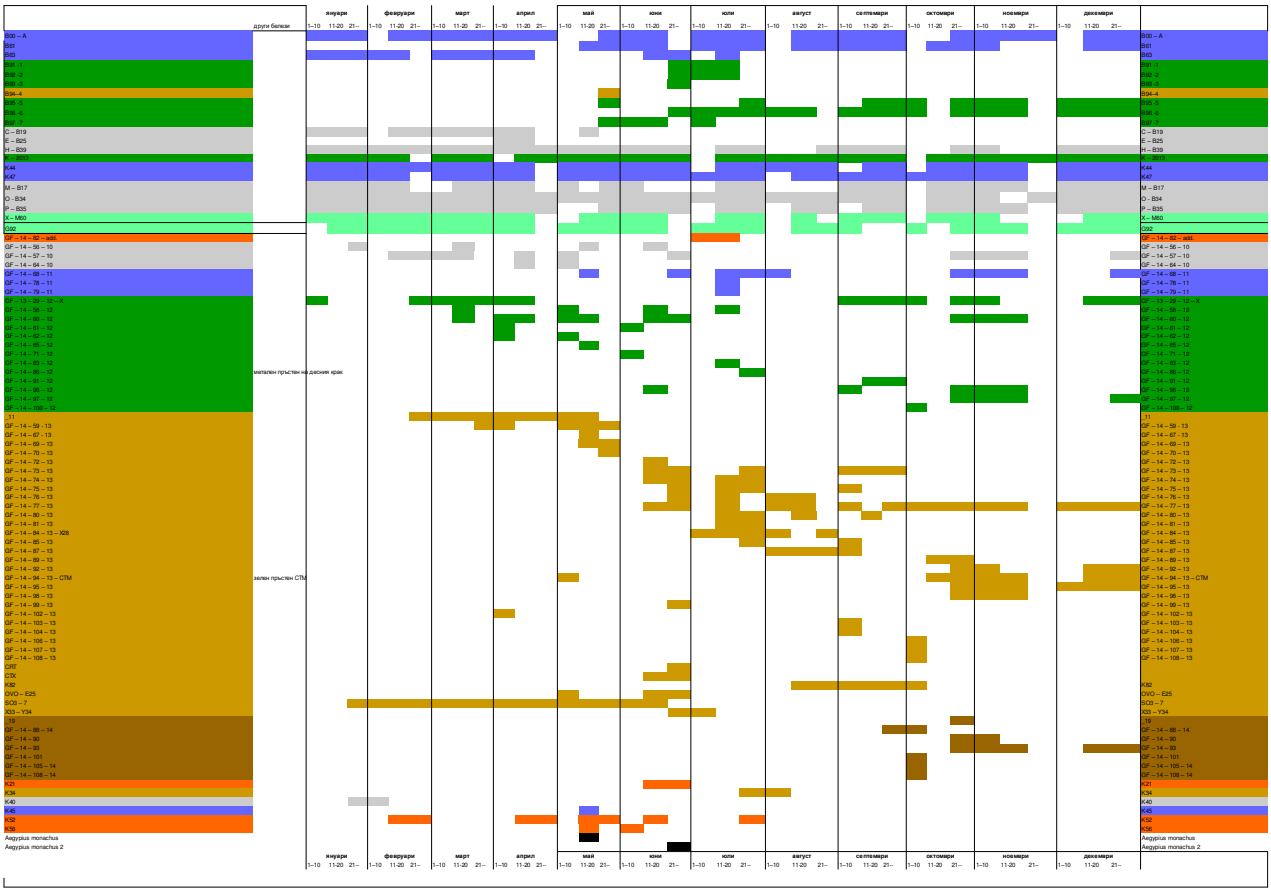
To establish the origin of wild Griffon Vultures present in Kresna Gorge as well as to follow with which age groups the released Project birds are dispersing we capture and mark the birds on passage through a hole in the aviary's roof mesh in a manner described by (Iezekiel, Woodly & Hatzofe 2003). Blue wing-tags and green rings were used.

Results

In 2014 the Griffon Vulture presence was stable in Kresna Gorge with record numbers of simultaneously present individuals at the feeding site - 28 on 2 October 2014 and wintering birds 21. The Registered presence of minimum 70 exogenous individuals for some time in different periods of the year resembles the results from 2013. Thus in total minimum 90 different Griffon Vultures have again been observed in Kresna Gorge in 2014 including released within the project, but also migrating, vagrant, wintering or summering birds form other parts of the Balkan Peninsula. Marked birds from Israel, Greece, Serbia, Croatia and other parts of Bulgaria have been observed. Birds released in Kresna Gorge were observed in Serbia, Italy, Greece, FYR of Macedonia, as well as other parts of Bulgaria (Vrachanski Balkan, Sinite Kamani, Central Balkan, Kotel, and Eastern Rodopi). This year the Griffon Vultures spent the hottest summer days in Pirin National Park, where they have been recorded by the tourists and Park officers.

To some extend the monitoring in summer 2014 was compromised by the rainy weather, but still high number of identified Griffon Vultures was achieved.

Table 2. *Presence and age structure of the present Griffon Vultures by ten days within the month (columns divided with solid vertical lines) throughout the year in Kresna Gorge in 2014*



Legend:

Grey – Subadults born in 2010; Blue – Immatures born in 2011; Green – Immatures born in 2012; Light brown – Immatures born in 2013; Dark brown- Juveniles born in 2014; Orange - adults

***Table 3**. Numbers of Griffon Vultures observed in Kresna Gorge in 2014*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of identified birds (Table 1 and 2)	16	18	20	24	34	40	36	19	26	37	26	22
Highest number of birds observed at once at the feeding or roosting site	14	17	13	17	17	16	20	16	19	28	25	21
Total number of recorded birds	**16**	**18**	**20**	**24**	**34**	**40**	**36**	**19**	**26**	**37**	**26**	**22**

***Figure 8**. Seasonal dynamics in numbers of Griffon Vultures in Kresna Gorge in 2014 (seen together)*

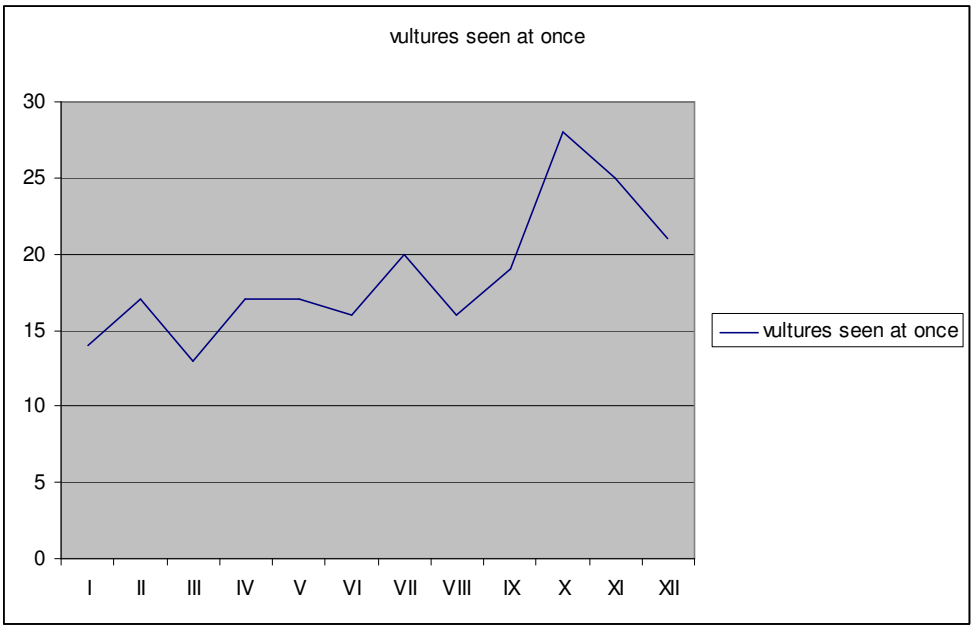
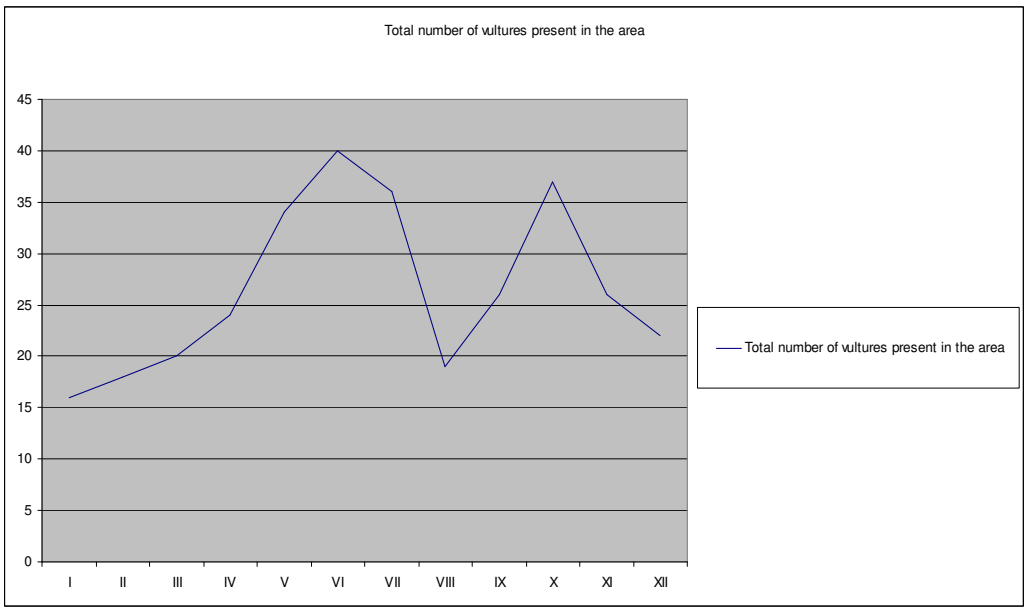


***Figure 9**. Seasonal dynamics in numbers of Griffon Vultures in Kresna Gorge in 2014 (all birds identified within the month)*



Mortalities and misfortunes

Fortunately, none were reported in 2014.

Dispersals and movements

B41-H was released in Kresna Gorge 22 October 2011 and moved away from the area shortly after the release, reaching Dadia in Greece. This bird moves a lot around the feeding sites on the Balkans. This year it was reported as follows: 21 Jan 2014- Sinite kamani Nature Park; 10 May 2014- Kotel; 17 May 2014- NE Italy (Fulvio Genero); 29 Jun 2014 – Vrachanski Balkan (Joro Stoyanov); 19 Jul 2014 – Madjarovo (Marin Kurtev); 22 Jul 2014 –Kotel (Lachezar Bonchev/FWFF); 16 Sep 2014- Madjarovo- breeding performance with yellow tagged partner K4A (M. Kurtev).

B17- M was released 25 June 2012 and was frequently present at the feeding site in Kresna Gorge. On 15.05.2014 was observed in Madjarovo (Marin Kurtev). Few days latter the bird has returned to Kresna Gorge.

B19- C was released 29 Jun 2012 and was frequently present at the feeding site in Kresna Gorge. On 30 May 2014it was reported from Uvac Gorge in Serbia (by Sasha Marinkovich). On 12 and 20 Jul 2014 – Vrachanski Balkan (by Joro Stoyanov/BPPS);

B34- O was released 25 Jul 2012 and was frequently present at the feeding site in Kresna Gorge. On 01 Jun 2014 was reported from Demir Kapia (by Metodia Velevski) and shortly after returned to Kresna Gorge;

B35- P was released 25 Jul 2012 and was frequently present in Kresna Gorge. On 10 May 2014 it was present at the feeding site in Vrachanski Balkan (by Joro Stoyanov). On 25 May 2014 was seen at the feeding site in Kotel (by Lachezar bonchev /FWFF). Three days later the bird has retuned to Kresna Gorge.

B25- E was released 25 Jul 2012, but was recaptured in November 2012 and released again 20 Feb 2013. This bird moves a lot around the feeding sites on the Balkans. This year it was reported as follows: 15 Dec 2013 – Studen Kladenets (Marin Kurtev); April 2014 – arrived to Kresna Gorge and was present until 08 Jun 2014. On 23 Nov 2014 it was reported from Uvac Gorge and Radojna in Serbia (by Sasha Marinkovich).

B61 was released 14 Mar 2012 and was frequently present at the feeding site in Kresna Gorge. From 22 Jan 2014 to 31 Mar 2013 it was frequently observed in Dadia (by Theodora

Skartsi/ WWF). On 12 May 2014 the bird returned back to Kresna Gorge to move again on 29 Jun 2014 to Vrachanski Balkan (by Joro Stoyanov) and returned back to Kresna Gorge in July 2014.

B97- 7 was released 28 May 2014 stayed for two weeks around the feeding site in the Gorge and on 29 Jun 2014 was reported from Vrachanski Balkan (by Joro Stoyanov) and until the end of the year was permanently observed there.

In 2014 the group of Griffon Vultures from Kresna Gorge was several times reported from and photographed in Pirin National Park. It seems the birds are moving there in the hot summer days of July and August to drink water and to benefit from carcasses of grazed on the alpine pastures livestock. A roosting site of a group of 14 birds was first time reported by the National Park officer Todor Georgiev. It is a historical roosting site for vultures in the area “Orlite” (1700 m) to the western foothills of Vihren Peak (2914 m).

The picture bellow was taken on “Koncheto” (2800 m) in Pirin National Park in August 2014 by Margarita Valkova - tourist in the area (shared through Facebook with the note that the vultures there were a “whole family”).

Breeding

No egg laying by Griffon Vultures has been registered in 2014 in Kresna Gorge.
However the 3 pairs of subadult birds started pair formation and breeding displays in February-March 2014. Some more new pairs formed of subadult birds were observed in December 2014 and all birds so far roost on cliffs in the Gorge and it seems that chosen nest sites are guarded.

In 2014 five pairs expressed breeding behavior. Here are the details:

Pair		Behavior observed	Period of the year	Notes
Male (year)	Female (year)			
G92 (2009)	B34-O (2010)	Flight displays+ Keeping territory +Copula	February – March 2014 and again in December 2014	
M60-X (2009)	B39-H (2010)	Flight displays+ Keeping territory +Copula	February – March 2014 and again in December 2014	
B61 (2011)	B19-C (2010)	Keeping territory and flight displays	February – March 2014	B19-C moved away from the Kresna Gorge in summer 2014 and has not returned for 2015 breeding season so far
B35-P (2010)	B17- M (2010)	Keeping territory and flight displays	December 2014	
K47 (2011)	K44 (2011)	Keeping territory and flight displays	December 2014	

Attracted exogenous birds

From the 70 exogenous birds that visited Kresna Gorge in 2014, sixteen were marked and their origin established. Three Griffon Vultures ringed in Serbia, three in Croatia, three in Israel, one in Greece and six from the re-introduction project sites in Balkan Mountain in Bulgaria were observed in Kresna Gorge in 2014.

G92 – a Griffon Vulture captured as juvenile near Nestos Gorge in Greece in 2010 rehabilitated in the Hellenic Wildlife Hospital and released back on the same place in 2011 (Theodora Skartsi – pers. comm.) was present frequently at the feeding site in Kresna Gorge since 14-th of June 2012 and it is since then frequently present and formed pair in the area with B34-O in 2014.

CTX – a Griffon Vulture ringed as a juvenile in the nest (2013) on Krk Island in Croatia (Goran Susic pers. comm.) was present at the feeding site in Kresna Gorge on 19 June 2014.

CRT – a Griffon Vulture ringed as a juvenile in the nest (2013) on Cres Island in Croatia (Goran Susic pers. comm.) was present at the feeding site in Kresna Gorge on 19 June 2014.

CTM – a Griffon Vulture ringed as a juvenile in the nest (2013) on Plavnik Island in Croatia (Goran Susic pers. comm.) was present at the feeding site in Kresna Gorge from 20 October until December 2014.

S03- 7 – a Griffon Vulture ringed as juvenile in the nest (2013) in Uvats Gorge in Serbia (Sasha Marinkovich, Irena Hrisbek pers. comm.) came in late October 2013, overwintered in Kresna Gorge, and left the area in June 2014.

S??- 11 – a Griffon Vulture ringed as juvenile in the nest (2013) in Uvats Gorge in Serbia (Sasha Marinkovich, Irena Hrisbek pers. comm.) overwintered in Kresna Gorge from February 2014 and left the area in May 2014.

S25- 19 – a Griffon Vulture ringed as juvenile in the nest (2014) in Uvats Gorge in Serbia (Sasha Marinkovich, pers. comm.) was present at the feeding site in Kresna Gorge on 20 and 21 October 2014.

OVO – E25 - a Griffon Vulture ringed in Israel in April 2014 (as wintering or on passage bird, born 2013) (Ohad Hatzofe, pers. comm.) was present in Kresna Gorge on 15-16.06.2014.

X33 – Y34 - a Griffon Vulture ringed in Israel in November 2013 (as wintering or on passage bird, born 2013) (Ohad Hatzofe, pers. comm.) was present in Kresna Gorge from 25.06.2014 to 05.07.2014.

X28 - a Griffon Vulture ringed in Israel in October 2013 (as wintering or on passage bird, born 2013) (Ohad Hatzofe, pers. comm.) was present in Kresna Gorge from July to September 2014 for and later again in December 2014.

K56 – an adult Griffon Vulture released in August 2012 in the frame of LIFE08 NAT/BG/278 from Sinite Kamani Nature Park (Eastern Balkan Mts., Bulgaria) was present at the feeding site in Kresna Gorge on 12 May 2014 and 8 June 2014.

K52 – an adult Griffon Vulture released in 2012 in the frame of LIFE08 NAT/BG/278 from Sinite Kamani Nature Park (Eastern Balkan Mts., Bulgaria) was present in Kresna Gorge from February 2014 to October 2014 with some gaps.

K45 – an immature Griffon Vulture released in May 2012 in the frame of LIFE08 NAT/BG/278 at Vrachanski Balkan Nature Park (Western Balkan Mts., Bulgaria) was present at the feeding site in Kresna Gorge on 17 May 2014.

K21 – an adult Griffon Vulture released in October 2010 in the frame of LIFE08 NAT/BG/278 at Central Balkan National Park (Central Balkan Mts., Bulgaria) was present at the feeding site in Kresna Gorge on 19 June 2014.

K34 – an immature Griffon Vulture released in the frame of LIFE08 NAT/BG/278 in Sinite Kamani Nature Park (Eastern Balkan Mts., Bulgaria) was present at the feeding site in Kresna Gorge on 26 July 2014.

K82 – an immature Griffon Vulture released in July 2014 in the frame of LIFE08 NAT/BG/278 in Sinite Kamani Nature Park (Eastern Balkan Mts., Bulgaria) was present at the feeding site in Kresna Gorge in the period August – October 2014.

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 Imperial Eagles *Aquila heliaca,* Greater Spotted Eagle *Aquila clanga* and two Eurasian Black Vultures *Aegypius monachus*.

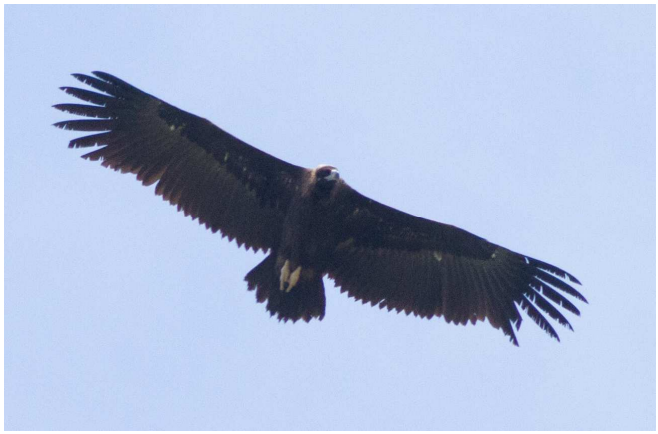
Eurasian Black Vulture *Aegypius monachus*

Two different Black Vultures were observed and photographed in Kresna Gorge in 2014, which is a record for the area and also their presence was increased in time from 3 to 6 days minimum.

An immature Eurasian Black Vulture (Figure 5) was observed and photographed on 19 May 2014 in flight with Griffon Vultures in Kresna Gorge.

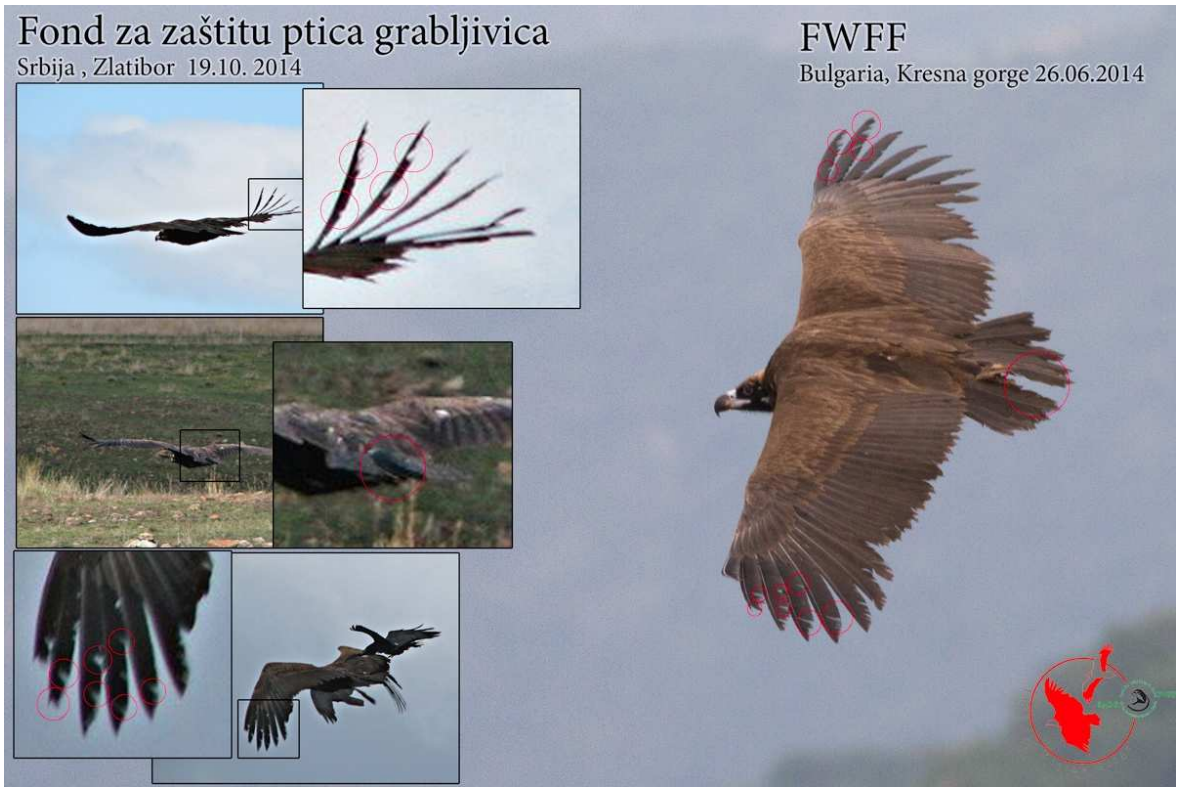
The bird take part in a feeding query with several Griffon Vultures at the feeding site near Rakitna in Kresna Gorge at noon and moved south around 2.00 p.m.

Figure 10. *Immature Eurasian Black Vulture in Kresna Gorge 19 May 2014.Picture by Hristo Peshev/FWFF.*



In the period 24-26 June 2014 an immature Eurasian Black Vulture visited the feeding site and fed on a goat carcass together with more than 20 Griffon Vultures. It is certainly different bird from the one seen on 19 May 2014, distinguished using the "visual marking" method (Hristov & Stoynov 2002, Stoynov & Peshev 2014).

This same bird was later reported from Zlatibor, Serbia on 18 October 2014 when it was photographed by local person and reported (19.10.2014) by Sasha Marinkovich on Facebook page of the Serbian Birds of Prey Protection Fund. We than analyzed the pictures (using "visual marking" method) and found out that this is the very same bird observed and photographed in Kresna Gorge on 24-26 June 2014.



Eastern Imperial Eagle *Aquila heliaca*

In 2014 Imperial Eagle presence at the feeding site and the near by area was well documented in Kresna Gorge. A bird of 3 cy, was first photographed at camera trap on the feeding site on 3 June 2014 and it stayed in the area for about 23 days, when entered the acclimatization cage. We released it after marking with yellow plastic ring with black inscription N7. Obviously the bird got stressed from this manipulation, and has not returned in the area afterwards.

***Figure 11**. Imperial Eagle at the feeding site in Kresna Gorge, picture by Hristo Peshev/FWFF*

Greater Spotted Eagle *Aquila clanga*

A Greater Spotted Eagle was observed and photographed at the feeing site in Kresna Gorge on 3 November 2014 afternoon. It was flying above the feeing site obviously interested from the food. Ravens heavily chased the bird when was in flight. This is the second record of the species in the area (Stoynov et al. 2014, Stoynov & Peshev 2012), and the very first ever photographed in Kresna Gorge. The picture was taken by Hans Wilpstra.

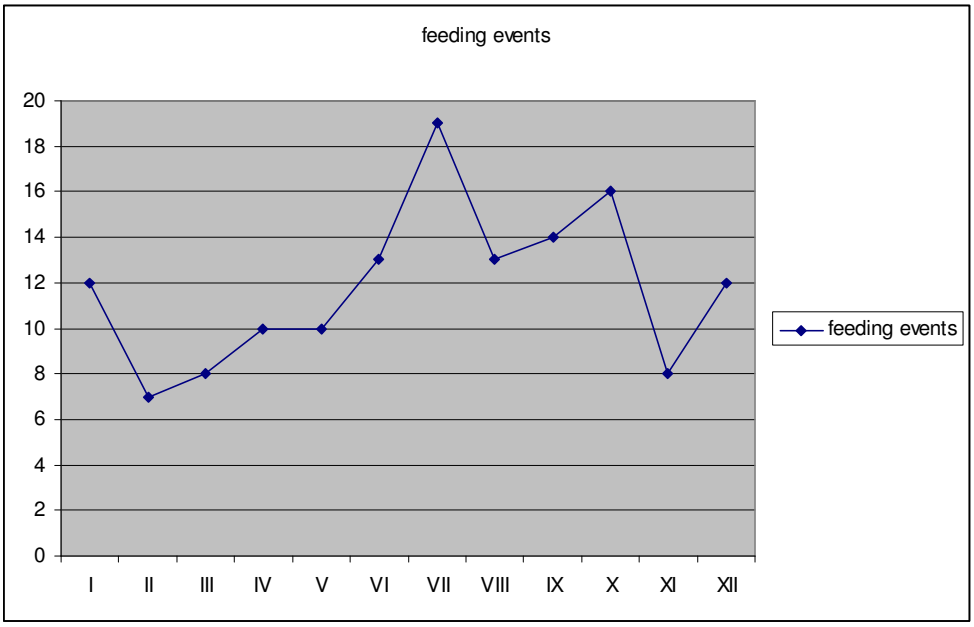
Urgent Conservation actions

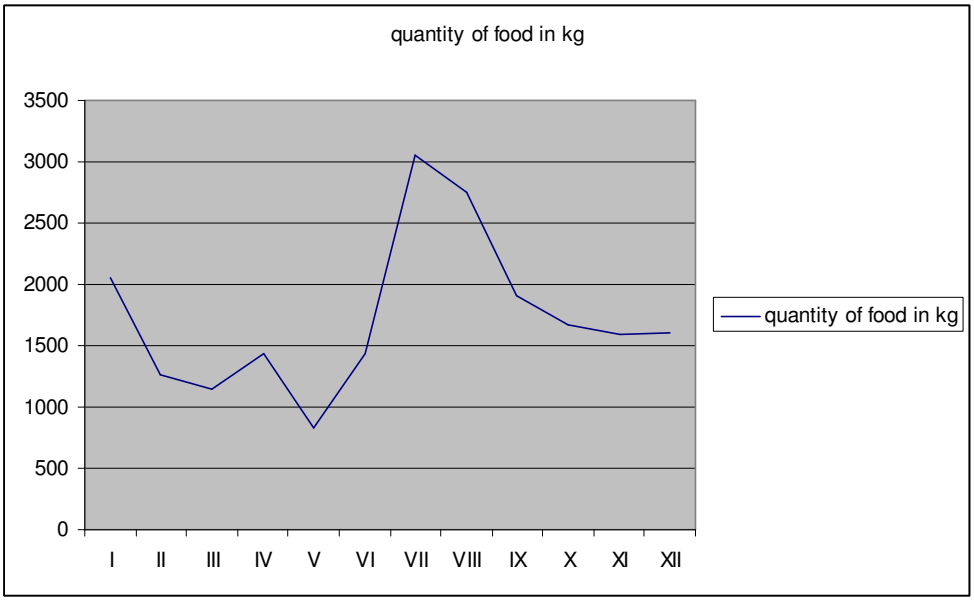
As such actions we recognize those providing an immediate effect and are not necessarily sustainable, but increasing the extinction time of a threatened species. Such actions may be implemented for endangered species to support them increase at least to a better conservation status or until any sustainable 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 etc.

Feeding

In 2014 we continued to organize feeding of vultures at minimum 2 to 3 times a week. About 21 tons of carcasses were deposed in 142 events at the feeding site in 2014. This has proven

to be the most important factor for attachment of the formed group released in 2012 and the new released birds in 2013 and 2014 in the area. Corpses of dead animals collected in the villages around the Gorge were used to feed the vultures. The feeding site was recognized by the State and municipal authorities as an official dump site for dead animals from the "blue tongue" disease, which outbreak across the country in 2014 brought a crisis in the official (non conservation) carcass collection and incineration. When larger animal corpse was available during the summer months, meat was preserved in a freezer and disposed in smaller quantities more frequently. 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.





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

Along with direct vulture re-introduction actions we continue the work on re-introduction of the Fallow Deer *Dama dama* as a natural food source for wolves and vultures. Having this species back into the nature of Kresna Gorge, it is believed the depredation over livestock and the consequent man/predators conflict will be minimized. Thus food for vultures will be available and no poison baits used. Also sheep and goats and cattle herds have been established and the livestock is grazed into the Gorge to maintain the habitat for tortoises, hares, and finally for vultures.
The Fallow Deer is considered native to Bulgaria (IUCN Red List 2014), the habitat in Kresna Gorge is very much suitable for the species and having in mind the general shortage of natural grazers as well as village abandonment, FWFF considers the reintroduction of the species in the area as good conservation tool.

In 2014 four offspring were produced from the four Fallow Deer hinds in the fenced sanctuary of FWFF. With this the number of the Fallow Deer is now 12 (4 stags, 4 hinds and four offspring). Release will be started when the herd number reach 50. This could be achieved sooner if some more animals are obtained from other breeding facilities.

In the meantime the interest of hunters and other local people for game keeping is increasing and our initiative seems successful in terms of increasing the interest and the support of the reintroduction of the Fallow Deer in the area.

Against poison activities

Started back in 2003 the FWFF continues to implement the Livestock Prevention and Compensation Programme (Stoynov & Peshev 2014) in order to create a tool for action to reduce conflict between the farmers and the predators. It now appears that the Programme could not solve the Man-Wolf conflict or to change the peoples' attitude towards predators, but it is a good tool to keep an eye and to moderate the possible revenge actions e.g. poison baits use that may come out as a consequence.

However, with the changing economic situation after heavy urbanisation and joining the EU in the last decade, some adaptations are needed as needed:

- the holdings are now getting bigger, and less people are rearing more livestock. This is good in terms of having less people to work with. On the other hand these are professionals and they could apply most of the necessary measures to support livestock.

To avoid human/predators conflict our team analyzed the reasons for livestock depredation and started to promote shifting from sheep and goats rearing to cattle in certain areas with permanent predator attacks over livestock (STOYNOV et al. 2013). To easy the process of finding suitable autochthonous breeds for such terrain FWFF established its own cattle herd of 30 rare Bulgarian Grey and Short –Horn Rhodopean Cattle, that are very much suitable for that, but hard to find. As a prove to the results shown in the paper "How to avoid livestock depredation by wolf- theories and tests", the FWFF cattle herd has not been affected by wolf depredation in 2014, although in the nearby area quite some depredation of sheep and goats and free ranging calves were reported.

In 2014 the wolf population and consequently the man/predator conflict is still a serious problem for vultures along Struma Valley. This keeps the risk of poison baits use high. A special study from Dutch internship students in the project was conducted to find out the size and the reasons for the man-wolf conflict. The results are not yet available, but good outcome from direct contacts of the project team members with the livestock breeders is the creation of friendship and increase of communication that leads to mutual understanding.

Overview

With the release of well attached to the area groups of immature Griffon Vultures in 2012, 2013 and 2014 and with intensive feeding and thus attracting more and more exogenous birds the Kresna Gorge is now a host of more than 20 permanently occurring and more than 100 passing, wintering or summering Griffon Vultures. Kresna Gorge continues more nad more seriously plays the important role of "stepping stone" site for the vultures in this part of the Balkans.

The releases of immature Griffon Vultures should continue with at least 10 birds per year until natural colony is established and start producing ten juveniles per year.
In the meantime the colonies of the Griffon Vulture in FYR Macedonia should be supported through establishment of at least one well supplied feeding site, as the area now plays the role of an ecological trap. The efforts of the Nature Conservation Association Aquila in Kavadartsi to keep working the feeding site in FYR of Macedonia should be encouraged. With increasing of food supply at the feeding site on Vitachevo in FYR Macedonia it is very likely that some birds from Kresna Gorge that reach maturity to move there for breeding. This will boost the population there and it will hopefully recover to a size that would one day play the role as source population for re-population of Struma River Valley in Bulgaria and eventually the area of Serres in Greece when the long-term conservation measures produce results.

The permanent feeding two to three times a week seems very important to fix the birds in the area and it should continue until stable colony of about 10 pairs is established.
The spontaneous return of Black Vultures should be boosted with starting releases of captive bred and/or rehabilitated birds in Kresna Gorge as soon as possible.

As much as possible 20 kV power-line pylons should be safeguarded for birds in Kresna Gorge. The Electricity companies should be encouraged to take action on their own.

The actions for establishment of wild population of Fallow deer and establishment of extensive raised sheep and cattle herds should continue.

Since the Ravens *Corvus corax* and Golden Eagle *Aquila chrysaetos* are not disturbing the Griffon vultures as severely as we reported previous years (may be because the first got used with the later and the later got more experienced to avoid interactions), establishment of the two more feeding sites along the Kresna Gorge should be postponed to avoid dispersal of the Griffon and Egyptian Vultures thus avoiding the risk of poisoning in a wider less controlled area.
Instead 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 there lesser risk of poisoning or electrocution exists.

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 implemented.

Acknowledgements

Since June 2012 the action is supported by the LIFE+ financial instrument of EU within the project “Conservation of Birds of Prey in Kresna Gorge” LIFE11NAT/BG/363, and is co-financed by Friends of Vienna Zoo, Austria and Bioparc Zoo de Doue, France.

At the pre-release stage the project was financially supported by:
Deutche 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; Zoo Sainte de la Croix, and others.

We are grateful to GREFA and Spanish Government for the Griffon Vultures provided for release.
We are grateful also to Bioparc Zoo de Doue, Zoo Mulhouse and Zoo Sainte Croix from France for the provided Griffon Vultures for release.

We are also grateful to all colleagues and nature lovers that provided information for observed Griffon Vultures: Sergey Panayotov; Stefan Kostov – Mayor of Rakitna; Blagoi Stefanov- Mayor of Brezhani; Hristo Milev- Mayor of Mechkul; Stefan Avramov- BBF; George Stoyanov - BPPS; Elena Kmetova- Green Balkans; Lachezar Bonchev – FWFF; Todor Georgiev and Blagoi Simov- Pirin National Park authority; Theodora Skartsi – WWF Greece, Dadia Project; Marin Kurtev – BSPB; Dr. Atanas Grozdanov- Sofia University; Rosen Aleksov – RIEW Blagoevgrad; Goran Susic – Grifon - Birds of prey conservation centre, Croatia; Sasha Marinkovich and Irena Hrisbek – Birds of Prey Protection Fund, Serbia, Ohad Hatzofe – NPA, Israel, Club Adventure.net, Hans Wilpstra and Milos Van Leest – students from VHL University, Holland.

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