THE RETURN OF THE NEOPHRON

The Egyptian vulture on the Balkans and along the migration road

September 2016, Issue VI
1. WHAT IS HAPPENING ON THE PROJECT? 1
2. STATUS OF THE BALKAN POPULATION OVER THE LAST 30 YEARS 1
3. HIGH JUVENILE MORTALITY DURING MIGRATION 2
4. HEALTHY JUVENILES IN BULGARIA AND GREECE 3
5. THREAT OF GENETIC DRIFT IN THE BALKANS 3
6. MORTALITY CAUSES OVER THE LAST 20 YEARS 4
7. CURRENT THREATS IN PROJECT AREAS 5
8. REASONS FOR BREEDING FAILURES 5
9. THOUSANDS OF DANGEROUS PYLONS IN EGYPTIAN VULTURE BREEDING AREAS 6
10. THE CRISIS IN HISTORICAL SMALL-SCALE FARMING MAY HAVE A NEGATIVE IMPACT ON VULTURESE 7
11. AGRI-ENVIRONMENTAL (AE) MEASURES IN BENEFIT FOR THE EGYPTIAN VULTURE 7
12. CRITICAL SITUATION IN GREECE REGARDING THE ILLEGAL USE POISON BAITS 8
13. GREEK ANTI-POISON DOG UNITS IN ACTION 8
14. THE EGYPTIAN VULTURE SCHOOLS CONTINUE THE FIGHT AGAINST POISONED BAITS 9
15. INDIVIDUAL SUPPLEMENTARY FEEDING 10
16. NEST GUARDING 10
17. WHO AM I 11
18. DIY EGYPTIAN VULTURE BROOCH 12
WHAT IS HAPPENING ON THE PROJECT?

The Egyptian vulture is one of the most steeply declining birds in Europe and in the World. However, it is impossible to save this emblematic species without the knowledge on the factors threatening its survival. The current issue of the Newsletter “The Return of the Neophron” reveals the results of a broad research we conducted to better understand the potential drivers behind the negative trend in population numbers and range in Bulgaria and Greece. This knowledge is a stepping stone towards the development of more effective conservation approach to secure the survival of the species on the Balkans.

Stoyan Nikolov
(Project Manager)

STATUS OF THE BALKAN POPULATION OVER THE LAST 30 YEARS

The Egyptian Vulture has been classified as ‘Endangered’ due to a rapid population decline in India and long term declines in Europe and Africa. Although the species has been reported to be declining in Eastern Europe, no quantitative assessment of the magnitude or the causes for population declines are available. We used monitoring data from the Balkan Peninsula to estimate changes in population size and extent of occurrence of Egyptian Vultures between 1980 and 2013. We quantified population trends in three countries (Bulgaria, Greece and the former Yugoslav Republic [FYR] of Macedonia) to assess whether population declines are similar within the Balkan range states. We found a rapid and consistent decline of the Egyptian Vulture population that was largely similar among the three countries ($\lambda = 0.940$ in FYR of Macedonia, 0.951 in Bulgaria, 0.920 in Greece). As a consequence of population declines, the breeding range of Egyptian Vultures has contracted and the population in the Balkan Peninsula has...
fragmented into six subpopulations separated by more than 80 km. Population declines may be driven by factors such as poisoning, electrocution, direct persecution and changes in food availability which operate at large spatial scales and affect birds both on breeding grounds as well as during migration and wintering. Because the relative importance of threats to the survival of Egyptian Vultures are poorly understood, there is a critical need for research into causes of mortality and potential conservation actions that may halt and reverse population declines. [PDF]

**HIGH JUVENILE MORTALITY DURING MIGRATION**

Many populations of long-distance migrants are declining and there is increasing evidence that declines may be caused by factors operating outside the breeding season. Among the four vulture species breeding in the western Palaearctic, the species showing the steepest population decline, the Egyptian Vulture Neophron percnopterus, is a long distance migrant wintering in Africa. However, the flyways and wintering areas of the species are only known for some populations, and without knowledge of where mortality occurs, effective conservation management is not possible. We tracked 19 juvenile Egyptian Vultures from the declining breeding population on the Balkan Peninsula between 2010 and 2014 to estimate survival and identify important migratory routes and wintering areas for this species. Mortality during the first autumn migration was high (monthly survival probability 0.75) but mortality during migration was exclusively associated with suboptimal navigation. All birds from western breeding areas and three birds from central and eastern breeding areas attempted to fly south over the Mediterranean Sea, but only one in 10 birds survived this route, probably due to stronger tailwind. All eight birds using the migratory route via Turkey and the Middle East successfully completed their first autumn migration. Of 14 individual and environmental variables examined to explain why juvenile birds did or did not successfully complete their first migration, the natal origin of the bird was the most influential. We speculate that in a declining population with fewer experienced adults, an increasing proportion of juvenile birds are forced to migrate without conspecific guidance, leading to high mortality as a consequence of following sub-optimal migratory routes. Juvenile Egyptian Vultures wintered across a vast range of the Sahel and eastern Africa, and had large movement ranges with core use areas at intermediate elevations in savannah, cropland or desert. Two birds were shot in Africa, where several significant threats exist for vultures at continental scales. Given the broad distribution of the birds and threats, effective conservation in Africa will be challenging and will require long-term investment. We recommend that in the short term, more efficient conservation could target narrow migration corridors in southern Turkey and the Middle East, and known congregation sites in African wintering areas. [PDF]

Map of juvenile Egyptian Vulture autumn migration and winter movements for 19 birds tracked from breeding areas in the Balkans in 2010 – 2014. Red lines reflect birds with successful autumn migration, black lines reflect birds that did not survive their first autumn migration.

Map of 50% and 95% utilisation distributions of 9 juvenile Egyptian Vultures tracked with satellite transmitters from breeding areas in the Balkans in 2010 – 2014 during their first 1.5 years in sub-Saharan Africa.
HEALTHY JUVENILES IN BULGARIA AND GREECE

Poor health condition resulting from the use of pesticides, antibiotics and other veterinary products, contamination with heavy metals and different diseases, was suspected as one of the main drivers for the decline of the Balkan population of Egyptian vulture in the breeding grounds. To understand more on this critical issue, a total of 182 samples (36 blood samples for toxicology, and 146 samples from throat, cloaca, and eye for pathogen analysis) from a total of 49 individuals (mainly fledglings) collected in 2012-2013 from different Egyptian vulture territories from Bulgaria and Greece were analysed. The analyses performed suggest that the juveniles sampled were in good health condition during the period of sampling – not affected by any pathogen or toxic substances. While this does not allow us to extrapolate to the whole of the Balkans, and for other periods of time, it suggests that wildlife disease and cumulative intoxication with heavy metals (including lead), and with toxic compounds from agriculture or veterinarian practices may not be a significant threat to juvenile Egyptian Vultures in Bulgaria and Greece. [PDF]

THREAT OF GENETIC DRIFT IN THE BALKANS

A genetic study of the Balkan and Turkish Egyptian vulture populations was conducted to assess the contemporary and past genetic patterns and better calibrate the impact of genetic factors on population viability. Samples were collected from 42 contemporary (2010 – 2013) and 18 museum specimens (dated as far back as 1853 and distributed throughout the 19th and 20th centuries) in Bulgaria, Greece and Turkey. Obtained results support that Balkan population is differentiating from the historical one more quickly than the Turkish population. Given this, it would be feasible to reinforce the Balkan population with birds from Turkey, but this type of active management cannot be approached without addressing the main causes of population decline, and taking into account potential negative effects associated with the movement of animals between isolated breeding nuclei. Under this scenario, and not only due to genetic constraints but also demographic factors, the maintenance of the Balkan population seems to be extremely precarious and extinction may be unavoidable within a few decades without urgent conservation measures undertaken to stop the main limiting factors associated with non-natural mortality and negative effects of genetic drift. Thus, management programs should include
MORTALITY CAUSES OVER THE LAST 20 YEARS

Since 1997, a total of 73 dead Egyptian Vultures have been recorded, out of which in 61 cases the reason of death has been confirmed or the source considered reliable. Human-induced reasons of death were more frequent (57%) than natural reasons (18%). The most frequent human induced reason of death was poisoning (86%) followed by direct persecution (8%) and electrocution (6%), while the most frequent natural causes of death were predation (36%) and bad health condition (27%). Recent situation (2012-2015) shows again higher frequency of human-induced mortality (39%) compared to natural causes (29%). However, the ratio of natural mortality causes seems to be relatively higher than in the past period (since 1997), probably because of more intensive nest monitoring allowing for the detection of dead juveniles in the nest. Since 1997, most of the individuals found dead were adults (61%), followed by mortality in the nest (hatchlings and fledglings, in total of 19%) and juveniles (15%). Overall analysis (1997 – 2015) by country (Bulgaria vs Greece) indicates similar rates of mortality causes (mainly poisoning, with 15 dead individuals in each country), although there seems to be more evidence of direct persecution in Bulgaria with three known cases, whereas there are none in Greece. Analysis of data from recent time (2012 – 2015) shows a larger amount of poisoning cases in Greece (seven in Greece but only two in Bulgaria, but more cases of direct persecution and electrocution in Bulgaria (two in Bulgaria, none in Greece). [PDF]
CURRENT THREATS IN PROJECT AREAS

We aimed to assess the major threats for the Egyptian vulture in all 27 project sites of the NATURA 2000 network, and also to evaluate the effect of the project on the mitigation of the species’ major threats. In total nine threats for the Egyptian vulture were identified as the most significant in the project sites. The most frequent and severe threat was illegal poisoning present in 26 of the 27 studied NATURA 2000 sites (96%).

Food shortage (i.e. decrease of livestock and closing dump sites) was considered the second most frequent threat, identified in 12 spas (44%), followed by disturbance, in 10 spas (37%). Habitat heterogeneity loss, in 9 spas (33%) and wind farms, in 2 spas (7%) were considered as major threats only in Greek project sites, while illegal shooting identified in 8 spas (30%) and nest robbing, in 6 spas (22%) were recognized as major threats mainly in Bulgaria.

REASONS FOR BREEDING FAILURES

The study was conducted in the period 2006-2015 for Bulgaria and 2011-2015 for Greece based on the observations compiled through the implementation of the monitoring activities of Egyptian vulture breeding territories in both countries, the nest guarding programme and the use of camera devices (trail cameras) installed in selected nests. The average percentage of unsuccessful pairs per year in Bulgaria and Greece was 38% (n = 366 breeding attempts), with 37% per year for Bulgaria (for a period of 10 years) and 48% for Greece (for a period of 5 years). In total, 54% of unsuccessful pairs (n = 132) did not initiate breeding attempt at all, while 46% initiated a breeding attempt but failed in different stages of the breeding period. In 54% (n = 61) reasons for breeding failure remained unknown, for 26% the reason for breeding failure was evidenced, and for 20% the reason was suspected based on expert’s opinion. For both evidenced (n = 16) and suspected (n = 12) causes for breeding failure, natural causes were much more frequent than human-induced causes. In the case of known causes of breeding failure (n = 16), natural drivers were represented by lack of experience in pairs (25%), predation (25%), diseases (12.5%) and weather conditions (6%), while in the case of human-induced causes they were represented by persecution (19%; registered only in Bulgaria and aiming at nest robbing and taxidermy) and poisoning (12.5%). In terms of the period, ca. 60% of the failures occur during incubation stage.
In Bulgaria (2006-2015), the lack of experience in pairs was the most frequent natural cause (40%, n = 10), followed by diseases (20%) and bad weather conditions (10%), while persecution (30%) was the most frequent human-induced cause for breeding failure. In Greece (2011-2015), most of the evidence collected (67%; n = 6) was related to natural causes for breeding failure (predation of chicks), while only 33% referred to human-induced causes (mainly poisoning of adults). [PDF]

Electrocution was identified as one of the main threats for the steeply declining Balkan population of the Egyptian vulture. To mitigate the threat by providing relevant information for insulation of the most dangerous pylons for vultures, mapping and risk assessment of electricity pylons were conducted in active and recent breeding territories of the species in Bulgaria (29) and Greece (11) in 2012 and 2013. All electricity pylons in the medium voltage (20 kV) electricity network within a buffer of 5 km around targeted Egyptian vulture nests were mapped – in total 9,496 pylons along more than 1,000 km power lines (7,071 pylons along more than 700 km power lines in Bulgaria and 2,425 pylons in Greece along more than 200 km power lines). Risk of electrocution was assessed for all mapped pylons and sensitivity maps were produced. A total of 5,572 pylons were identified as critically dangerous to birds (4,023 in BG and 1,549 in GR) and out of them 1,283 pylons in Bulgaria and 1,524 pylons in Greece are strongly recommended for insulation in the near future. Additionally, 4,643 pylons were mapped in one of the main congregation sites of the species in Eastern Africa and out of them 3,728 pylons were identified as dangerous to birds. [PDF]
THE CRISIS IN HISTORICAL SMALL-SCALE FARMING MAY HAVE A NEGATIVE IMPACT ON VULTURESE

We studied 87 different territories and breeding performance of 376 territorial pairs between 2003 and 2014. The overall territory occupancy rate was 69% and a mean productivity was 0.80 fledglings per occupied territory. We examined which of 48 different environmental variables were most influential in explaining variation in territory occupancy and breeding success using algorithmic random forest models. Territory occupancy is best explained by food availability, geographic structure, and nesting opportunities, while breeding success is best explained by the number of adjacent villages, topography, and nesting opportunities. Additionally in several buffer zones (1 km, 5 km and 30 km) the physical characteristics of 110 nests in 84 Egyptian vulture territories in Bulgaria and Greece are investigated, and a GIS tools are used to describe the landscape features and composition in Egyptian vulture territories. 74% of the Egyptian vulture nests are situated in caves while only 26% are situated on cliff ledges, and the majority of the nests are up to 10 m in height. The mean height of the cliffs that the species occupy is 32.05m and can range between 6m and 340m in height. Additionally the length of the breeding cliffs varies from 5m to 5300 m with a mean length of 371.09 m. The landscape composition consists of variety of habitats but mostly forests, arable lands and pastures, both in Bulgaria and Greece. The report recommends a complex management aiming at adoption of large-scale landscape conservation programs that retain or restore historical small-scale farming practices which may benefit vultures and other biodiversity. [PDF]

AGRI-ENVIRONMENTAL (AE) MEASURES IN BENEFIT FOR THE EGYPTIAN VULTURE

Until the end of 2015, within project areas farmers applied in total for 2,279.08 ha under AE measure 214 and Agroecology and climate measure 10 and for 93,669.71 ha under AE measure 213 and Payments in Natura 2000 measure 12. So far, over 1,400 farmers have submitted applications, out of them 40 farmers directly helped by the project.
CRITICAL SITUATION IN GREECE REGARDING THE ILLEGAL USE POISON BAITS

Despite being banned since 1993, the use of poison baits is a common practice in Greek rural areas threatening with extinction a long list of protected species. Antipoison Task Force (APTF) was created aiming to lobby for proposals and changes in the legal framework to effectively prevent this practice, as well as increasing public awareness both at local and national levels. The analysis of the poisoning events recorded (163 events in the period 2012-2015) showed that on most occasions (61%) the motives remain unknown, while in rest of the cases the disputes among stakeholders are the most common reason for poising events (10%), along with the control of “vermin species” (14%). Wide variety of types of poison baits is used depending on the targeted species, and a wide range of chemical substances are used, usually legal or banned pesticides such as organophosphates, organochlorine and carbamate insecticides. Cyanide baits covered with wax are also commonly used. The existence of a widespread black market of illegal pesticides all over Greece has been proven, as Carbofuran and Endosulfan (both banned), are in fact the most common pesticides detected together with Methomyl (legal). Scavenger bird species are the wildlife group most affected by the use of poison baits (30% of all poisoned animals), while amongst domestic animals, working dogs (shepherd dogs 20% - and hunting dogs – 19%) are also severely affected by this practice. About 20% of the poisoning events recorder took place in protected areas. Since 2012, at least six Egyptian vultures have been poisoned (national population is estimated to be less than 10 breeding pairs). The European commission has started an infringement procedure against Greece due to the mass poisoning event in Nestos Gorge in February 2012 which wiped out a whole colony of griffon vultures and the local breeding population of Golden eagle. Beyond the negative impacts on protected wildlife species, the illegal use of poison baits is an extremely complex problem which has deep socio-economic implications. The situation in Greece regarding poison baits can be described as critical. An integrated National Strategy against the use of poison baits, supported by a National Action Plan, is needed in order to effectively address this problem. [PDF]

GREEK ANTI-POISON DOG UNITS IN ACTION

The poisoned baits are considered the main threat and cause of death of Egyptian vulture. In the frame of the project, in March 2014 in Central Greece and Thrace two anti-poison dog units were created. Their goal is a control and timely removal from the countryside poison baits and animals that might cause additional poisoning. The Anti-poison dog units patrolled the countryside, in areas regularly used by Egyptian vultures and other two vulture species, the griffon and black vulture. Summarizing the work of the two canine teams for two years (2014 & 2015) a total of 155 patrols have been carried out covering 376 km (by the handlers). In 35 of them, 66 poisoned animals and 52 poisoned baits have been located. The most common species found poisoned was the...
dog (shepherd and/or hunting dogs), with a total number of 45 dead individuals (68.2% of the findings), followed by the fox with 13 dead individuals (19.7% of the findings). 77% of the poisoning incidents occurred during the period when the Egyptian vulture is present in Greece. In conclusion, the Anti-poison dog units have proved to be an innovative and effective prevention action that has contributed to throw some light on the extent of the illegal use of poison baits. In addition, this action has also potentially saved from certain death many scavenger birds and mammals, including that of the globally threatened Egyptian vulture. [Report for 2014 - PDF] [Report for 2015 - PDF]

THE EGYPTIAN VULTURE SCHOOLS CONTINUE THE FIGHT AGAINST POISONED BAITS

For a fourth consecutive year students tried to sensitize the local people and stakeholders for the protection of the Egyptian vulture. 120 students demonstrated with their own unique way the great need to protect the species that it is on the brink of extinction. On 5 April, students from the primary and secondary school of Tychero have been at Gerakina top and with great enthusiasm they left their own imprint. This year, they visited the view points from where they observed “their birds” in their nests and wished them good luck!

Furthermore, the students of Tychero primary school and Iasmos highschool with the help of art teachers gave space, color, breath and vitality to their favorite feathered friend. Their own Egyptian vulture decorates anymore the external wall of their schools giving hope to a better future for the species.

WWF Greece conducted school activities in collaboration with Maronia and Soufli Environmental Centers with fellows the 5 schools of Evros and Rodopi (Soufli, Tychero and Iasmos highschools and Tychero and Sapes primary schools).
INDIVIDUAL SUPPLEMENTARY FEEDING

During project implementation, an average of 16 pairs of Egyptian vultures regularly received safe food during the breeding season each year. The average productivity in 2014 and 2015 was higher than the before project baseline and compared to the average productivity during the first two years of project implementation – 2012 and 2013. The maximum number of food deliveries reached 107 per year just for one pair. Food was delivered to specially selected places or close to the nest. Average amount of safe food provided per nest was 62 kg per year. About 15 local collaborators each year helped for the implementation of this action. Individual supplementary feeding is not advisable in cases when targeted pairs have many neighboring competitors around such as ravens and griffon vultures. A change in the feeding place is an option to be considered. Collection of data about how often the birds eat and how much of the food provided they consume is essential to study some aspects of their biology such as diet, productivity and behaviour. [PDF]

NEST GUARDING

This programme and aimed to prevent direct threats to Egyptian vulture nests such as disturbance, nest robbing and persecution, and as added value, to collect data on the biology and ecology of the species. In average 15 pairs (or 50% of the pairs with clutch) in Bulgaria and Greece were guarded annually (2012 – 2016). The project ensured personal guard in average of 69% of the chicks since 2012. Seven juveniles were saved by nest guardians, improving species productivity with 5.7%. Six fatal disturbances of breeding Egyptian vultures were prevented. More than 30 people were involved in the nest guarding programme each year, including many volunteers from foreign countries (e.g. Lithuania, Canada, USA, Rumania, Germany, France, etc.). [PDF]
WHO AM I

Iordanka Goranova-Lukanova, Communication officer BSPB

I have always believed in the power of the word. Of its great potential to be a spark for both good and terrible events. It is the word that leads us to wars and destruction; it is the word that makes us turn our back on our own humanity and uncovers the most savage parts of our nature. In this sense, the popular voodoo beliefs in Africa, that body parts of the Egyptian vulture can be used as remedies and wards against magic, is a word of devastation. The result of which is the complete obliteration of the species in Niger.

But more than anything, I believe in the word that mends - the word that awakens us and brings new life. I want to spread the word of saving a species. Help me tell the story of the Egyptian vulture - the bird of the Pharaohs, the “White Father”. For the gentle breeze of his wings is a fair wind for our own salvation.

Roula Trigou, Senior Conservation Communication Officer – HOS/BirdLife Greece

My “relationship” with the Egyptian Vulture comes in parallel with the one with the HOS, when I first saw them in 1995 during a hiking trip in Meteora. In those days, the Egyptian Vulture was a common species to spot. Two decades after, the once common bird became rare, and I, as a member of the HOS Conservation Department, had to face a challenge, common for all the team: safeguard the last remaining couples in Greece.

I spend most of my time raising awareness in local and national level on our beloved Cuckoo’s horse (Egyptian Vulture), as well as implementing environmental education activities. I believe that any successful conservation project like “The Return of the Neophron” needs public support and participation, and in my daily work I make sure that HOS does just that. Somewhere in between leaflets, media work and public awareness events, I always try to find some time to join the rest of the team for fieldwork and birdwatching.

The best thing about my job is working with various target groups, from livestock breeders to school pupils and local citizens, empowering and encouraging them to change current practices. Getting them to know the Egyptian Vulture so that caring for it comes naturally and then… miracles happen.
DIY EGYPTIAN VULTURE BROOCH with Elzbieta Kret

After spending a lot of hours in the field and observing this amazing bird, I was inspired to create an Egyptian vulture brooch. If you have black, white and a bit of yellow felt, a few poly fiberfill, a brooch clasp and some floss, you can make one too. It’s so easy!

To make this Egyptian vulture brooch you will need:
- a needle, a pin, scissors, and an Egyptian vulture shape (draw your own or print the template from this post), a few poly fiberfill
- black, white and yellow felt
- white, yellow and black thread
- a brooch clasp or safety pin

1. Pin the Egyptian vulture templates to the black, white and yellow felt. Cut carefully: twice the black, bigger part of the bird and once the white, smaller part which goes on the top. Then cut the yellow bill.
2. Remove the pin and place the white part on the one black felt, pin them in place and carefully sew them together using white thread. Then sew the yellow bill using yellow thread.
3. Take your remaining felt piece (the second black part of the body) and sew a brooch clasp or safety pin to it using a black thread.
4. Now you need to sew together the top part with the other black part with a brooch clasp using black thread. Before you finish leave a gap in order to stuff the brooch with poly fiberfill (until the body is hard) and then continue to sew it and at the end knot the floss.

That’s it and you have your own Egyptian vulture!
LIFE+ Project “THE RETURN OF THE NEOPHRON ” LIFE10 NAT/BG/000152

www.LifeNeophron.eu